

NON-CONFIDENTIAL

1 **Request IR-1:**

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3 **With respect to DE-03 – DE-04, page 7 of 159, Lines 25-26,**

4 **a) Are the beneficial tax deductions which disappear in 2013 and 2014 related to**
5 **renewable investments that are made in those years, or to renewable investments**
6 **made in prior years?**

7 **b) Please provide a table comparing the capital cost allowances permitted for**
8 **renewables in the first five years after construction as they were in 2010 with what**
9 **they are anticipated to be in 2013.**

10

11 **Response IR-1:**

12

13 (a) The beneficial tax deductions, which are significantly reduced in 2013 and 2014, are in
14 relation to renewable investments made in prior years.

15

16 (b) Please refer to Attachment 1.

Renewable Wind Projects CCA Calculation
\$M's

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
UCC Opening					
Class 17	-	9.2	8.5	7.8	7.2
Class 43.2	-	133.6	67.6	32.7	16.1
Eligible capital	-	0.8	0.8	0.7	0.7
Adjustment to Opening: NS Energy Tax Credit	-	(2.3)	(1.5)	(0.5)	-
Additions					
Class 17	9.6	-	-	-	-
Class 43.2	178.1	2.6	(0.4)	-	-
Eligible capital (@75%)	0.9	-	-	-	-
Available for CCA					
Class 17	4.8	9.2	8.5	7.8	7.2
Class 43.2	89.1	132.6	65.9	32.2	16.1
Eligible capital	0.9	0.8	0.8	0.7	0.7
CCA					
Class 17 (8%)	0.4	0.7	0.7	0.6	0.6
Class 43.2 (50%)	44.5	66.3	32.9	16.1	8.1
Eligible capital	0.1	0.1	0.1	0.1	0.0
Total CCA	45.0	67.1	33.7	16.8	8.7
Ending UCC					
Class 17	9.2	8.5	7.8	7.2	6.6
Class 43.2	133.6	67.6	32.7	16.1	8.1
Eligible capital	0.8	0.8	0.7	0.7	0.6

Note: 2010 additions are per the 2010 tax return.

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1 **Request IR-2:**

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3 **With respect to the 2010 FAM deferral plan referenced at Line 27 on page 8 of DE-03-DE-**
4 **04, please provide the initial amount of the deferral approved by the Board, the amounts**
5 **recovered in 2011 and 2012, and the amounts that, in the absence of the proposed Rate**
6 **Stabilization Plan, will be recovered in 2013 and 2014.**

7

8 Response IR-2:

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10 In the Board's Decision, 50 percent of the \$105.8 million rate impact for 2010 was deferred.¹
11 This resulted in a deferral of \$52.9 million of which \$31.7 million was deferred for recovery in
12 2012 and \$21.2 million was deferred for collection in 2013.

13

14 For the 2012, 2013 and 2014 FAM Actual Adjustment and Balance Adjustment (AA/BA)
15 amounts please refer to Appendix M of the Application. The deferral amounts from 2010 are a
16 portion of the overall BA amounts that are being collected in 2012 and 2013.

¹ NSPI 2011 FAM AA/BA, UARB Decision, NSUARB-NSPI-P-887(2), December 8, 2010, paragraph 26.

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1 **Request IR-3:**

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3 **With respect to DE-03 – DE-04, page 9 of 159, Lines 6-7, is it anticipated that the shortfall**
4 **recovery in 2015 will be equal to the Section 21 amounts that will be removed from revenue**
5 **requirements?**

6

7 Response IR-3:

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9 Yes, the Section 21 amounts then in rates will match the amount necessary to recover the Rate
10 Stabilization Plan Deferral over eight years, the same time period as for Section 21 Tax recovery,
11 if the amount is not in excess of \$110 million.

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1 **Request IR-4:**

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3 **With respect to Figure 1-1 on page 10 and Figure 1-2 on page 11, please confirm that these**
4 **results are derived in Appendix M.**

5

6 Response IR-4:

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8 Confirmed.

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1 **Request IR-5:**

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3 **With respect to Appendix M,**

- 4 **a) Please provide the Excel version of this Appendix.**
- 5 **b) Are the 2012 FAM AA amounts in Column C on page 1 the differences between fuel**
6 **costs expected to be collected in rates in 2011 and the actual fuel costs by class for**
7 **2011? If not, please explain what they are.**
- 8 **c) Are the 2012 FAM BA amounts in Column D on page 1 the differences between the**
9 **2010 AA that was expected to be collected in 2011 and the amounts that were**
10 **actually collected in 2011? If not, please explain what they are.**
- 11 **d) Please explain how Column H on page 1 is calculated.**
- 12 **e) Please explain the basis on which the 2013 BA in Column N on page 1 is calculated.**

13
14 **Response IR-5:**

- 15
16 (a) Please refer to CA IR-46 and CA IR-47.
- 17
- 18 (b-c) The expected FAM Actual Adjustment and Balance Adjustment (AA/BA) amounts to be
19 collected in 2012 are reflective of three adjustments.
- 20
- 21 • The actual fuel cost obligation from 2011 to be collected under the 2012 FAM
22 AA has been reduced by the 2010 Tax Deferral Rebate of \$14.5 million.
 - 23
 - 24 • The combined fuel costs to be recovered by the 2012 FAM AA and BA have been
25 reduced by another \$1.0 million due to special adjustments made by NS Power to
26 the FAM rider calculations in its Reply Submission made on November 25, 2011.
 - 27

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- 1 • The outstanding fuel cost responsibilities of NewPage Port Hawkesbury (NPPH)
2 of \$6.5 million under the 2012 FAM BA and \$3.4 million under the 2012 FAM
3 AA have been reallocated to all FAM rate classes.

4
5 Please refer to Attachment 1 for details.

- 6
7 (d) The increase (%) over the total cost of power (Column H) is calculated by dividing the
8 increase in proposed base cost rate revenues (Column G) by revenue at current rates
9 including 2012 AA/BA (Column E).

- 10
11 (e) At the time of the GRA filing, the 2013 FAM BA was forecast to be \$29.2 million. This
12 figure is comprised of \$21.1 million of deferred FAM amount from the 2011 FAM AA
13 proceeding, the \$3.6 million arising from the difference between forecast 2012 FAM AA
14 collections in 2012 and the actual fuel cost under-recovery in 2011, and a balance of \$4.5
15 million of interest expense.



energy everywhere.™

November 25, 2011

Nancy McNeil
 Regulatory Affairs Officer/Clerk
 Nova Scotia Utility and Review Board
 1601 Lower Water Street, 3rd Floor
 PO Box 1692, Unit "M"
 Halifax, NS B3J 3S3

Re: **NSPI 2012 Fuel Adjustment Mechanism Actual Adjustment (AA) and Balance Adjustment (BA) – P-887(3)**

Dear Ms. McNeil:

Please accept this letter, filed on behalf of Nova Scotia Power Inc. (NSPI, the Company), as the Reply to Intervenor Submissions in respect of the Fuel Adjustment Mechanism (FAM) AA and BA amounts for 2012, which were filed with the Board on November 10, 2011.

NSPI agrees with the conclusions and recommendations presented in the evidence of Board Consultant, The Liberty Consulting Group (Liberty). Liberty supports NSPI's filing as well as accurately describes the scope of the FAM AA/BA proceedings and the processes/tools available to parties for resolving substantive FAM issues. As Liberty confirms, prudence reviews are properly addressed as part of the audit process described in the FAM Plan of Administration (POA) and the FAM Small Working Group provides an effective forum for the resolution of fuel-related policy matters.

The Company has identified three revisions to its FAM AA/BA rate development which it wishes to bring to the Board's attention and address in this Reply filing. The identified revisions have no bearing on the increase in the total AA/BA amounts. They affect the distribution of these costs among the rate classes. The revisions are presented below in the order of their declining effect on rate classes.

1. In its original submission the 2010 Tax Deferral was allocated among rate classes based on each class's relative share of the total fuel-cost variance. However, the Company should have applied the tax deferral credit to the customer classes in the manner prescribed by the Settlement Agreement and approved by the Board in its Order. Consistent with the original filing and consistent with the balance of AA/BA costs, NSPI has reallocated the New Page Port Hawkesbury (NPPH) share

November 25, 2011
N. McNeil

of the 2010 Tax Deferral to the other rate classes. The effect of this change is summarized in the table below and shown in Attachment 1.

2010 Tax Deferral Allocation by Class before Interest (in \$ M)				
Customer Class	Filed Nov. 10	Tax Deferral Settlement Agreement	New Page Reallocation	Revised Total
Residential	6.18	6.62	0.64	7.26
Small General	0.32	0.29	0.03	0.32
General	3.76	3.23	0.31	3.54
Large General	<u>0.59</u>	<u>0.44</u>	<u>0.04</u>	<u>0.48</u>
Total Commercial	4.67	3.96	0.38	4.34
Small Industrial	0.36	0.29	0.03	0.32
Medium Industrial	0.68	0.51	0.05	0.56
Large Industrial	1.30	0.87	0.09	0.96
ELI 2P-RTP	<u>0.68</u>	<u>1.70</u>	<u>(1.25)</u>	<u>0.45</u>
Total Industrial	3.02	3.37	(1.08)	2.29
Municipal	0.29	0.25	0.02	0.27
Unmetered	<u>0.17</u>	<u>0.13</u>	<u>0.01</u>	<u>0.14</u>
Total Other	0.46	0.38	0.03	0.42
Additional Energy	0.18	0.18	0.02	0.20
Misc. Revenues	0.00	0.00	0.00	0.00
Total	14.5	14.5	0.0	14.5

Note: Number maybe different by \$0.1 M due to rounding

2. NSPI indicated on page 18 lines 23 to 25, that line losses were pro-rated monthly based on the 2011 BCF Compliance Filing. However, the line loss proration factors used were taken from the 2012 GRA. In this filing, the monthly pro-ration has been revised to reflect the 2011 BCF Compliance Filing. The changes are shown in Attachment 2.
3. The allocation factors used in the apportionment of the Regular Purchased Power costs between energy and demand-related categories (Page 2 of Attachment 2, line 32, columns K and L) used a recalculated system load factor of 59.1 percent instead of a system load factor of 61.5 percent directly from the 2011 BCF filing.

The effect of these three revisions is summarized in the table below. The revised Tariff is included as Attachment 3.

November 25, 2011
N. McNeil

Comparison of AA and BA Calculations by Class						
Rate Class	Filed Nov. 10			Filed Nov. 25		
	Actual Adj. (AA)	Balance Adj. (BA)	Change in Class Revenue due to AA/BA	Actual Adj. (AA)	Balance Adj. (BA)	Change in Class Revenue due to AA/BA
	(cents per kWh)		(%)	(cents per kWh)		(%)
Domestic Service	0.365	0.355	3.2%	0.370	0.328	3.0%
Domestic Service Time-of-Day	0.365	0.355	3.2%	0.370	0.328	3.0%
Small General	0.378	0.350	3.2%	0.374	0.351	3.1%
General	0.379	0.377	4.3%	0.373	0.387	4.3%
Large General	0.339	0.363	5.1%	0.340	0.392	5.4%
Small Industrial	0.324	0.340	4.1%	0.327	0.357	4.3%
Medium Industrial	0.310	0.328	4.6%	0.306	0.354	4.8%
Large Industrial	0.307	0.339	5.9%	0.308	0.379	6.4%
ELI 2P-RTP	0.273	0.379	6.8%	0.271	0.435	7.6%
Municipal	0.357	0.361	5.1%	0.342	0.368	5.0%
Unmetered	0.325	0.377	2.1%	0.332	0.405	2.2%
Additional Energy	N/A	0.244	1.1%	N/A	0.233	1.0%

In the unique circumstances of this year's FAM adjustments, and without prejudice, NSPI would like to be able to honour the rate increase proposals at the lowest possible level. Specifically, NSPI is prepared to honour the FAM rate adjustments for each customer class that would provide the lower increase as between our original FAM filing and today's revised filing.

Therefore, NSPI proposes that rates should be established so as to result in percent increases in accordance with the following table.

November 25, 2011
N. McNeil

Revised FAM AA/BA Rates by Class	
Rate Class	Change in Class Revenues (%)
Residential	3.0%
Small General	3.1%
General Demand	4.3%
Large General	5.1%
Small Industrial	4.1%
Medium Industrial	4.6%
Large Industrial	5.9%
ELI 2P-RTP	6.8%
Municipal	5.0%
Unmetered	2.1%
Additional Energy	1.0%

NSPI will prepare and file formal rate adjustments (per kWh) during the compliance filing if the Board and stakeholders approve of this approach.

Yours most respectfully,



JRG
J. René Gallant
Vice President, Regulatory Affairs

c: Mark Sidebottom
Bruce Outhouse, Q.C.
All FAM Intervenors P-887(3)

Cost of Service BA Calculations

FOR THE YEAR ENDING DECEMBER 31, 2012

Line #
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COLUMN A B C D E F G H I J K L M N O P Q R S T U V
FORMULA E - D C + F + G H / E H / H (Line 30) J x K (line 30) H + K M x N (Line 30) L + N Q x R (Line 30) Q x S (Line 30) O - R - S T / U

Rate Class	BA 2011 Collections	BA predicated on actual numbers	Variance (debit/credit)	AA 2011 Collections	AA predicated on actual numbers	Variance (debit/credit)	Deferred Amount from 2011 FAM AA proceeding	Total	% Var	Relative shares in total Variance	Interest Amount	Adjustment after interest	Adjusted Relative Share (1)	Allocation of NPPH BA Share	Adjustment after reallocation of NPPH Share	Rebate as per UARB order (NSUAR-NSPI-P-201)	Relative Share after NPPH adjustment	Modified Rebate	Interest Credit	Adjustment after rebate	Forecast kWh Sales (2)	Cents per KWh
Above the line Classes																						
Residential Subtotal	\$4,786,039	\$4,732,082	(\$53,957)	\$7,114,383	\$12,063,526	\$4,949,144	\$11,819,949	\$16,715,136	99.52%	37.14%	\$2,278,164	\$18,993,300	42.59%	\$2,782,981	\$21,776,282	\$6,619,775	50.06%	\$7,264,006	\$571,684	\$13,940,592	4,256,431,756	0.328
Small General	\$307,974	\$268,312	(\$39,662)	\$401,810	\$644,555	\$242,745	\$663,121	\$866,204	134.39%	1.92%	\$118,058	\$984,262	2.21%	\$144,218	\$1,128,480	\$290,214	2.19%	\$318,457	\$25,063	\$784,960	223,726,062	0.351
General Demand	\$2,855,072	\$2,778,939	(\$76,133)	\$3,273,488	\$6,152,087	\$2,878,599	\$7,372,441	\$10,174,907	165.39%	22.61%	\$1,386,773	\$11,561,680	25.92%	\$1,694,068	\$13,255,748	\$3,230,079	24.43%	\$3,544,427	\$278,950	\$9,432,371	2,439,459,241	0.387
Large General	\$456,706	\$443,210	(\$13,496)	\$386,124	\$821,692	\$435,567	\$1,174,643	\$1,596,714	194.32%	3.55%	\$217,622	\$1,814,336	4.07%	\$265,844	\$2,080,181	\$439,674	3.32%	\$482,463	\$37,970	\$1,559,748	397,470,794	0.392
Small Industrial	\$296,717	\$282,710	(\$14,008)	\$317,181	\$588,908	\$271,727	\$711,518	\$969,237	164.58%	2.15%	\$132,101	\$1,101,338	2.47%	\$161,373	\$1,262,711	\$290,214	2.19%	\$318,457	\$25,063	\$919,191	257,632,430	0.357
Medium Industrial	\$608,767	\$561,329	(\$47,438)	\$544,944	\$1,055,932	\$510,988	\$1,372,192	\$1,835,742	173.85%	4.08%	\$250,200	\$2,085,942	4.68%	\$305,641	\$2,391,583	\$509,325	3.85%	\$558,892	\$43,985	\$1,788,706	505,845,219	0.354
Large Industrial	\$917,357	\$941,283	\$23,925	\$750,565	\$1,738,688	\$988,123	\$2,500,541	\$3,512,589	202.03%	7.81%	\$478,743	\$3,991,332	8.95%	\$584,827	\$4,576,159	\$870,641	6.58%	\$955,371	\$75,189	\$3,545,600	936,296,194	0.379
ELI 2P-RTP (base rate)	\$1,608,983	\$2,140,817	\$531,834	\$1,174,123	\$3,399,866	\$2,225,744	\$4,842,272	\$7,599,850	223.53%	16.89%	\$1,035,810	\$8,635,660	4.71%	\$307,825	\$2,408,666	\$1,700,652	3.13%	\$453,990	\$35,729	\$1,918,947	441,378,432	0.435
Municipal	\$203,473	\$207,367	\$3,894	\$218,975	\$445,127	\$226,151	\$546,672	\$776,718	174.49%	1.73%	\$105,862	\$882,579	1.98%	\$129,319	\$1,011,899	\$249,584	1.89%	\$273,873	\$21,554	\$716,472	194,541,877	0.368
Unmetered	\$142,437	\$140,553	(\$1,884)	\$118,508	\$252,975	\$134,468	\$335,278	\$467,862	184.94%	1.04%	\$63,766	\$531,628	1.19%	\$77,896	\$609,525	\$130,596	0.99%	\$143,306	\$11,278	\$454,941	112,280,645	0.405
Above the line Subtotal / Average	\$12,183,526	\$12,496,602	\$313,076	\$14,300,101	\$27,163,356	\$12,863,255	\$31,338,628	\$44,514,959	163.88%	98.92%	\$6,067,098	\$50,582,057	98.76%	\$0	\$50,501,233	\$14,330,753	98.64%	\$14,313,242	\$1,126,465	\$35,061,526	9,765,062,650	0.359
Additional Energy	\$143,102	\$143,567	\$464	\$162,779	\$264,927	\$102,148	\$382,834	\$485,446	183.24%	1.08%	\$66,163	\$551,609	1.24%	\$80,824	\$632,433	\$179,933	1.36%	\$197,443	\$15,539	\$419,451	179,928,000	0.233
Total subject to FAM adj. (ATL and AE)	\$12,326,628	\$12,640,168	\$313,540	\$14,462,880	\$27,428,283	\$12,965,403	\$31,721,461	\$45,000,405	164.07%	100.00%	\$6,133,261	\$51,133,666	100.00%	\$6,534,818	\$51,133,666	\$14,510,685	100.00%	\$14,510,685	\$1,142,004	\$35,480,977	9,944,990,650	0.357
Grand Total	\$12,326,628	\$12,640,168	\$313,540	\$14,462,880	\$27,428,283	\$12,965,403	\$31,721,461	\$45,000,405	164.07%													

(1) Relative Shares (Column J) have been adjusted for the absence of New Page. This adjustment is based on kilowatt sales
 (2) Source: 2012 GRA Refresh filed on August 31st

Cost of Service AA Calculations

FOR THE YEAR ENDING DECEMBER 31, 2012

Line #

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COLUMN	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
FORMULA			D - E	F / E	F / F (Line 32)	H x I (line 32)	F + I	H x K (line 32)	J + K		M x N (line32)	L + N		O / P

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Rate Class	Variance in Fuel Costs before Interest and Incentive					Variance in Fuel Costs before Incentive		Variance in Fuel Costs		Reallocation of NPPH's AA Contribution to all rate classes			Actual Adjustment after Reallocation of NPPH's AA	
	Actual Fuel Costs	Recovered Fuel Costs	Variance (debit/credit)	% Var	Relative shares in total Variance	Interest Amount	Adjustment after interest	Incentive Amount	Adjustment after Incentive	Adjusted Relative Share (2)	Allocation of NPPH AA Share	Adjustment after reallocation of NPPH Share	Forecast kWh Sales	Cents per kWh
Above the line Classes														
Residential Subtotal	\$219,426,345	\$204,419,927	\$15,006,418	7.34%	41.13%	\$692,532	\$15,698,950	(\$1,500,642)	\$14,198,308	45.56%	\$1,531,547	\$15,729,855	4,256,431,756	0.370
Small General	\$12,529,995	\$11,731,900	\$798,095	6.80%	2.19%	\$36,831	\$834,926	(\$79,810)	\$755,117	2.42%	\$81,453	\$836,570	223,726,062	0.374
General Demand	\$130,335,781	\$121,660,524	\$8,675,256	7.13%	23.78%	\$400,355	\$9,075,611	(\$867,526)	\$8,208,085	26.34%	\$885,392	\$9,093,477	2,439,459,241	0.373
Large General	\$20,142,494	\$18,853,657	\$1,288,837	6.84%	3.53%	\$59,479	\$1,348,316	(\$128,884)	\$1,219,432	3.91%	\$131,538	\$1,350,970	397,470,794	0.340
Small Industrial	\$12,743,640	\$11,940,321	\$803,319	6.73%	2.20%	\$37,072	\$840,391	(\$80,332)	\$760,060	2.44%	\$81,986	\$842,046	257,632,430	0.327
Medium Industrial	\$24,024,334	\$22,548,908	\$1,475,425	6.54%	4.04%	\$68,089	\$1,543,514	(\$147,543)	\$1,395,972	4.48%	\$150,581	\$1,546,553	505,845,219	0.306
Large Industrial	\$43,544,948	\$40,789,970	\$2,754,978	6.75%	7.55%	\$127,140	\$2,882,118	(\$275,498)	\$2,606,620	8.36%	\$281,172	\$2,887,791	936,296,194	0.308
ELI 2P-RTP (base rate)	\$62,574,754	\$57,879,895	\$4,694,859	8.11%	12.87%	\$216,663	\$4,911,522	(\$469,486)	\$4,442,036	3.47%	\$116,566	\$1,197,204	441,378,432	0.271
Municipal	\$9,429,233	\$8,793,898	\$635,334	7.22%	1.74%	\$29,320	\$664,654	(\$63,533)	\$601,121	1.93%	\$64,842	\$665,963	194,541,877	0.342
Unmetered	\$5,843,713	\$5,487,826	\$355,887	6.49%	0.98%	\$16,424	\$372,311	(\$35,589)	\$336,722	1.08%	\$36,322	\$373,044	112,280,645	0.332
Above the line Subtotal / Average	\$540,595,235	\$504,106,827	\$36,488,408	7.24%	100.00%	\$1,683,906	\$38,172,314	(\$3,648,841)	\$34,523,473	100.00%	\$3,361,399	\$34,523,473	9,765,062,650	0.354
Additional Energy (LF)	\$10,242,554	\$10,242,554	\$0	0.00%	0.00%	\$0	\$0	\$0	\$0	0.00%	\$0	\$0	179,928,000	-
Total subject to FAM adj. (ATL and AE if under LIIR)	\$540,595,235	\$504,106,827	\$36,488,408	7.24%	100.00%	1,683,906	\$38,172,314	(\$3,648,841)	\$34,523,473	100.00%	\$3,361,399	\$34,523,473	9,944,990,650	0.347
Grand Total	\$540,595,235	\$504,106,827	\$36,488,408	7.24%										

(1) Additional Energy is priced under the LF rate in 2012 and therefore isn't subject to FAM responsibilities
 (2) Relative Shares (Column H) have been adjusted for the absence of New Page. This adjustment is based on kilowatt sales

NOVA SCOTIA POWER INCORPORATED

FUEL ADJUSTMENT MECHANISM (FAM) TARIFF

APPLICABILITY:

This schedule is a mandatory rider to all electric rate schedules, except the following tariffs: Generation Replacement and Load Following, Extra High Voltage Time-of-Use Real Time Pricing, High Voltage Time-of-Use Real Time Pricing, Distribution Voltage Time-of-Use Real Time Pricing. FAM adjustments will apply to the Standard Energy Charge of the Extra Large Industrial 2P-RTP tariff. FAM adjustments will apply to Additional Energy supplied under the Mersey System Agreement when Additional Energy is priced at a tariff to which FAM adjustments apply.

FUEL ADJUSTMENT:

The applicable charges for electric service to the Company's retail and municipal customers shall be increased or decreased to the nearest 0.001 cents per kWh to recover or credit the difference in actual fuel cost from the costs in base rates in accordance with the following rate class-specific formula:

$$\text{Fuel Adjustment Mechanism Formula} = \text{AA} + \text{BA}$$

Where:

“AA” is a rate class-specific Actual Adjustment which is the difference between fuel-related costs recovered from a rate class through the application of the base rates during the previous calendar year and the actual Fuel Costs incurred and allocated to the rate class for the same time period. The actual fuel costs will include the same cost items as base fuel costs.

“BA” is a rate class-specific Balance Adjustment which accounts for any over- or under-collections which have occurred as a result of prior adjustments.

SPECIAL CONDITIONS:

(1) Base Cost of Fuel

The Base Cost of Fuel can be re-set in a General Rate Application or, absent a General Rate Application, every second year as part of the FAM adjustment process. Changes in the Base Cost of Fuel will be reflected in customers' rates going forward and will be applied to each customer class in a manner consistent with the then-current Board-approved Cost of Service Methodology.

NOVA SCOTIA POWER INCORPORATED

FUEL ADJUSTMENT MECHANISM (FAM) TARIFF

(2) Incentive

For a total fuel cost variance of up to \$50 million dollars (Actual Fuel Costs - [(Actual Sales) x (Base Fuel Cost \$/MWh)]), 90% of any savings or increase in cost will be credited or charged to customers. The portion of any variance that is in excess of \$50 million dollars will be fully applied in the calculation of the “AA”. Credits or charges will be applied to the energy component of rates on a cents per kWh basis.

The applicable charges by rate class for the calendar year 2012 effective on and after January 1st, are as follows.

Rate Class	Actual Adjustment (AA) in cents per kWh	Balance Adjustment (BA) in cents per kWh
Domestic Service	0.370	0.328
Domestic Service Time-of-Day	0.370	0.328
Small General	0.374	0.351
General	0.373	0.387
Large General	0.340	0.392
Small Industrial	0.327	0.357
Medium Industrial	0.306	0.354
Large Industrial	0.308	0.379
Extra Large Industrial Two Part Real Time Pricing	0.271	0.435
Municipal	0.342	0.368
Unmetered	0.332	0.405
Additional Energy	N/A	0.233

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1 **Request IR-6:**

2

3 **With respect to DE-03 – DE-04, page 12 of 159, Line 9, please provide the derivation of the**
4 **\$53 million.**

5

6 Response IR-6:

7

8 Please refer to Attachment 1 (Column W, Line 23).

NON-CONFIDENTIAL

1 **Request IR-7:**

2
3 **With respect to DE-03 – DE-04, page 12 of 159, Line 29 – page 13 of 159, Line 5,**

4 **a) Please provide any studies which indicate that mothballing plants would lead to**
5 **violation of North American reliability standards.**

6 **b) Please provide any analysis which indicates that running plants at reduced capacity**
7 **provides better value for customers than shutting them down.**

8
9 **Response IR-7:**

10
11 (a) In order to retire units, NS Power must demonstrate that it can continue to meet reliability
12 standards defined by the North American Electric Reliability Corporation (NERC) and
13 the Northeast Power Coordinating Council (NPCC). NS Power is required to maintain a
14 Planning Reserve Margin for capacity planning purposes. The Planning Reserve
15 calculation is as follows:

16
17
$$\text{Planning Reserve Margin} = (\text{installed firm capacity} - \text{minus firm peak}$$

18
$$\text{load}) / \text{firm peak load}$$

19
20 Given that the NewPage plant was an interruptible customer, it was not included in the
21 calculation of Planning Reserve Margin. Therefore, the loss of this load (or other non-
22 firm load) does not reduce the system's capacity requirements.

23
24 While we expect to undertake seasonal shut-downs of two units during off-peak months,
25 other changes to the system are needed to allow for the retirement of a unit, while still
26 maintaining sufficient Planning Reserve Margin. Based on the above formula, these
27 changes would need to result in an increase in firm capacity or a reduction in firm load.

28
29 (b) Please refer to Avon IR-6.

NON-CONFIDENTIAL

1 **Request IR-8:**

2
3 **With respect to DE-03 – DE-04, page 14 of 159, some assumptions considered by the**
4 **actuarial firm in calculating the \$26 million of pension cost increase are noted at line 22.**
5 **What assumption was made with respect to the level of employee contributions over the**
6 **timeframe of the pension plan assessment? If the percentage of earnings that employee**
7 **contribute to pension is assumed constant at current levels, please provide an estimate of**
8 **how the \$26 million would change if employee contributions increased by one percentage**
9 **point (i.e. if employees currently contribute 7%, what would be the effect of increasing that**
10 **to 8%).**

11
12 **Response IR-8:**

13
14 The amount of expected employee contributions to the defined benefit provision of the NS
15 Power Plan is based on current Plan provisions which require employees to contribute 5.4
16 percent of pensionable earnings up to the Year's Maximum Pensionable Earnings (YMPE) and 7
17 percent of pensionable earnings above YMPE. The assumed dollar amount of employee
18 contributions over the 2013-2017 projection periods are as follows:

- 19
20 • 2013 \$6.1 million
21 • 2014 \$6.2 million
22 • 2015 \$6.4 million
23 • 2016 \$6.5 million
24 • 2017 \$6.6 million

25
26 A 1 percent increase in the employee contribution rate (to 6.4 percent of pensionable earnings up
27 to the YMPE and 8 percent of pensionable earnings above the YMPE) to the defined benefit
28 provision of the NS Power employee pension plan would increase the annual employee
29 contribution by approximately \$1 million. The 1 percent increase in employee contributions

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1 would reduce the Company's current service cost (which is a component of benefit cost)
2 virtually dollar for dollar. For example, other things being equal, if the contribution rate increase
3 was effective January 1, 2013 for all members, the projected benefit cost of \$58.6 million would
4 be reduced to approximately \$57.6 million.

NON-CONFIDENTIAL

1 **Request IR-9:**

2

3 **With respect to DE-03 – DE-04, page 15 of 159, Line 25,**

4 **a) Please provide the derivation of the \$16.5 million recovery of fixed cost**
5 **contributions from 2012, beginning with the \$56.6 million in Appendix 2 of the**
6 **December 9, 2011 Compliance Filing.**

7 **b) In the absence of the Rate Stabilization Plan, what is the expected unrecovered fixed**
8 **cost contribution balance at the end of 2013 and 2014?**

9 **c) With the Rate Stabilization Plan, what is the expected unrecovered fixed cost**
10 **contribution balance at the end of 2013 and 2014?**

11

12 **Response IR-9:**

13

14 (a-b) Please refer to CA IR-8 Attachment 1.

15

16 (c) Please refer to Liberty IR-39 Attachment 1.

CONFIDENTIAL (Attachment Only)

1 **Request IR-10:**

2

3 **With respect to DE-03 – DE-04, page 16 of 159, Line 5, what are the factors that contribute**
4 **to the \$4.1 million savings when Lingan is operated seasonally?**

5

6 Response IR-10:

7

8 Please refer to Attachment 1 for working papers and Confidential Attachment 2 for staffing
9 profile.

Lingan Transformation Data		Variance
001 Regular Labour	Admin	(\$186,007)
	Operations	(786,851)
	Maintenance	(1,077,660)
	Chemistry/Coal Hoist	(91,005)
002 Overtime Labour	Admin	(10,475)
	Operations	(341,039)
	Maintenance	(63,508)
	Chemistry/Coal Hoist	(286)
004 Term Labour	Admin	(72,545)
	Operations	(148,225)
	Maintenance	(162,557)
	Chemistry/Coal Hoist	(54,670)
011 Travel Expense		20,000
014 Overtime Meals		(9,623)
015 Frt, Post & Delivery		(8,761)
018 Gases		20,000
019 Water		(58,408)
030 Lubricants		(17,369)
041 Meals & Entertainment		(11,151)
056 Training & Development		(7,146)
058 Personal Equipment		(19,715)
012 Materials	General	(26,139)
	Schedule Maintenance	(82,573)
	Annual Overhaul	(239,494)
013 Contracts	General	(24,492)
	Schedule Maintenance	(27,133)
	Annual Overhaul	(443,292)
	Forced Outage	(50,400)
	Reliability Maint	(51,600)
	Ash Disposal	(110,485)
OM & G		(\$4,142,606)

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1 **Request IR-11:**

2

3 **With respect to DE-03 – DE-04, page 17 of 159, Lines 14-18,**

4 **a) Please provide a list of forecast expenditures in 2014 to accommodate renewable**
5 **energy projects, indicating whether each is required to accommodate NSPI projects**
6 **or third party projects.**

7 **b) What is NSPI's current policy with respect to cost sharing transmission and**
8 **distribution upgrades required for third party renewable generation with those**
9 **third parties?**

10

11 **Response IR-11:**

12

13 (a) There are no forecasted capital expenditures in 2014 to accommodate renewable energy
14 projects.

15

16 (b) The funding mechanisms associated with transmission and distribution upgrades for third
17 party renewable generation is provided in NS Power's Standard Generation
18 Interconnection Procedures Appendix 6 – Standard Generator Interconnection and
19 Operating Agreement (Article 11). Please refer to Attachment 1 for a copy of this
20 document. Article 11 begins on page 63 of 115.

**STANDARD GENERATOR INTERCONNECTION AND OPERATING AGREEMENT
(GIA)**

**[INSERT INTERCONNECTION CUSTOMER NAME]
[XX] MW WIND GENERATING FACILITY,
[INSERT COUNTY NAME] COUNTY, NOVA SCOTIA**

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**STANDARD GENERATOR INTERCONNECTION
AND OPERATING AGREEMENT**

THIS STANDARD GENERATOR INTERCONNECTION AND OPERATING AGREEMENT (“Agreement” or “GIA”) is made and entered into this ____ day of _____ 20__, by and between _____, a _____ organized and existing under the laws of the Province of _____ (“Interconnection Customer” with a Generating Facility), and _____, a [corporation] organized and existing under the laws of the Province of _____ (“Transmission Provider and/or Transmission Owner”). Interconnection Customer and Transmission Provider each may be referred to as a “Party” or collectively as the “Parties.”

RECITALS

WHEREAS, Transmission Provider operates the Transmission System; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix C to this Agreement; and,

WHEREAS, Interconnection Customer and Transmission Provider have agreed to enter into this Agreement for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this Standard Generator Interconnection and Operating Agreement, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used.

ARTICLE 1. DEFINITIONS

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System shall mean an electric system other than the Transmission Provider's Transmission System that may be affected by the proposed interconnection.

Affected System Operator shall mean the entity that operates an Affected System.

Affiliate - the term "affiliate" shall be interpreted in accordance with Sections 2(2), 2(3), and 2(4) of the Nova Scotia Companies Act¹.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission Provider's Transmission System in accordance with Good Utility Practice.

1 1 Deemed affiliate

2(2) A company shall be deemed to be an affiliate of another company if one of them is the subsidiary of the other or if both are subsidiaries of the same company or if each of them is controlled by the same person.

Deemed control

2(3) A company shall be deemed to be controlled by another person or by two or more companies if

- (a) voting securities of the first-mentioned company carrying more than fifty per cent of the votes for the election of directors are held, otherwise than by way of security only, by or for the benefit of the other person or by or for the benefit of the other companies; and
- (b) the votes carried by such securities are entitled, if exercised, to elect a majority of the directors of the first-mentioned company.

Deemed subsidiary

2(4) A company shall be deemed to be a subsidiary of another company if

- (a) it is controlled by
 - (i) that other, or
 - (ii) that other and one or more companies each of which is controlled by that other, or
 - (iii) two or more companies each of which is controlled by that other; or
- (b) it is a subsidiary of a company that is that other's subsidiary. R.S., c. 81, s. 2; 1990, c.15, s. 2.

Applicable Laws and Regulations shall mean all duly promulgated applicable federal, provincial and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

Applicable Reliability Council shall mean the Northeast Power Coordinating Council or any successor thereto.

Applicable Reliability Standards shall mean the requirements and guidelines of the Applicable Reliability Council, and the Control Area of the Transmission System to which the Generating Facility is directly interconnected, and the NSPI Interconnection Guidelines and Standards as set out in Appendix D to this document.

Base Case shall mean the base case power flow, short circuit, and stability data bases used for the Interconnection Studies by the Transmission Provider or Interconnection Customer.

Board shall mean the Nova Scotia Utility and Review Board.

Breach shall mean the failure of a Party to perform or observe any material term or condition of the Standard Generator Interconnection and Operating Agreement.

Breaching Party shall mean a Party that is in Breach of the Standard Generator Interconnection and Operating Agreement.

Business Day shall mean Monday to Friday, inclusive, excluding holidays. The regular business hours on a Business Day are from 08:30 to 16:30 Atlantic Time.

Calendar Day shall mean any day including Saturday, Sunday or a holiday.

Commercial Operation Date shall mean the date on which Interconnection Customer commences commercial operation of the unit at the Generating Facility after Trial Operation of such unit has been completed as confirmed in writing substantially in the form shown in Appendix E of the Standard Generator Interconnection and Operating Agreement.

Confidential Information shall mean any confidential, proprietary or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, as well as any information relating to a Party's technology, research and development, business affairs and pricing whether such information is supplied prior to or after the execution of the GIA, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise.

Control Area shall mean an electric system or group of systems that meet(s) the requirements of the NPCC Control Area Certification Process.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of the Standard Generator Interconnection and Operating Agreement.

Dispute Resolution shall mean the procedure for resolution of a dispute between the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Provider's facilities and equipment used to distribute electricity to ultimate usage points such as homes and industries either directly from nearby generators or from interchanges from the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Transmission Provider's Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the transmission service necessary to effect Interconnection Customer's wholesale sale of electricity. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which the Standard Generator Interconnection and Operating Agreement becomes effective in accordance with Article 2.1 of the Standard Generator Interconnection and Operating Agreement.

Emergency Condition shall mean a condition or situation:

- (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or
- (2) that, in the case of a Transmission Provider, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to Transmission Provider's Transmission System, Transmission Provider's Interconnection Facilities or the electric systems of others to which the Transmission Provider's Transmission System is directly connected; or
- (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by the Standard Generator Interconnection and Operating Agreement to possess black start capability.

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows the Interconnection Customer to connect its Generating Facility to the Transmission Provider's Transmission System to be eligible to deliver the Generating Facility's electric output using the existing firm or nonfirm capacity of the Transmission Provider's Transmission System on an as available basis. Energy Resource Interconnection Service in and of itself does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes the Transmission Provider to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Force Majeure shall mean an event, condition, occurrence or circumstance beyond the reasonable control and not attributable to the fault or negligence of the Party claiming Force Majeure, which, despite all reasonable efforts at a reasonable cost of the Party claiming the Force Majeure to prevent its occurrence or mitigate its effects, causes a delay or disruption in the performance of any obligation (other than the obligation to pay monies due) imposed on such Party hereunder, including, without limitation, any act of God, labour disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment if caused by an event which would constitute Force Majeure, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control.

Generating Facility shall mean Interconnection Customer's device for the production of electricity for interconnection to the Transmission System at voltages 69 kV and above as identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

Good Utility Practice shall mean those practices, methods or acts (including but not limited to the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry in North America) that at a particular time, in the exercise of reasonable judgment, would have been expected to accomplish the desired result in a manner consistent with regulations, reliability, safety, environmental protection, economy and expedition as applied and practiced in the utility industry with respect to power generation, delivery, purchase and sale.

Governmental Authority shall mean any national, international, federal, provincial, municipal, county, regional or local government, organization or duly constituted authority having jurisdiction, and includes:

- (a) any department, commission, bureau, board, administrative agency or regulatory body of any government having jurisdiction; and

- (b) any person or corporation acting as an authorized agent thereof.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of “hazardous substances,” “hazardous wastes,” “hazardous materials,” “hazardous constituents,” “restricted hazardous materials,” “extremely hazardous substances,” “toxic substances,” “radioactive substances,” “contaminants,” “pollutants,” “toxic pollutants” or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially electrically connected to, and energized by, the Transmission System and upon which Trial Operation begins..

In-Service Date shall mean the date upon which the Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Provider's Interconnection Facilities to obtain back feed power.

Interconnection Customer shall mean any entity, including the Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission Provider's Transmission System.

Interconnection Customer's Interconnection Facilities shall mean all facilities and equipment, as identified in Appendix A of the Standard Generator Interconnection and Operating Agreement, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission Provider's Transmission System.

Interconnection Facilities shall mean the Transmission Provider's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically

interconnect the Generating Facility to the Transmission Provider's Transmission System, and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study shall mean a study conducted by the Transmission Provider or a third party consultant for the Interconnection Customer to determine a list of facilities (including Transmission Provider's Interconnection Facilities and Network Upgrades as identified in the Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission Provider's Transmission System. The scope of the study is defined in Section 8 of the Standard Generator Interconnection Procedures.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 4 of the Standard Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Feasibility Study shall mean a preliminary evaluation of the system impact and cost of interconnecting the Generating Facility to the Transmission Provider's Transmission System, the scope of which is described in Section 6 of the Standard Generator Interconnection Procedures.

Interconnection Feasibility Study Agreement shall mean the form of agreement contained in Appendix 2 of the Standard Generator Interconnection Procedures for conducting the Interconnection Feasibility Study.

Interconnection Request shall mean an Interconnection Customer's request, in the form of Appendix 1 to the Standard Generator Interconnection Procedures, in accordance with the Tariff, to interconnect a new Generating Facility, or to increase the capacity of (except for increases in capacity permitted by Section 2.6 of the Standard Generator Interconnection Procedures), or make a Material Modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Transmission Provider's Transmission System.

Interconnection Service shall mean the service provided by the Transmission Provider associated with interconnecting the Interconnection Customer's Generating Facility to the Transmission Provider's Transmission System and enabling it to receive electric energy and capacity from the

Generating Facility at the Point of Interconnection, pursuant to the terms of the Standard Generator Interconnection and Operating Agreement and, if applicable, the Transmission Provider's Tariff.

Interconnection Study shall mean any of the following studies: the Interconnection Feasibility Study, the Interconnection System Impact Study, and the Interconnection Facilities Study described in the Standard Generator Interconnection Procedures.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission Provider's Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in the Interconnection Feasibility Study, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Standard Generator Interconnection Procedures.

Interconnection System Impact Study Agreement shall mean the form of agreement contained in Appendix 3 of the Standard Generator Interconnection Procedures for conducting the Interconnection System Impact Study.

Joint Operating Committee shall be a group made up of representatives from Interconnection Customers and the Transmission Provider to coordinate operating and technical considerations of Interconnection Service.

Load Serving Entity shall mean one of the following:

- (i) Nova Scotia Power Inc. (NSPI), or
- (ii) a Nova Scotia municipal electric utility.

Loss shall mean any and all losses relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under the Standard Generator Interconnection and Operating Agreement on behalf

of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

Material Modification shall mean those modifications that have a material impact on the cost or timing of any Interconnection Request with a later queue priority date.

Metering Equipment shall mean all metering equipment installed or to be installed at the Generating Facility pursuant to the Standard Generator Interconnection and Operating Agreement at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Network Resource shall mean that portion of a Generating Facility that is integrated with the Transmission Provider's Transmission System, designated as a Network Resource pursuant to the terms of the Tariff, and subjected to redispatch directives as ordered by the Transmission Provider in accordance with the Tariff.

Network Resource Interconnection Service (NR Interconnection Service) shall mean an Interconnection Service that allows the Interconnection Customer to integrate its Generating Facility with the Transmission Provider's Transmission System

- (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or
- (2) in an RTO (Regional Transmission Organization) or ISO (Independent System Operator) with market based congestion management, in the same manner as Network Resources.

Network Resource Interconnection Service in and of itself does not convey transmission service.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission Provider's Transmission System required at or beyond the point at which the Interconnection Customer interconnects to the Transmission Provider's Transmission System to accommodate the interconnection of the Generating Facility to the Transmission Provider's Transmission System.

NPCC shall mean the Northeast Power Coordinating Council and its successor organizations.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with the Standard Generator Interconnection and Operating Agreement or its performance.

Operating Area shall mean an electric power system or combination of electric power systems to which a common automatic generation control scheme is applied in order to:

- (1) match, at all times, the power output of the generators within the electric power system(s) and capacity and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);
- (2) maintain scheduled interchange with other Operating Areas, within the limits of Good Utility Practice;
- (3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and
- (4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Optional Interconnection Study shall mean a sensitivity analysis based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5 of the Standard Generator Interconnection Procedures for conducting the Optional Interconnection Study.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer or any combination of the above.

Point of Change of Ownership shall mean the point, as set forth in Appendix A to the Standard Generator Interconnection and Operating Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Provider's Interconnection Facilities.

Point of Interconnection shall mean the point, as set forth in Appendix A to the Standard Generator Interconnection Agreement, where the Interconnection Facilities connect to the Transmission Provider's Transmission System.

Reasonable Efforts shall mean, with respect to an action required to be attempted or taken by a Party under the Standard Generator Interconnection and Operating Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Scoping Meeting shall mean the meeting between representatives of the Interconnection Customer and Transmission Provider conducted for the purpose of discussing alternative interconnection options, exchanging information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, analyzing such information, and determining the potential feasible Points of Interconnection.

Site Control shall mean documentation reasonably demonstrating:

- (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility; or
- (2) an option to purchase or acquire a leasehold site for the purpose of constructing the Generating Facility

Stand Alone Network Upgrades shall mean Network Upgrades that the Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Both the Transmission Provider and the Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to the Standard Generator Interconnection and Operating Agreement.

Standard Generator Interconnection and Operating Agreement (GIA) shall mean the form of interconnection agreement applicable to an Interconnection Request pertaining to a Generating Facility, that is included in the Transmission Provider's Tariff.

Standard Generator Interconnection Procedures (GIP) shall mean the interconnection procedures applicable to an Interconnection Request pertaining to a Generating Facility that are included in the Transmission Provider's Tariff.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect:

- (1) the Transmission System from faults or other electrical disturbances occurring at the Generating Facility and
- (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Board, and as amended or supplemented from time to time, or any successor tariff.

Transmission Owner shall mean an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at the Point of Interconnection and may be a Party to the Standard Generator Interconnection and Operating Agreement to the extent necessary.

Transmission Provider shall mean Nova Scotia Power Inc.

Transmission Provider's Interconnection Facilities shall mean all facilities and equipment owned, controlled, or operated by the Transmission Provider from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to the Standard Generator Interconnection and Operating Agreement, including any modifications, additions or upgrades to such facilities and

equipment. Transmission Provider's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned, controlled or operated by the Transmission Provider or Transmission Owner that are used to provide transmission service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to commercial operation.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date

This GIA shall become effective upon execution by the Parties subject to acceptance by the Board (if applicable), or if filed unexecuted, upon the date specified by the Board. Transmission Provider shall promptly file this GIA with the Board upon execution in accordance with Article 3.1, if required.

2.2 Term of Agreement

Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of five years from the Effective Date or such other longer period as the Interconnection Customer may request (*Term to be Specified in Individual Agreements*) and shall be automatically renewed for each successive one-year period thereafter.

2.3 Termination Procedures

This GIA may be terminated as follows:

2.3.1 Written Notice

The Interconnection Customer may terminate this GIA after giving the Transmission Provider 90 Calendar Days advance written notice; or by Transmission Provider notifying the Board after the Generating facility permanently ceases commercial operation.

2.3.2 Default

Either Party may terminate this GIA in accordance with Article 17.

Notwithstanding the foregoing, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with the Board of a notice of termination of this GIA, which notice has been accepted for filing by the Board.

2.4 Termination Costs

If a Party elects to terminate this Agreement pursuant to Article 2.3 above, each Party shall pay all costs incurred (including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment) or charges assessed by the other Party, as of the date of the other Party's receipt of such notice of termination, that are the responsibility of the terminating Party under this GIA. In the event of termination by either Party, both Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by the Board:

2.4.1 With respect to any portion of the Transmission Provider's Interconnection Facilities that have not yet been constructed or installed, the Transmission Provider shall to the extent possible and with Interconnection Customer's authorization cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer

elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and the Transmission Provider shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Provider for any or all such costs of materials or equipment not taken by Interconnection Customer, Transmission Provider shall promptly refund such amounts to Interconnection Customer, less any costs, including penalties incurred by the Transmission Provider to cancel any pending orders of or return such materials, equipment, or contracts.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred or that will be incurred by the Transmission Provider in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any Network Upgrades for which the Transmission Provider has incurred or will incur expenses and has not been reimbursed by the Interconnection Customer.

2.4.2 Transmission Provider may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Provider shall be responsible for all costs associated with procuring such materials, equipment, or facilities.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation or other disposition or retirement of such materials, equipment, or facilities.

2.5 Disconnection

Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission System. All costs required to effectuate such

disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 Survival

This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

3.1 Filing

Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. Interconnection Customer may request that any information so provided be subject to the confidentiality provisions of Article 22. If Interconnection Customer has executed this GIA, or any amendment thereto, Interconnection Customer shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

4.1 Interconnection Product Options

Interconnection Customer has selected the following (checked) type of Interconnection Service:

Energy Resource Interconnection Service

Or

Network Resource Interconnection Service

4.1.1 Energy Resource Interconnection Service (ER Interconnection Service).

4.1.1.1 The Product

ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission System and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive ER Interconnection Service, the Transmission Provider shall construct facilities identified in Appendix A. ER Interconnection Service does not in and of itself convey any transmission delivery service.

4.1.1.2 Transmission Delivery Service Implications

Under ER Interconnection Service, the Interconnection Customer will be able to inject power from the Generating Facility into and deliver power across the interconnecting Transmission Provider's Transmission System on an "as available" basis up to the amount of MW's identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for ER Interconnection Service have been constructed. Where eligible to do so the Interconnection Customer may place a bid to sell into the market up to the maximum identified Generating Facility output, subject to any conditions specified in the interconnection service approval, and the

Generating Facility will be dispatched to the extent the Interconnection Customer's bid clears. In all other instances, no transmission delivery service from the Generating Facility is assured, but the Interconnection Customer may obtain point-to-point transmission delivery service or be used for secondary network transmission service, pursuant to the Transmission Provider's Tariff, up to the maximum output identified in the stability and steady state studies. In those instances, in order for the Interconnection Customer to obtain the right to deliver or inject energy beyond the Generating Facility Point of Interconnection or to improve its ability to do so, transmission delivery service must be obtained pursuant to the provisions of the Transmission Provider's Tariff. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission Provider's Transmission System at such time as a transmission service request is made that would accommodate such delivery. The provision of firm point-to-point transmission service may require the construction of additional Network Upgrades.

4.1.2 Network Resource Interconnection Service (NR Interconnection Service)

4.1.2.1 The Product

The Transmission Provider must conduct the necessary studies and construct the Network Upgrades needed to integrate the Generating Facility

- (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or
- (2) in an ISO or RTO with market based congestion management, in the same manner as all other Network Resources.

NR Interconnection Service in and of itself does not convey any transmission delivery service.

4.1.2.2 Transmission Delivery Service Implications

NR Interconnection Service allows the Interconnection Customer's Generating Facility to be designated by any Network Customer under the Tariff on the Transmission Provider's Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as all other existing Network Resources interconnected to the Transmission Provider's Transmission System, and to be studied as a Network Resource on the assumption that such a designation will occur. Although NR Interconnection Service does not convey a reservation of transmission service, any Network Customer under the Tariff can utilize its network service under the Tariff to obtain delivery of energy from the interconnected Interconnection Customer's Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving NR Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if an Interconnection Customer's Generating Facility has not been designated as a Network Resource by any load, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all Generating Facilities that are similarly situated.

NR Interconnection Service does not necessarily provide the Interconnection Customer with the capability to physically deliver the output of its Generating Facility to any particular load on the Transmission Provider's Transmission System without incurring congestion costs. In the event of transmission constraints on the Transmission Provider's Transmission

System, the Interconnection Customer's Generating Facility shall be subject to the applicable congestion management procedures in the Transmission Provider's Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Interconnection Customer's Generating Facility be designated as a Network Resource by a Network Service Customer under the Tariff or that the Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Transmission Provider's Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining NR Interconnection Service, any future transmission service request for delivery from the Generating Facility within the Transmission Provider's Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether or not such Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. To the extent the Interconnection Customer enters into an arrangement for long term transmission service for deliveries from the Generating Facility outside the Transmission Provider's Transmission System, such request may require additional studies and upgrades in order for the Transmission Provider to grant such request.

4.2 Provision of Service

Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.

4.3 Performance Standards

Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice, and to the extent a Party is required or prevented or limited in taking any action by such regulations and standards, such Party shall not be deemed to be in Breach of this GIA for its compliance therewith. If such Party is the Transmission Provider or Transmission Owner, then that Party shall amend the GIA and submit the amendment to the Board for approval.

4.4 No Transmission Delivery Service

The execution of this GIA does not constitute a request for, nor the provision of, any transmission delivery service under the Transmission Provider's Tariff, and does not convey any right to deliver electricity to any specific customer or point of delivery.

4.5 Interconnection Customer Provided Services

The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.5.1. Interconnection Customer shall be paid for such services in accordance with Article 11.6.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

5.1 Options

Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select the In-Service Date, Initial Synchronization Date, and Commercial Operation Date; and either Standard Option or Alternate Option set forth below for completion of the Transmission Provider's Interconnection Facilities and Network Upgrades as set forth in

Appendix A, Interconnection Facilities and Network Upgrades, and such dates and selected option shall be set forth in Appendix B, Milestones.

5.1.1 Standard Option

The Transmission Provider shall design, procure, and construct the Transmission Provider's Interconnection Facilities and Network Upgrades, using Reasonable Efforts to complete the Transmission Provider's Interconnection Facilities and Network Upgrades by the dates set forth in Appendix B, Milestones. The Transmission Provider shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, and Applicable Laws and Regulations. In the event the Transmission Provider reasonably expects that it will not be able to complete the Transmission Provider's Interconnection Facilities and Network Upgrades by the specified dates, the Transmission Provider shall promptly provide written notice to the Interconnection Customer and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.1.2 Alternate Option

If the dates designated by Interconnection Customer are acceptable to Transmission Provider, the Transmission Provider shall so notify Interconnection Customer within 30 Calendar Days, and shall assume responsibility for the design, procurement and construction of the Transmission Provider's Interconnection Facilities by the designated dates.

If Transmission Provider subsequently fails to complete Transmission Provider's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Provider

shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each day that the applicable Operating Area operator refuses to grant outages, requested by the Transmission Provider using Reasonable Efforts, to install or modify equipment.

5.1.3 Option to Build

If the dates designated by Interconnection Customer are not acceptable to Transmission Provider, the Transmission Provider shall so notify the Interconnection Customer within 30 Calendar Days, and unless the Parties agree otherwise, Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades. Both Transmission Provider and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A to the GIA. Except for Stand Alone Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

5.1.4 Negotiated Option

If the Interconnection Customer elects not to exercise its option under Article 5.1.3, Option to Build, Interconnection Customer shall so notify Transmission Provider within 30 Calendar Days, and the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives or the procurement and construction of a portion of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades by Interconnection Customer) pursuant to which Transmission Provider is responsible for the design, procurement and construction of the Transmission Provider's Interconnection Facilities and Network Upgrades. If the Parties are unable to reach agreement on such terms and conditions, Transmission Provider shall assume responsibility for the design, procurement and construction of

the Transmission Provider's Interconnection Facilities and Network Upgrades pursuant to 5.1.1, Standard Option.

5.2 General Conditions Applicable to Option to Build

If Interconnection Customer assumes responsibility for the design, procurement and construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades,

- (1) the Interconnection Customer shall engineer, procure equipment, and construct the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by the Transmission Provider;
- (2) Interconnection Customer's engineering, procurement and construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law to which Transmission Provider would be subject in the engineering, procurement or construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades;
- (3) Transmission Provider shall review and approve the engineering design, equipment acceptance tests, and the construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades;
- (4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider a schedule for construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider;

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- (5) at any time during construction, Transmission Provider shall have the right to gain unrestricted access to the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;
- (6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Provider, the Interconnection Customer shall be obligated to remedy deficiencies in that portion of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades;
- (7) the Interconnection Customer shall indemnify the Transmission Provider for claims arising from the Interconnection Customer's construction of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1 Indemnity;
- (8) the Interconnection Customer shall transfer control of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades to the Transmission Provider;
- (9) Unless Parties otherwise agree, Interconnection customer shall transfer ownership of Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Provider;
- (10) Transmission Provider shall approve and accept for operation and maintenance the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2.; and

- (11) Interconnection Customer shall deliver to Transmission Provider “as-built” drawings, information, and any other documents that are reasonably required by Transmission Provider to assure that the Interconnection facilities and Stand Alone Network Upgrades are built to the standards and specifications required by the Transmission Provider.

5.3 Liquidated Damages

The actual damages to the Interconnection Customer, in the event the Transmission Provider's Interconnection Facilities or Network Upgrades are not completed by the dates designated by the Interconnection Customer and accepted by the Transmission Provider pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by the Transmission Provider to the Interconnection Customer in the event that Transmission Provider does not complete any portion of the Transmission Provider's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to $\frac{1}{2}$ of 1 percent per day of the actual cost of the Transmission Provider's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Provider has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of the Transmission Provider Interconnection Facilities and Network Upgrades for which the Transmission Provider has assumed responsibility to design, procure, and construct. The foregoing payments will be made by the Transmission Provider to the Interconnection Customer as just compensation for the damages caused to the Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this GIA.

No liquidated damages shall be paid to Interconnection Customer if:

- (1) Interconnection Customer is not ready to commence use of the Transmission Provider's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless the Interconnection Customer would have been able to commence use of the Transmission Provider's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Provider's delay;
- (2) the Transmission Provider's failure to meet the specified dates is the result of the action or inaction of the Interconnection Customer or any other Interconnection Customer who has entered into an GIA with the Transmission Provider or any cause beyond Transmission Provider's reasonable control or reasonable ability to cure;
- (3) the Interconnection Customer has assumed responsibility for the design, procurement and construction of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades; or (4) the Parties have otherwise agreed.

5.4 Power System Stabilizers

The Interconnection Customer shall procure, install, maintain and operate Power System Stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider reserves the right to reasonably establish minimum acceptable settings for any installed Power System Stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's Power System Stabilizers are removed from service or not capable of automatic operation, the Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply

to wind generators. Instead, Appendix G sets forth the specific requirements and provisions that apply to a wind Generating Facility.

5.5 Equipment Procurement

If responsibility for construction of the Transmission Provider's Interconnection Facilities or Network Upgrades is to be borne by the Transmission Provider, then the Transmission Provider shall commence design of the Transmission Provider's Interconnection Facilities or Network Upgrades and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:

- 5.5.1** The Transmission Provider has completed the Facilities Study pursuant to the Facilities Study Agreement;
- 5.5.2** The Transmission Provider has received written authorization to proceed with design and procurement from the Interconnection Customer by the date specified in Appendix B, Milestones; and
- 5.5.3** The Interconnection Customer has provided security to the Transmission Provider in accordance with Article 11.5 by the dates specified in Appendix B, Milestones.

5.6 Construction Commencement

The Transmission Provider shall commence construction of the Transmission Provider's Interconnection Facilities and Network Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

- 5.6.1** Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval;

- 5.6.2** Necessary real property rights and rights-of-way have been obtained, to the extent required for the construction of a discrete aspect of the Transmission Provider's Interconnection Facilities and Network Upgrades;
- 5.6.3** The Transmission Provider has received written authorization to proceed with construction from the Interconnection Customer by the date specified in Appendix B, Milestones; and
- 5.6.4** The Interconnection Customer has provided security to the Transmission Provider in accordance with Article 11.5 by the dates specified in Appendix B, Milestones.

5.7 Work Progress

The Parties will keep each other advised periodically as to the progress of their respective design, procurement and construction efforts. Either Party may, at any time, request a progress report from the other Party. If, at any time, the Interconnection Customer determines that the completion of the Transmission Provider's Interconnection Facilities will not be required until after the specified In-Service Date, the Interconnection Customer will provide written notice to the Transmission Provider of such later date upon which the completion of the Transmission Provider's Interconnection Facilities will be required.

5.8 Information Exchange

As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Parties' Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission Provider's Transmission System, and shall work diligently and in good faith to make any necessary design changes. Design information shall be provided in a format compatible with the Transmission Provider's Computer Aided Drafting and Design (CADD) systems.

5.9 Limited Operation

If any of the Transmission Provider's Interconnection Facilities or Network Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer Interconnection Facilities may operate prior to the completion of the Transmission Provider's Interconnection Facilities or Network Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA. Transmission Provider shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer Interconnection Facilities in accordance with the results of such studies.

5.10 Interconnection Customer's Interconnection Facilities (“ICIF”)

Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set forth in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades. The ICIF shall be sole use facilities.

5.10.1 Generating Facility Specifications

Interconnection Customer shall submit initial specifications for the ICIF, including System Protection Facilities, to Transmission Provider at least 180 Calendar Days prior to the Initial Synchronization Date; and final specifications for review and comment at least 90 Calendar Days prior to the Initial Synchronization Date. Transmission Provider shall review such specifications to ensure that the ICIF are compatible with the technical specifications, operational control, and safety requirements of the Transmission Provider and comment on such specifications within 30 Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.10.2 Transmission Provider's Review

Transmission Provider's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF.

Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the telemetry, communications, and safety requirements of the Transmission Provider.

5.10.3 ICIF Construction

The ICIF shall be designed and constructed in accordance with Good Utility Practice.

Within one hundred 120 Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, the Interconnection Customer shall deliver to the Transmission Provider "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facilities. The Interconnection Customer shall provide Transmission Provider specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications.

5.11 Transmission Provider's Interconnection Facilities Construction

The Transmission Provider's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within 120 Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable

deadline, the Transmission Provider shall deliver to the Interconnection Customer the following “as-built” drawings, information and documents for the Transmission Provider's Interconnection Facilities: 1) Protection and Instrumentation 1-line Drawing; and 2) Interconnection Points Diagram.

The Transmission Provider will obtain control of the Transmission Provider's Interconnection Facilities and Stand Alone Network Upgrades upon completion of such facilities.

5.12 Access Rights

The Interconnection Customer shall furnish at no cost to the Transmission Provider any licenses, rights of way and easements with respect to lands owned or controlled by the Interconnection Customer and its agents that are necessary to enable the Transmission Provider to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to:

- (i) interconnect the Generating Facility with the Transmission System;
- (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and
- (iii) disconnect or remove the Transmission Provider's facilities and equipment upon termination of this GIA.

In exercising such licenses, rights of way and easements, the Transmission Provider shall not unreasonably disrupt or interfere with normal operation of the Interconnection Customer's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Interconnection Customer and provided to the Transmission Provider.

5.13 Lands of Other Property Owners

If any part of the Transmission Provider or Transmission Owner's Interconnection Facilities and/or Network Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Provider or Transmission Owner, the Interconnection Customer shall at Interconnection Customer's expense procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Provider or Transmission Owner's Interconnection Facilities and/or Network Upgrades upon such property. All such rights of use, licenses, rights of way and easements shall be registered or recorded by the Interconnection Customer at the Interconnection Customer's expense in the land registration office for the registration district in which the property is situated. Easements shall be in a form acceptable to the Transmission Provider. Upon receipt of a reasonable siting request, Transmission Provider shall provide siting assistance to the Interconnection Customer comparable to that provided to the Transmission Provider's own, or an Affiliate's generation.

5.14 Permits

The allocation of the responsibilities of the Transmission Provider or Transmission Owner and the Interconnection Customer to obtain all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations shall be as specified in Appendix H. The Transmission Provider or Transmission Owner and the Interconnection Customer shall cooperate with each other in good faith in obtaining any such permits, licenses and authorizations. With respect to this paragraph, Transmission Provider or Transmission Owner shall provide permitting assistance to the Interconnection Customer comparable to that provided to the Transmission Provider's own, or an Affiliate's generation.

5.15 Early Construction of Base Case Facilities

Interconnection Customer may request Transmission Provider to construct, and Transmission Provider shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades required for Interconnection Customer to be interconnected to the Transmission System which are included in the Base Case of the Facilities Study for the Interconnection Customer, and which also are required to be constructed for another Interconnection Customer, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date.

5.16 Suspension

Interconnection Customer reserves the right, upon written notice to Transmission Provider, to suspend at any time all work by Transmission Provider associated with the construction and installation of Transmission Provider's Interconnection Facilities and/or Network Upgrades required under this GIA with the condition that the Transmission Provider shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider

- (i) has incurred pursuant to this GIA prior to the suspension and
- (ii) incurs in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission System during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider shall obtain Interconnection Customer's authorization to do so.

Transmission Provider shall invoice Interconnection Customer for such costs pursuant to Article 12 and shall use due diligence to minimize its costs. In the event Interconnection Customer suspends work by Transmission Provider required under this GIA pursuant to this Article 5.16, and has not requested Transmission Provider to recommence the work required under this GIA on or before the expiration of three years following commencement of such suspension, this GIA shall be deemed terminated.

In the event Interconnection Customer suspends work by Transmission Provider required under this Agreement pursuant to this Article 5.16, and requests Transmission Provider to recommence the work required under this Agreement, the Interconnection Customer shall be responsible for all additional costs Transmission Provider determines are necessary to restart all work by Transmission Provider associated with the construction and installation of the Transmission Provider's Interconnection Facilities and/or Network Upgrades required under this Agreement.

5.17 Taxes

5.17.1 Interconnection Customer Payments Not Taxable

The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Provider for the installation of the Transmission Provider's Interconnection Facilities and the Network Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with any applicable Federal and Provincial tax laws and shall not be taxable as contributions in aid of construction or otherwise under any applicable Federal and Provincial tax laws.

5.18 Tax Status

Each Party shall cooperate with the other to maintain the other Party's tax status.

5.19 Modification

5.19.1 General

Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect the other Party's facilities, that Party shall provide to the other Party sufficient information regarding such modification so that the other Party may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be confidential hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Party at least 90 Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within 30 Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission System, Transmission Provider's Interconnection Facilities or Network Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof.

5.19.2 Standards

Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.19.3 Modification Costs

Interconnection Customer shall not be responsible for the costs of any additions, modifications, or replacements that Transmission Provider makes to the Transmission Provider's Interconnection Facilities or the Transmission System to facilitate the interconnection of a third party to the Transmission Provider's Interconnection Facilities or the Transmission System, or to provide transmission service under the Transmission Provider's Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

ARTICLE 6. TESTING AND INSPECTION

6.1 Pre-Commercial Operation Date Testing and Modifications

Prior to the Commercial Operation Date, the Transmission Provider shall test the Transmission Provider's Interconnection Facilities and Network Upgrades and Interconnection Customer shall test the Generating Facility and the Interconnection Customer Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Each Party shall make any modifications to its facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged with Transmission Provider for the delivery of such test energy to the Transmission System.

6.2 Post-Commercial Operation Date Testing and Modifications

Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the

continued interconnection of the Generating Facility with the Transmission System in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the other Party's facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.

6.3 Right to Observe Testing

Each Party shall notify the other Party in advance of its performance of tests of its Interconnection Facilities. The other Party has the right, at its own expense, to observe such testing.

6.4 Right to Inspect

Each Party shall have the right, but shall have no obligation to:

- (i) observe the other Party's tests and/or inspection of any of its System Protection Facilities and other protective equipment, including Power System Stabilizers;
- (ii) review the settings of the other Party's System Protection Facilities and other protective equipment; and
- (iii) review the other Party's maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment.

A Party may exercise these rights from time to time, as it deems necessary upon reasonable notice to the other Party. The exercise or non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that Transmission Provider obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be confidential hereunder.

ARTICLE 7. METERING

7.1 General

Each Party shall comply with the Applicable Reliability Council requirements. Unless otherwise agreed by the Parties, Transmission Provider shall install Metering Equipment at the Point of Interconnection prior to any operation of the Generating Facility and shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at Transmission Provider's option, compensated to, the Point of Interconnection. Transmission Provider shall provide metering quantities, in analog and/or digital form, to Interconnection Customer upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment. All revenue metering equipment installations shall meet the Electricity and Gas Inspection Act regulations requirements in effect at the time.

7.2 Check Meters

Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check Transmission Provider's meters. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider or its designee. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice. Such check meters shall only be permitted if the accuracy of the revenue metering installation is not degraded unacceptably through the addition of the check meters.

7.3 Standards

Transmission Provider shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable Industry Canada standards.

7.4 Testing of Metering Equipment

Transmission Provider shall inspect and test all Transmission Provider-owned Metering Equipment upon installation and at least once every two years thereafter. If requested to do so by Interconnection Customer, Transmission Provider shall, at Interconnection Customer's expense, inspect or test Metering Equipment more frequently than every two years. Transmission Provider shall give reasonable notice of the time when any inspection or test shall take place, and Interconnection Customer may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to Transmission Provider's failure to maintain, then Transmission Provider shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent from the measurement made by the standard meter used in the test, Transmission Provider shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the last previous test of the Metering Equipment.

7.5 Metering Data

At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating

conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 Interconnection Customer Obligations

Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide, at its cost, standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide, at its cost, the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

8.2 Remote Terminal Unit

Prior to the Initial Synchronization Date of the Generating Facility, a Remote Terminal Unit, or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Interconnection Customer, or by Transmission Provider at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Provider. Instantaneous bi-directional analog real power

and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider.

Each Party will promptly advise the other Party if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction by the other Party. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation

Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

ARTICLE 9. OPERATIONS

9.1 General

Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to the other Party all information that may reasonably be required by the other Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

9.2 Operating Area Notification

At least three months before Initial Synchronization Date, the Interconnection Customer shall notify the Transmission Provider in writing of the Operating Area in which the Generating Facility will be located.

9.3 Transmission Provider Obligations

Transmission Provider shall cause the Transmission System and the Transmission Provider's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner and in accordance with this GIA. Transmission Provider may provide operating instructions to Interconnection Customer consistent with this GIA and Transmission Provider's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.

9.4 Interconnection Customer Obligations

Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer Interconnection Facilities in a safe and reliable manner and in accordance with this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer Interconnection Facilities in accordance with all applicable requirements of the Operating Area of which it is part, as such requirements are set forth in Appendix C, Interconnection Details, of this GIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Either Party may request that the other Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this GIA.

Except in an Emergency, the Interconnection Customer will request permission from the Transmission Provider's System Operator (or such Party designated by the System Operator) prior to opening or closing switching devices at the designated Point of Interconnection, identified in Appendix A of this GIA, in accordance with applicable switching and operations procedures, which permission will not be unreasonably withheld or delayed. If the Interconnection Customer opens or closes a switching device in an Emergency, without requesting permission from the System Operator, Interconnection Customer shall notify the System Operator immediately after taking such action.

The Interconnection Customer will carry out all switching orders from the System Operator in a timely manner.

9.5 Start-Up and Synchronization

Consistent with the Parties' mutually acceptable procedures, the Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission Provider's Transmission System.

9.6 Reactive Power

9.6.1 Power Factor Design Criteria

Interconnection Customer shall design the Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all generators in the Operating Area on a comparable basis. The requirements of this paragraph shall not apply to wind generators. Instead, Appendix G sets forth specific requirements and provisions that apply to a wind Generating Facility.

9.6.2 Voltage Schedules

Once the Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). Transmission Provider's voltage schedules shall treat all sources of reactive power in the Operating Area in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one day in advance, and may make changes to such schedules as necessary to maintain the

reliability of the Transmission System. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify the System Operator.

9.6.2.1 Governors and Regulators

Whenever the Generating Facility is operated in parallel with the Transmission System and the speed governors (if installed on the generating unit pursuant to Good Utility Practice) and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's speed governors and voltage regulators are not capable of such automatic operation, the Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission System or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Operating Area on a comparable basis.

9.6.3 Payment for Reactive Power

Transmission Provider is required to pay Interconnection Customer for reactive power that Interconnection Customer provides or absorbs from the Generating

Facility only in those instances where the Transmission Provider requests the Interconnection Customer to operate its Generating Facility outside the range specified in Article 9.6.1, provided that if Transmission Provider pays its own or affiliated generators for reactive power service within the specified range, it must also pay Interconnection Customer. Payments shall be pursuant to Article 11.6 or such other agreement to which the Parties have otherwise agreed.

9.7 Outages and Interruptions

9.7.1 Outages

9.7.1.1 Outage Authority and Coordination

Each Party may in accordance with Good Utility Practice in coordination with the other Party remove from service any of its respective Interconnection Facilities or Network Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to schedule such removal on a date and time mutually acceptable to both Parties. In all circumstances any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Party of such removal.

9.7.1.2 Outage Schedules

The Transmission Provider shall post scheduled outages of its transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider for a minimum of a rolling twenty-four month period. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule

its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

9.7.1.3 Outage Restoration

If an outage on a Party's Interconnection Facilities or Network Upgrades adversely affects the other Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Party, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice explaining the nature of the outage.

9.7.2 Interruption of Service

If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all Generating Facilities directly connected to the Transmission System;

- 9.7.2.3** When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;
- 9.7.2.4** Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission Provider shall coordinate with the Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to the Interconnection Customer and the Transmission Provider;
- 9.7.2.5** The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission System to their normal operating state, consistent with system conditions and Good Utility Practice.
- 9.7.2.6** If Transmission Provider determines that any of Interconnection Customer Interconnection Facilities or associated equipment fail to perform as designed, or that Interconnection Customer has failed to perform testing or maintenance of such equipment in accordance with the terms of this GIA and such failure has, or could reasonably be expected to adversely impact operation of the Transmission System, Transmission Provider shall notify Interconnection Customer in writing of such failure, its recommended corrective action, and its recommended deadline for the completion of such corrective actions. Within ten Business Days or the deadline reasonably specified by the Transmission Provider, Interconnection Customer must demonstrate to Transmission Provider's satisfaction that Interconnection

Customer has initiated such corrective action as is necessitated by Good Utility Practice. If Interconnection Customer fails to demonstrate within such time period to Transmission Provider's satisfaction that it has initiated or completed such corrective action as is necessitated by Good Utility Practice or that no corrective action is necessitated by Good Utility Practice, Transmission Provider may open the interconnection between Interconnection Customer and Transmission Provider; provided, however, that Transmission Provider may open the interconnection only for so long as is necessary under Good Utility Practice.

9.7.2.7 If Transmission provider determines that a modification to any of Interconnection Customer Interconnection Facilities or associated equipment has been made so that performance is not as originally approved by the Transmission Provider and such performance has, or could reasonably be expected to adversely impact operation of the Transmission System, Transmission Provider may, if such condition is not corrected after giving Interconnection Customer as much advance notice to correct the condition as is practicable under the circumstances, open the interconnection between Interconnection Customer and Transmission provider; provided, however, that Transmission Provider may open the interconnection only for so long as is necessary under Good Utility Practice.

9.7.2.8 Notwithstanding anything to the contrary in this Agreement, the Transmission Provider may immediately disconnect the Facility from the Transmission System, if the Transmission Provider perceives, consistent with Good Utility Practice, that the operation of the Interconnection Customer's equipment or Generating Facility presents an imminent threat to the reliable and safe operation of the Transmission System; provided, however that the Transmission provider may disconnect the facility for so long as is necessary under Good Utility Practice

9.7.3 Under-Frequency and Over Frequency Conditions

The Transmission System is designed to automatically activate a load-shed program as required by the Applicable Reliability Council in the event of an under-frequency system disturbance. Interconnection Customer shall implement under-frequency and over-frequency relay set points for the Generating Facility as required by the Applicable Reliability Council to ensure “ride through” capability of the Transmission System. Generating Facility response to frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied by the Interconnection Customer and coordinated with the Transmission Provider in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice.

9.7.4 System Protection and Other Control Requirements

9.7.4.1 System Protection Facilities

Interconnection Customer shall, at its expense, install, operate and maintain System Protection Facilities as a part of the Generating Facility or the Interconnection Customer Interconnection Facilities. Transmission Provider shall install at Interconnection Customer's expense any System Protection Facilities that may be required on the Transmission Provider Interconnection Facilities or the Transmission System as a result of the interconnection of the Generating Facility and the Interconnection Customer Interconnection Facilities.

9.7.4.2 Each Party’s protection facilities shall be designed and coordinated with other systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Interconnection Customer's units.

9.7.4.5 Each Party will test, operate and maintain System Protection Facilities in accordance with Good Utility Practice.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, each Party or its agent shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, each Party shall perform both calibration and functional trip tests of its System Protection Facilities. These tests do not require the tripping of any in-service generation unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection

In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission System not otherwise isolated by Transmission Provider's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission System. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and

the Transmission System at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission System could adversely affect the Generating Facility.

9.7.6 Power Quality

Each Party shall operate their facilities in such a manner so as to not cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by Applicable Standards adopted by the Transmission provider, such as Canadian Standards Association (CSA) CAN-C235-83, IEEE Recommended Practice 519 (Harmonics) and International Electrotechnical Commission (IEC) Flicker Standard 61000-3-7 (with Flicker Meter IEC 868 using a 120V, 60W weighting curve), or any applicable superseding electric industry standard, including the emission and quality limits specified in Appendix C Interconnection Details. In the event of a conflict between IEC Standard 61000-3-7, IEEE recommended Practice 519, CSA CAN-C235-83, or any applicable superseding electric industry standard, and the Appendix C Interconnection Details, the emission and quality limits specified in Appendix C, Interconnections Details, shall prevail.

9.8 Switching and Tagging Rules

Each Party shall provide the other Party a copy of its switching and tagging rules that are applicable to the other Party's activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Third Parties

9.9.1 Purpose of Interconnection Facilities

Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission System and shall be used for no other purpose.

9.9.2 Third Party Users

If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld, to allow one or more third parties to use the Transmission Provider's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Provider, all third party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer and any third party users based upon the pro rata use of the Interconnection Facilities by Transmission Provider, all third party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to the Board for resolution.

9.10 Disturbance Analysis Data Exchange

The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission Provider's Transmission System by gathering and providing access to any information relating to any disturbance, including information from

oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

9.11 Emergency Numbers

Each Party will provide, by written notice, an emergency telephone number, staffed 24 hours a day, to call in case of an emergency. Beginning of the Effective Date of this Agreement, and until modified in writing:

The Transmission Provider's emergency telephone numbers is: [INSERT NUMBER]

The Interconnection Customer's emergency telephone number is: [INSERT NUMBER]

9.12 Safety

Subject to Section 18, the Parties agree to be solely responsible for and assume all liability for the safety and supervision of their own employees, agents, representatives, and subcontractors.

The Parties agree that all work performed by either Party which could reasonably be expected to affect the operations of the other Party will be performed in accordance with all applicable laws, rules, and regulations pertaining to the safety of persons or property, including without limitation, compliance with the safety regulations and standards adopted under the Occupational Health and Safety Act, as amended from time to time, the Canadian Electrical Safety Code as amended from time to time and Good Utility Practice.

ARTICLE 10. MAINTENANCE

10.1 Transmission Provider Obligations

Transmission Provider shall maintain the Transmission System and the Transmission Provider's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA.

10.2 Interconnection Customer Obligations

Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer Interconnection Facilities in a safe and reliable manner and in accordance with this GIA.

10.3 Coordination

The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.

10.4 Secondary Systems

Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact the other Party. Each Party shall provide advance notice to the other Party before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

10.5 Operating and Maintenance Expenses

Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing interconnection or transmission service to a third party and such third party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with:

- (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer Interconnection Facilities; and
- (2) operation, maintenance, repair and replacement of Transmission Provider's Interconnection Facilities.

ARTICLE 11. PERFORMANCE OBLIGATION

11.1 Interconnection Customer Interconnection Facilities

Interconnection Customer shall design, procure, construct, install, own and operate the Interconnection Customer Interconnection Facilities described in Appendix A (Interconnection Facilities, Network Upgrades and Distribution Upgrades), at its sole expense.

11.2 Transmission Provider's Interconnection Facilities

Unless otherwise agreed pursuant to Section 5.1.3, Transmission Provider or Transmission Owner shall design, procure, construct, install, own and operate the Transmission Provider's Interconnection Facilities described in Appendix A, (Interconnection Facilities, Network Upgrades and Distribution Upgrades), at the sole expense of the Interconnection Customer.

11.3 Network Upgrades and Distribution Upgrades

Transmission Provider or Transmission Owner shall design, procure, construct, install, own and operate the Network Upgrades and Distribution Upgrades described in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades. The Interconnection Customer shall be responsible for all costs related to Distribution Upgrades. Unless the Transmission Provider or Transmission Owner elects to fund the capital for the Network Upgrades, they shall be solely funded by the Interconnection Customer.

11.4 Transmission Credits

11.4.1 Refund of Amounts Advanced for Network Upgrades

Interconnection Customer shall be entitled to a cash repayment, equal to the total amount paid to Transmission Provider and Affected System Operator, if any, for the Network Upgrades, to be paid to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under Transmission Provider's Tariff and Affected System's Tariff for transmission services with respect to the Generating Facility.

If, after the effective date of this revised GIP, the Interconnection Customer establishes a contract for sale of the output of the Generating Facility to a Load Serving Entity and there are otherwise no incremental payments for transmission service resulting from the use of the Generating Facility by the Load Serving Entity, and in the absence of another mutually agreeable payment schedule, any repayments provided under this Article 11.4.1 shall be established equal to the applicable charge for Long-Term Firm and Short-Term Firm Point-To-Point transmission service defined under Schedule 7 (section 1, 2, 3 or 5, as applicable) of the Tariff multiplied by the portion of the demonstrated output of the Generating Facility under contract to the Load Serving Entity.

Any repayment shall include interest from the date of any payment for Network Upgrades through the date on which the Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interconnection Customer may assign such repayment rights to any person.

Notwithstanding the foregoing, Interconnection Customer, Transmission Provider, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Provider and Affected System Operator take one of the following actions no later than five years from the Commercial Operation Date:

- (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or
- (2) declare in writing that Transmission Provider or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides return of all amounts advanced for Network Upgrades not previously repaid; however full reimbursement shall not extend beyond (20) years from the Commercial Operation Date

If the Generating Facility fails to achieve commercial operation, but it or another Generating Facility is later constructed and makes use of the Network Upgrades, Transmission Provider and Affected System Operator shall at that time reimburse Interconnection Customer for the amounts advanced for the Network Upgrades.

Before such re-imbursement can occur, the Interconnection Customer, or the entity that ultimately constructs the generating facility, if different, is responsible for identifying the entity to which reimbursement must be made.

11.5 Provision of Security

At least 30 Calendar Days prior to the commencement of the procurement, installation, or construction of a discrete portion of a Transmission Provider's Interconnection Facilities, Network Upgrades, or Distribution Upgrades, Interconnection Customer shall provide Transmission Provider, at Interconnection Customer's option, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Provider and is consistent with the applicable laws of Nova Scotia. Such security for payment shall be in an amount sufficient to cover the costs for constructing, procuring and installing the applicable portion of Transmission Provider's Interconnection Facilities,

Network Upgrades, or Distribution Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Provider under this GIA during its term.

In addition:

11.5.1 The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Provider, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

11.5.2 The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Provider and must specify a reasonable expiration date.

11.5.3 The surety bond must be issued by an insurer reasonably acceptable to Transmission Provider and must specify a reasonable expiration date.

11.6 Interconnection Customer Compensation

If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Articles 9.6.3 (Payment for Reactive Power), or 13.5.1 of this GIA, Transmission Provider shall compensate Interconnection Customer in accordance with Interconnection Customer's applicable rate schedule then in effect unless the provision of such service(s) is subject to Board-approved rate schedule. Interconnection Customer shall serve Transmission Provider with any filing of a proposed rate schedule at the time of such filing with the Board. To the extent that no rate schedule is in effect at the time the Interconnection Customer is required to provide or absorb any Reactive Power under this GIA, the Transmission Provider agrees to compensate the Interconnection Customer in such amount as would have been due the Interconnection Customer had the rate schedule been in effect at the time service commenced; provided, however, that such rate schedule must be filed with the Board or other appropriate Governmental Authority within 60 Calendar Days of the commencement of service.

11.6.1 Interconnection Customer Compensation for Actions During Emergency Condition

Transmission Provider shall compensate Interconnection Customer for its provision of real and reactive power and other Emergency Condition services that Interconnection Customer provides to support the Transmission System during an Emergency Condition in accordance with Article 11.6.

ARTICLE 12. INVOICE

12.1 General

Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

12.2 Final Invoice

Within six months after completion of the construction of the Transmission Provider's Interconnection Facilities and the Network Upgrades, Transmission Provider shall provide an invoice of the final cost of the construction of the Transmission Provider's Interconnection Facilities and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Provider shall refund to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within 30 Calendar Days of the issuance of such final construction invoice.

12.3 Payment

Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within 30 Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by Interconnection Customer will not constitute a waiver of any rights or claims Interconnection Customer may have under this GIA.

12.4 Disputes

In the event of a billing dispute between Transmission Provider and Interconnection Customer, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection Customer:

- (i) continues to make all payments not in dispute; and
- (ii) pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute.

If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may provide notice to Interconnection Customer of a Default pursuant to Article 17. Within 30 Calendar Days after the resolution of the dispute, the Party that owes money to the other Party shall pay the amount due with interest.

ARTICLE 13. EMERGENCIES

13.1 Definition

“Emergency Condition” shall mean a condition or situation:

- (i) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or
- (ii) that, in the case of Transmission Provider, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, the Transmission Provider's Interconnection Facilities or the Transmission Systems of others to which the Transmission System is directly connected; or
- (iii) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or the Interconnection Customer Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions; provided, that Interconnection Customer is not obligated by this GIA to possess black start capability.

13.2 Obligations

Each Party shall comply with the Emergency Condition procedures of the Applicable Reliability Council, Applicable Laws and Regulations, and any emergency procedures agreed to by the Joint Operating Committee.

13.3 Notice

Transmission Provider shall notify Interconnection Customer promptly when it becomes aware of an Emergency Condition that affects the Transmission Provider's Interconnection Facilities or the Transmission System that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall notify Transmission Provider promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer Interconnection Facilities that may reasonably be expected to affect the Transmission System or the Transmission Provider's Interconnection Facilities. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.4 Immediate Action

Unless, in Interconnection Customer's reasonable judgment, immediate action is required, Interconnection Customer shall obtain the consent of Transmission Provider, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer Interconnection Facilities in response to an Emergency Condition either declared by the Transmission Provider or otherwise regarding the Transmission System.

13.5 Transmission Provider Authority

13.5.1 General

Transmission Provider may take whatever actions or inactions with regard to the Transmission System or the Transmission Provider's Interconnection Facilities it deems necessary during an Emergency Condition in order to

- (i) preserve public health and safety,
- (ii) preserve the reliability of the Transmission System or the Transmission Provider's Interconnection Facilities,
- (iii) limit or prevent damage, and
- (iv) expedite restoration of service.

Transmission Provider shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer Interconnection Facilities. Transmission Provider may, on the basis of technical considerations, require the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing the Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and

physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.5.2 Reduction and Disconnection

Transmission Provider may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer Interconnection Facilities when such reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of the Transmission Provider pursuant to the Transmission Provider's Tariff. When the Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with the Interconnection Customer using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to the Interconnection Customer and the Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary under Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.6 Interconnection Customer Authority

Consistent with Good Utility Practice and the GIA and the GIP, the Interconnection Customer may take whatever actions or inactions with regard to the Generating Facility or the Interconnection Customer Interconnection Facilities during an Emergency Condition in order to

- (i) preserve public health and safety,

GIP Appendix 6 – Standard Generator Interconnection and Operating Agreement

- (ii) preserve the reliability of the Generating Facility or the Interconnection Customer Interconnection Facilities,
- (iii) limit or prevent damage, and
- (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Provider's Interconnection Facilities.

Transmission Provider shall use Reasonable Efforts to assist Interconnection Customer in such actions. Interconnection Customer shall not be obligated to follow Transmission Provider's instructions to the extent the instruction would have a material adverse impact on the safe and reliable operation of Interconnection Customer's Generating Facility. Upon request, Interconnection Customer shall provide Transmission Provider with documentation of any such alleged material adverse impact.

13.7 Limited Liability

Except as otherwise provided in Article 11.6.1 of this GIA, neither Party shall be liable to the other for any action it takes in responding to an Emergency Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements

Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated

therewith. Each Party shall in good faith seek and use its Reasonable Efforts to obtain such approvals.

14.2 Applicable Law

14.2.1 This Agreement shall be governed by and interpreted in accordance with the laws of the Province of Nova Scotia.

ARTICLE 15. NOTICES

15.1 General

Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by either Party to the other and any instrument required or permitted to be tendered or delivered by either Party in writing to the other shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the Canada Post Corporation with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments

Billings and payments shall be sent to the addresses set out in Appendix F.

15.3 Alternative Forms of Notice

Any notice or request required or permitted to be given by either Party to the other and not required by this Agreement to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.

15.4 Operations and Maintenance Notice

Each Party shall notify the other Party in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 Neither Party shall be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Party in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise due diligence to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General

No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of the other Party. Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in Article 17.1.2, the defaulting Party shall have 30 Calendar Days from receipt of the Default notice within which to cure such Default; provided however, if such Default is not capable of cure within 30 Calendar Days, the defaulting Party shall commence such cure within 30 Calendar Days after notice and continuously and diligently complete such cure within 90 Calendar Days from receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

17.1.2 Right to Terminate

If a Default is not cured as provided in this Article, or if a Default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this GIA by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this GIA, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

ARTICLE 18. INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE**18.1 Indemnity**

The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions arising from its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

18.1.1 Indemnified Person

If an indemnified person is entitled to indemnification under this Article 18 as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.1, to assume the defense of such claim, such indemnified person may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

18.1.2 Indemnifying Party

If an indemnifying Party is obligated to indemnify and hold any indemnified person harmless under this Article 18, the amount owing to the indemnified person shall be the amount of such indemnified person's actual Loss, net of any insurance or other recovery.

18.1.3 Indemnity Procedures

Promptly after receipt by an indemnified person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.1 may apply, the indemnified person shall notify the indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Party.

The indemnifying Party shall have the right to assume the defense thereof with counsel designated by such indemnifying Party and reasonably satisfactory to the indemnified person. If the defendants in any such action include one or more indemnified persons and the indemnifying Party and if the indemnified person reasonably concludes that there may be legal defenses available to it and/or other indemnified persons which are different from or additional to those available to the indemnifying Party, the indemnified person shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an indemnified person or indemnified persons having such differing or additional legal defenses.

The indemnified person shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the indemnifying Party. Notwithstanding the foregoing, the indemnifying Party

- (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the indemnified person and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the indemnified person, or there exists a conflict or adversity of interest between the indemnified person and the indemnifying Party,

in such event the indemnifying Party shall pay the reasonable expenses of the indemnified person, and

- (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the indemnified person, which shall not be unreasonably withheld, conditioned or delayed.

18.2 Consequential Damages

Other than the liquidated damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.3 Insurance

Each party shall, at its own expense, maintain in force throughout the period of this GIA, and until released by the other Party, the following minimum insurance coverages, with insurers licensed to do business in Nova Scotia.

18.3.1 Each party shall provide a copy of a certificate of registration, affidavit, or letter of compliance from the Nova Scotia Workers' Compensation Board.

18.3.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent

normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of Ten Million Dollars (\$10,000,000) per occurrence/Ten Million Dollars (\$10,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.3.3 Comprehensive Automobile Liability Insurance for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers designed for travel on public roads, with a minimum, combined single limit of Two Million Dollars (\$2,000,000) per occurrence for bodily injury, including death, and property damage.

18.3.4 Excess Public Liability Insurance over and above the Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars (\$20,000,000) per occurrence/Twenty Million Dollars (\$20,000,000) aggregate.

18.3.5 The Commercial General Liability Insurance and Excess Public Liability Insurance policies shall name the other Party, its parent, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Group and provide thirty (30) Calendar Days advance written notice to the Other Party Group prior to anniversary date of cancellation or any material change in coverage or condition.

18.3.6 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

- 18.3.7** The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by the Parties.
- 18.3.8** The requirements contained herein as to the types and limits of all insurance to be maintained by the Parties are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by the Parties under this GIA.
- 18.3.9** Within ten days following execution of this GIA, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within 90 days thereafter, each Party shall provide certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.
- 18.3.10** Notwithstanding the foregoing, each Party may self-insure to the extent it maintains a self-insurance program; provided that, such Party's senior secured debt is rated at investment grade, or better, by a rating agency acceptable to the Transmission Provider. For any period of time that a Party's senior secured debt is unrated or is rated at less than investment grade, such Party shall comply with the insurance requirements applicable to it under Articles 18.3.1 through 18.3.9. In the event that a Party is permitted to self-insure pursuant to this Article 18.3.10, it shall not be required to comply with the insurance requirements applicable to it under Articles 18.3.1 through 18.3.9. In the event that a Party is permitted to self-insure, such Party shall provide satisfactory evidence on a quarterly basis that its senior secured debt maintains a rating of investment grade or better, that such rating is not under review by the rating agency, and that the Party is not aware of any circumstance that would cause such rating to fall below investment grade.

18.3.11 The Parties agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

18.4 Duty to Mitigate

Each Party has a duty to mitigate damages and shall use all reasonable efforts to minimize any losses, costs, expenses, damages or other liabilities it may incur as a result of the other Party's performance or non-performance of this Agreement, but for greater certainty, neither Party shall have any duty to mitigate damages or losses for which this Agreement provides specific compensation.

ARTICLE 19. ASSIGNMENT

19.1 Assignment

This GIA may be assigned by either Party only with the written consent of the other; provided that either Party may assign this GIA without the consent of the other Party to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that the Interconnection Customer shall have the right to assign this GIA, without the consent of the Transmission Provider, for collateral security purposes to aid in providing financing for the Generating Facility, provided that the Interconnection Customer will require any secured party, trustee or mortgagee to notify the Transmission Provider of any such assignment. Any financing arrangement entered into by the Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify the Transmission Provider of the date and particulars of any such exercise of assignment right(s). Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be

enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 Severability

If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA; provided that if the Interconnection Customer (or any third party, but only if such third party is not acting at the direction of the Transmission Provider) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

ARTICLE 21. COMPARABILITY

21.1 Comparability

The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 Confidentiality

A Party providing Confidential Information shall notify, either orally or in writing, the Party receiving the information, that the information provided is confidential.

If requested by either Party, the other Party shall provide in writing, the basis for asserting that Confidential Information warrants confidential treatment. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term

During the term of this GIA, and for a period of three years after the expiration or termination of this GIA, except as otherwise provided in this Article 22, each Party shall hold in confidence and shall not disclose to any person Confidential Information.

22.1.2 Scope

Confidential Information shall not include information that the receiving Party can demonstrate:

- (1) is generally available to the public other than as a result of a disclosure by the receiving Party;
- (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party;
- (3) was supplied to the receiving Party without restriction by a third party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential;
- (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party;
- (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or

- (6) is required, in accordance with Article 22.1.7 of the GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the other Party that it no longer is confidential.

22.1.3 Release of Confidential Information

Neither Party shall release or disclose Confidential Information to any other person, except to its employees, consultants, or to parties who may be or considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing Confidential Information to any person shall remain primarily responsible for any subsequent release of Confidential Information in contravention of this Article 22.

22.1.4 Rights

Each Party retains all rights, title, and interest in the Confidential Information that each Party discloses to the other Party. The disclosure by each Party to the other Party of Confidential Information shall not be deemed a waiver by either Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

22.1.5 No Warranties

By providing Confidential Information, neither Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, neither Party obligates itself to provide any particular information or Confidential Information to the other Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

22.1.6 Standard of Care

Each Party shall use at least the same standard of care to protect the other Party's Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Party may use the other Party's Confidential Information solely to fulfill its obligations to the other Party under this GIA or its regulatory requirements.

22.1.7 Order of Disclosure

If a court or a Government Authority or entity with the right, power, and apparent authority to do so requests or requires either Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the other Party with prompt notice of such request(s) or requirement(s) so that the other Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement

Upon termination of this GIA for any reason, each Party shall, within ten Calendar Days of receipt of a written request from the other Party, use Reasonable Efforts to

destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the other Party) or return to the other Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the other Party.

22.1.9 Remedies

The Parties agree that monetary damages would be inadequate to compensate a Party for the other Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the other Party shall be entitled to equitable relief, by way of injunction or otherwise, if the first Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the receiving Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to The Board or its Staff

Notwithstanding anything in this Article 22 to the contrary, if the Board or its staff, during the course of an investigation or otherwise, requests information from one of the Parties that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to the Board or its staff, within the time provided for in the request for information. In providing the information to the Board or its staff, the Party must, request that the information be treated as confidential and non-public by the Board and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Party to this GIA prior to the release of the Confidential

Information to the Board or its staff. The Party shall notify the other Party to the GIA when it is notified by the Board or its staff that a request to release Confidential Information has been received by the Board, at which time either of the Parties may respond before such information would be made public.

22.1.11 Subject to the exceptions in Article 22.1.3 and Article 22.1.10, any information that a Party claims is Confidential Information shall not be disclosed by the other Party to any person not employed or retained by the other Party, except to the extent disclosure is

- (i) required by law;
- (ii) reasonably deemed by the disclosing Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute;
- (iii) otherwise permitted by consent of the other Party, such consent not to be unreasonably withheld; or
- (iv) necessary to fulfill its obligations under this GIA or as a transmission service provider or an Operating Area operator including disclosing the Confidential Information to an RTO or ISO or to a regional or national reliability organization.

Prior to any disclosures of the other Party's Confidential Information under this subparagraph, or if any third party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the disclosing Party agrees to promptly notify the other Party in writing and agrees to assert confidentiality and cooperate with the other Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

22.1.12 This provision shall not apply to any information that was or is hereafter in the public domain (except as a result of a Breach of this provision).

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Party, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall:

- (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and
- (ii) promptly furnish to the other Party copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 Information Acquisition

Transmission Provider and the Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 Information Submission by Transmission Provider

The initial information submission by Transmission Provider shall occur no later than 180 Calendar Days prior to Trial Operation and shall include Transmission System information necessary to allow the Interconnection Customer to select equipment and meet any system

protection and stability requirements, unless otherwise mutually agreed to by both Parties. On a monthly basis Transmission Provider shall provide Interconnection Customer a status report on the construction and installation of Transmission Provider's Interconnection Facilities and Network Upgrades, including, but not limited to, the following information:

- (1) progress to date;
- (2) a description of the activities since the last report
- (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 Updated Information Submission by Interconnection Customer

The updated information submission by the Interconnection Customer, including manufacturer information, shall occur no later than 180 Calendar Days prior to the Trial Operation. Interconnection Customer shall submit a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to Transmission Provider for the Feasibility and Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, the Interconnection Customer will work with a consultant mutually agreed to by the Parties to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission Provider Transmission System based on the actual data submitted pursuant to this Article 24.3. The Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation

Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with any and all “as-built” Generating Facility information or “as-tested” performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. The Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice such as an open circuit “step voltage” test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include:

- (1) Generating Facility at synchronous speed;
- (2) automatic voltage regulator on and in voltage control mode; and
- (3) a five percent (5 percent) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage.

Interconnection Customer shall provide validated test recordings showing the responses of Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to the Transmission Provider for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, the Interconnection Customer shall provide Transmission Provider any information changes due to equipment replacement, repair, or adjustment. Transmission Provider shall provide the Interconnection Customer any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Provider-owned substation that may

affect the Interconnection Customer Interconnection Facilities equipment ratings, protection or operating requirements. The Parties shall provide such information no later than 30 Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access

Each Party (the “disclosing Party”) shall make available to the other Party information that is in the possession of the disclosing Party and is necessary in order for the other Party to:

- (i) verify the costs incurred by the disclosing Party for which the other Party is responsible under this GIA; and
- (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events

Each Party (the “notifying Party”) shall notify the other Party when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, and reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Article shall not entitle the Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights

Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Party, to audit at its own expense the other Party's accounts and records pertaining to either Party's performance or either Party's satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Party's costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission System, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation on the Transmission System, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods

25.4.1 Audit Rights Period for Construction-Related Accounts and Records

Accounts and records related to the design, engineering, procurement, and construction of Transmission Provider's Interconnection Facilities and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Provider's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records

Accounts and records related to either Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows:

- (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and
- (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four months after the event for which the audit is sought.

25.5 Audit Results

If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the other Party together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General

Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

26.2 Responsibility of Principal

The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Transmission Provider be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under Article 5 of this GIA. Any applicable

obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance

The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 External Arbitration Procedures

In the event of a dispute arising between the Parties as to the subject matter of this Agreement that cannot be resolved between them, the Parties agree to submit the dispute to binding arbitration, pursuant to the terms of the *Commercial Arbitration Act*, S.N.S. 1999, c.5. In particular, the Parties agree to utilize the arbitration procedure attached as Schedule "A" to the *Commercial Arbitration Act* in the conduct of the arbitration. Any matter in dispute that is submitted for arbitration shall be heard by a single arbitrator chosen unanimously by the parties. In the event the parties cannot agree on a person to act as a single arbitrator, each party shall choose one panelist and the two panelists shall choose an independent third panelist who shall also chair the arbitration. No such arbitrator shall have previously been employed by either party and shall not have a direct or indirect interest in either party or the subject matter of the arbitration. The cost of the arbitration, excluding a parties legal fees and disbursements shall, unless otherwise ordered by the arbitrator or the panel, be borne equally by the parties.

27.2 Arbitration Decisions

Unless otherwise agreed by the Parties, the arbitrator(s) shall render a decision within 90 Calendar Days of appointment and shall notify the Parties in writing of such decision and the reasons therefore. The arbitrator(s) shall be authorized only to interpret and apply the provisions of this GIA and shall have no power to modify or change any provision of this

Agreement in any manner. The decision of the arbitrator(s) shall be final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General

Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing

Such Party is duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the Province or Provinces in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority

Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict

The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets

28.1.4 Consent and Approval

Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. JOINT OPERATING MEETINGS

29.1 Joint Operating and Maintenance Meetings

Transmission Provider shall constitute a Joint Operating and Maintenance Meeting to coordinate operating and technical considerations of Interconnection Service. At least six months prior to the expected Initial Synchronization Date, Interconnection Customer and Transmission Provider shall each appoint one representative and one alternate to hold an initial Operating and Maintenance Meeting. Each Party shall notify the other Party of its appointment in writing. Such appointments may be changed at any time by similar notice. The Joint Operating and Maintenance Meeting shall be conducted as necessary, but not less than once each calendar year, to carry out the duties set forth herein. The Parties shall hold a meeting at the request of either Party, at a time and place agreed upon by the representatives. All decisions and agreements, if any, made by the Joint Operating and Maintenance Meetings shall be documented in Minutes. The objectives of the Joint Operating and Maintenance Meetings shall include the following:

- 29.1.1** To establish data requirements and operating record requirements.
- 29.1.2** To review the requirements, standards, and procedures for data acquisition equipment, protective equipment, and any other equipment or software.
- 29.1.3** Annually review the one year forecast of maintenance and planned outage schedules of Transmission Provider's and Interconnection Customer's facilities at the Point of Interconnection.
- 29.1.4** To coordinate the scheduling of maintenance and planned outages on the Interconnection Facilities, the Generating Facility and other facilities that impact the normal operation of the interconnection of the Generating Facility to the Transmission System.
- 29.1.5** To ensure that information is being provided by each Party regarding equipment availability.
- 29.1.6** To perform such other duties as may be conferred upon it by mutual agreement of the Parties.
- 29.1.7** To establish and maintain control and operating procedures, including those pertaining to information transfers between the Generating facility and the Transmission Provider.

ARTICLE 30. MISCELLANEOUS

30.1 Binding Effect

This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

30.2 Conflicts

In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.

30.3 Rules of Interpretation

This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows:

- (1) the singular number includes the plural number and vice versa;
- (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually;
- (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof;
- (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder;
- (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be;

- (6) “hereunder”, “hereof”, “herein”, “hereto” and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof;
- (7) “including” (and with correlative meaning “include”) means including without limiting the generality of any description preceding such term; and
- (8) relative to the determination of any period of time, “from” means “from and including”, “to” means “to but excluding” and “through” means “through and including”.

30.4 Entire Agreement

This GIA, including all Appendices and Schedules attached hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party’s compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries

This GIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver

The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by the Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings

The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

30.8 Multiple Counterparts

This GIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

30.9 Amendment

The Parties may by mutual agreement amend this GIA by a written instrument duly executed by both of the Parties.

30.10 Modification by the Parties

The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by both of the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 No Partnership

This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

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IN WITNESS WHEREOF, the Parties have executed this GIA in duplicate originals, each of which shall constitute and be an original effective Agreement between the Parties.

[Insert name of Transmission Provider or Transmission Owner, if applicable]

By: _____

By:_____

Title: _____

Title:_____

Date: _____

Date:_____

[Insert name of Interconnection Customer]

By: _____

Title: _____

Date: _____

**Appendix A
To GIA**

Interconnection Facilities, Network Upgrades and Distribution Upgrades

1. Interconnection Facilities:

[Identify the Point of Interconnection]

[Identify the Point of Change of Ownership]

(a) [insert Interconnection Customer's Interconnection Facilities]:

(b) [insert Transmission Provider's Interconnection Facilities]:

2. Network Upgrades:

(a) [insert Stand Alone Network Upgrades]:

(b) [insert Other Network Upgrades]:

3. Distribution Upgrades:

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**Appendix B
To GIA**

Milestones

Provision of Security Date (per Section 11.5):

Design and Procurement Authorization Date (per Article 5.5.2):

Construction Authorization Date (per Article 5.6.3):

In-Service Date:

Initial Synchronization Date:

Commercial Operation Date:

Construction Option:

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**Appendix C
To GIA**

Interconnection Details

Schedule A to Appendix C

Basic One Line

Schedule B to Appendix C

Interconnection Facilities Report

Appendix D
To GIA

Security Arrangements Details

Infrastructure security of Transmission System equipment and operations and control hardware and software is essential to ensure day-to-day Transmission System reliability and operational security. The Board will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission System to comply with best practice recommendations from the Applicable Reliability Council and NERC (North American Reliability Corporation). All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

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Appendix E
To GIA

Initial Synchronization Date and Commercial Operation Date

This Appendix E is a part of the GIA between Transmission Provider and Interconnection Customer, and is to be submitted 24hrs prior to the Initial Synchronization Date to confirm the date on which the Trial Operation of the unit at the Generating Facility is expected to begin and again within 24hrs of the Commercial Operation Date to confirm the completion of the Trial Operation and the date on which commercial operation of such unit commenced.

[Date]

[Transmission Provider Address]

Re: _____ Generating Facility

Dear _____:

On **[Date]**, **[Interconnection Customer]** expects to begin Trial Operation of Unit No. ___ at the Generating Facility.

On **[Date]** **[Interconnection Customer]** has completed Trial Operation of Unit No. ____. This letter confirms that **[Interconnection Customer]** commenced commercial operation of Unit No. _____ at the Generating Facility, effective as of **[Date plus one day]**.

Thank you.

[Signature]

[Interconnection Customer Representative]

**Appendix F
To GIA**

Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

[To be supplied.]

Interconnection Customer:

[To be supplied.]

Billings and Payments:

Transmission Provider:

[To be supplied.]

Interconnection Customer:

[To be supplied.]

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

[To be supplied.]

Interconnection Customer:

[To be supplied.]

APPENDIX G To GIA

INTERCONNECTION REQUIREMENTS FOR A WIND GENERATING PLANT

Appendix G sets forth requirements and provisions specific to a wind generating plant. All other requirements of this GIA continue to apply to wind generating plant interconnections.

A. Technical Standards Applicable to a Wind Generating Plant

i. Low Voltage Ride-Through (LVRT) Capability

A wind generating plant shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the standard below.

LVRT Standard

All wind generating plants must meet the following requirements:

1. Wind generating plants are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4 – 9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to prefault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the wind generating plant substation location, as determined by and documented by the transmission provider. The maximum clearing time the wind generating plant shall be required to withstand for a three-phase fault shall be 9 cycles after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the wind generating plant may disconnect from the transmission system. A wind generating plant shall remain interconnected during such a fault on the transmission system for a voltage level as low as zero volts, as measured at the high voltage side of the wind generating plant step-up transformer (“GSU”). For the purposes of Appendix G, “GSU” shall mean Interconnection Customer’s Interconnection Facilities substation transformer.
2. This requirement does not apply to faults that would occur between the wind generator terminals and the high side of the GSU.
3. Wind generating plants may be tripped after the fault period if this action is intended as part of a special protection system.
4. Wind generating plants may meet the LVRT requirements of this standard by the performance of the generators or by installing additional equipment (e.g., Static VAR Compensator) within the wind generating plant or by a combination of generator performance and additional equipment.

5. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G LVRT Standard are exempt from meeting the Appendix G LVRT Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G LVRT Standard.

ii. Power Factor Design Criteria (Reactive Power)

A wind generating plant shall maintain a power factor within the range of 0.95 leading to 0.95 lagging, measured at the Point of Interconnection as defined in this GIA. The power factor range standard can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by the Transmission Provider, or a combination of the two. The Interconnection Customer shall not disable power factor equipment while the wind plant is in operation. Wind plants shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system if the System Impact Study shows this to be required for system safety or reliability.

iii. Supervisory Control and Data Acquisition (SCADA) Capability

The wind plant shall provide SCADA capability to transmit data and receive instructions from the Transmission Provider to protect system reliability. The Transmission Provider and the wind plant Interconnection Customer shall determine what SCADA information is essential for the proposed wind plant, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

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APPENDIX H**To GIA****REGULATORY AND GOVERNMENT AGENCY APPROVALS**

The Interconnection Customer shall be solely responsible to obtain any and all permits and approvals (such as regulatory environmental approvals both federal and provincial) that (1) it requires to lawfully construct, own and operate the Generating Facility and the Interconnection Customer's Interconnection Facilities and (2) are required to lawfully construct the Transmission Provider's Interconnection Facilities.

The Transmission Provider shall be solely responsible to obtain any and all permits and approvals that (1) it requires to lawfully own and operate the Transmission Provider's Interconnection Facilities and (2) it requires to lawfully construct, own and operate any and all Network Upgrades and (3) it requires to lawfully construct modifications to (as may be contemplated in this Agreement), own and operate the Transmission System.

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NON-CONFIDENTIAL

1 **Request IR-12:**

2

3 **With respect to DE-03 – DE-04, page 17 of 159, Lines 25-28,**

4 **a) What is driving the change in sales mix?**

5 **b) How does the change in sales mix add \$3 million to costs?**

6

7 Response IR-12:

8

9 (a) Between 2013 and 2014, in province electric sales are forecast to decline by 20.5 GWh
10 overall, please refer to FOR-06 Attachment 1 of the Application. The change in sales
11 mix is composed of a decline in residential (-16 GWh), commercial (-13.5 GWh) and
12 other (-7.5 GWh) sales, and will be partly offset by an increase in industrial sales (+16.5
13 GWh). The changes to these classes are due to economic, demographic, and
14 technological changes. For a complete explanation of the changes in each class, please
15 refer to the 2012 Load Forecast Report, SR-02 Attachment 1 of the Application.

16

17 (b) The change in mix from classes with higher unit revenue (residential and commercial) to
18 classes with lower unit revenue (industrial), combined with the overall decrease in sales
19 will have a net effect of reducing the contribution to fixed costs by \$3 million thereby
20 increasing the test year revenue requirement shortfall by \$3 million.

NON-CONFIDENTIAL

1 **Request IR-13:**

2

3 **With respect to DE-03 – DE-04, page 21 of 159, please confirm that the first bullet means**
4 **that FAM adjustments associated with 2012, 2013 and 2014 will be deferred to 2015, but**
5 **FAM adjustments related to years prior to 2012 will not be deferred.**

6

7 Response IR-13:

8

9 Confirmed; however, to the extent that some of proposed 2013 FAM Balance Adjustment (BA)
10 will be over/under recovered, it will be deferred for recovery in 2015.

NON-CONFIDENTIAL

1 **Request IR-14:**

2
3 **With respect to DE-03 – DE-04, page 26 of 159, Lines 13 and 14 propose to “continue**
4 **deferring the recovery of fixed cost related to the loss of pulp and paper load**
5 **contributions”.**

6 **a) Please confirm that this deferral relates only to the lost contributions related to 2012**
7 **as agreed in the Settlement Agreement for 2012, including the lost contributions**
8 **resulting from the Load Retention rate.**

9 **b) If (a) is not confirmed, please explain why any lost contributions from 2013 and**
10 **2014 are not captured in the revenue requirement that exceeds the 3% adjustments**
11 **and is proposed to be deferred.**

12
13 **Response IR-14:**

14
15 (a) The deferral relates to the lost contributions associated with 2012, as per the Settlement
16 Agreement,¹ and forecast lost contributions on a go forward basis in years 2013 and
17 2014.

18
19 (b) The 2013 and 2014 revenue requirements under the traditional rate making mechanism,
20 reflects all costs of service including the impact of the loss of load. Under the proposed
21 Rate Stabilization Plan, the deferred costs are primarily comprised of the forgone
22 contributions to the recovery of fixed costs associated with load which was assumed to be
23 on the system for the 2012 GRA purposes, but is no longer on the system, and from the
24 transition of one large customer to a Load Retention Rate.

¹ NSPI 2012 General Rate Application, Settlement Agreement, NSUARB-NSPI-P-892, September 19, 2011.

NON-CONFIDENTIAL

1 **Request IR-15:**

2

3 **With respect to DE-03 – DE-04, page 26 of 159, Line 18 and Appendix P,**

4 **a) Please provide the Excel version of this Appendix.**

5 **b) Please explain how Column F on page 1 of Attachment 2 is calculated.**

6 **c) Please explain how Column H on page 1 of Attachment 2 is calculated.**

7 **d) Please explain the basis on which the 2013 BA in Column N on page 1 is calculated.**

8

9 Response IR-15:

10

11 (a) Please refer to CA IR-58 – CA IR-61.

12

13 (b) Column F represents the base cost rate revenues, originally reported in column F of
14 Appendix M of the Application, reduced by the amounts necessary to bring the overall
15 increase in each class revenue, as shown in Column S, to 3 percent. As an example, the
16 residential class base cost revenue, shown at \$656.6 million in Column F of Appendix M,
17 was reduced by \$31.1 million in Appendix P of the Application, to yield the overall
18 increase for this class of 3 percent rather than the 8 percent reported in Column S of
19 Appendix M.

20

21 (c) Column H is calculated through dividing Column G by Column E

22

23 (d) Please refer to Multeese IR-5.

NON-CONFIDENTIAL

1 **Request IR-16:**

2

3 **With respect to DE-03 – DE-04, page 28 of 159, Line 15-16 suggest that \$110 million is the**
4 **maximum amount that could be recovered over eight years without an increase in rates.**

5 **a) Please explain how the \$110 million was determined and provide its derivation.**

6 **b) In the event that the deferral amount is less than \$110 million, does NSPI still intend**
7 **that it would be recovered over eight years?**

8

9 **Response IR-16:**

10

11 (a) The estimate of \$110 million was determined based on obtaining a deferral at the end of
12 2014 comparable to the amortization expense related to Section 21 Tax deferral. Please
13 refer to Liberty IR-39.

14

15 (b) NS Power will seek a shorter recovery period such that customer rates remain relatively
16 unchanged based on the conclusion of the Section 21 Tax deferral.

NON-CONFIDENTIAL

1 **Request IR-17:**

2

3 **With respect to DE-03 – DE-04, page 29 of 159, Line 6, if the Rate Stabilization Plan is**
4 **approved, does NSPI intend to apply the 3% as a cap on increases to Miscellaneous**
5 **Charges?**

6

7 Response IR-17:

8

9 NS Power does not intend to apply the 3 percent cap on increases to individual Miscellaneous
10 charges. Also, please refer to NSUARB IR-32.

NON-CONFIDENTIAL

1 **Request IR-18:**

2
3 **With respect to DE-03 – DE-04, page 29 of 159, Lines 20-21, and page 31 of 159, Lines 1-9,**
4 **please confirm that in this proceeding,**

- 5 a) **NSPI is asking the Board to approve the revenue requirements for 2013 and 2014.**
6 b) **Any portion of the revenue requirement approved in a) that is not recovered**
7 **through a 3% increase in rates in 2013 and 2014 will be recovered over an eight**
8 **year period beginning in 2015.**
9 c) **Should NSPI's actual revenue requirement in 2013 and/or 2014 be less than the**
10 **Board may approve in this proceeding, such that over 2013 and 2014 NSPI's**
11 **cumulative ROE would exceed 9.5%, the amounts deferred to 2015 and beyond will**
12 **be reduced to limit NSPI's ROE to 9.5.**
13 d) **Should NSPI's actual revenue requirement in 2013 and/or 2014 be more than the**
14 **Board may approve in this proceeding, the amounts deferred to 2015 and beyond**
15 **will reflect those additional revenue requirements.**
16 e) **If d) is confirmed, what is the ROE against which the additional revenue**
17 **requirements are proposed to be calculated?**

18
19 **If any of a) – d) is not confirmed, please clarify how it is different from what NSPI is**
20 **seeking.**

21
22 **Response IR-18:**

- 23
24 (a) **Confirmed.**
25
26 (b) **Confirmed. NS Power estimates that if the deferral of approved revenue requirement not**
27 **recovered through rates in 2013 and 2014 does not exceed \$110 million, it can be**
28 **recovered over eight years with the annual amortization currently applied to the Section**
29 **21 Tax deferral.**

NON-CONFIDENTIAL

- 1 (c) Confirmed. Measured over the two year period, to the extent NS Power would otherwise
2 have earned in excess of 9.5 percent return on equity (ROE), those amounts will be used
3 instead to reduce the deferral. As such, NS Power will have a cap on two year total
4 earnings.
5
- 6 (d) NS Power is not seeking protection from the possibility of earning below its earnings
7 band (9.1 percent on the lower end). To the extent actual costs are higher than forecast
8 (or revenue is lower, or a combination of both), and NS Power earns less than 9.1 percent
9 ROE, the deferral amount will not be changed.
10
- 11 (e) Not applicable.

NON-CONFIDENTIAL

1 **Request IR-19:**

2
3 **With respect to DE-03 – DE-04, page 31 of 159, Lines 15 -18, which suggests a need to**
4 **calculate the amounts of deferral to be recovered from each class using any new cost of**
5 **service,**

6 a) **Has NSPI considered whether the amounts to be recovered from each class could be**
7 **determined as differences in class revenues between Appendices M and P?**

8 b) **Please comment on the appropriateness of the approach suggested in a) versus**
9 **tracking total fixed costs deferrals and fuel costs deferrals and assigning them to**
10 **customer classes at a later date.**

11 c) **Does NSPI anticipate that a new cost of service could require a re-calculation of**
12 **Appendices M or P?**

13
14 **Response IR-19:**

15
16 (a) NS Power proposes that the estimates of deferrals by class be the difference between the
17 total class revenues from Appendices M and Appendix P of the Application plus
18 appropriate carrying costs. Please refer to pages 3 and 4, Appendix P Attachment 2 of
19 the Application.

20
21 (b) Please refer to response (a) which sets only initial estimates of deferred fixed costs by
22 class. NS Power is able to track separately the recovery of non-fuel and fuel related costs
23 by class during the Rate Stabilization Period.

24
25 The intended approach to be used for tracking the balances of deferred fixed costs is the
26 same as that implemented by NS Power for the purpose of tracking the deferral of fixed
27 cost contribution from NPB in 2012. Please refer to Multeese IR-9 and CA IR-8 for
28 details on the Fixed Cost Recovery (FCR) Deferral associated with NewPage and
29 Bowater.

NON-CONFIDENTIAL

- 1
2 (c) Possibly. That would be a matter for consideration during the Cost of Service Study
3 (COSS) proceeding, along with other matters relating to transition from the old COSS to
4 the new COSS.

NON-CONFIDENTIAL

1 **Request IR-20:**

2

3 **With respect to DE-03 – DE-04, page 74 of 159, Line 18, does NSPI intend that its August**
4 **fuel update will address both 2013 and 2014?**

5

6 Response IR-20:

7

8 Yes.

NON-CONFIDENTIAL

1 **Request IR-21:**

2

3 **With respect to DE-03 – DE-04, page 83 of 159, Line 7, please reconcile the pension**
4 **increase of \$17.8 million to the \$26 million shown on page 14, Line 13.**

5

6 Response IR-21:

7

8 The pension figure of \$26 million is the increase in pension expense of \$17.8 million divided by
9 one less the income tax rate of 31 percent. The \$26 million represents the additional revenue
10 requirement on a pre-tax basis for the increased pension expense of \$17.8 million.

NON-CONFIDENTIAL

1 **Request IR-22:**

2

3 **With respect to DE-03 – DE-04, page 104 of 159, Line 24, and the Non-LED Deferral**
4 **amounts of \$5.2 million (2013) and \$8.3 million (20104) shown on Line 13 of RB-2-16,**

5 **a) Please provide details to support the \$5.2 million and the \$8.3 million.**

6 **b) How many non-LED lights and fixtures were replaced in 2012 and what is the**
7 **forecast for 2013 and 2014?**

8 **c) If non-LED's were replaced in 2012, what, if any, stranded costs were created?**

9

10 **Response IR-22:**

11

12 (a) Please refer to Attachment 1.

13

14 (b) There are 15,000 non-LED streetlights forecast to be replaced in each of 2012 and 2013.
15 There are 24,000 non-LED streetlights forecast to be replaced in 2014. Please note that
16 the LED capital work order will update the forecast.

17

18 (c) This forecast replacement of non-LED streetlights creates an estimated stranded cost for
19 2012 of \$2.6 million. Please refer to Attachment 1.

Non-LED Streetlights			
	PP&E	Accum Depr	NBV
2011 Ending Balance	\$52,615,649	\$30,651,780	\$21,963,869
Spend	-	-	
Additions	217,282	-	
Retirements	(398,830)	(398,830)	
Depreciation	-	2,806,693	
Removal/Salvage	-	(111,165)	
2012 Ending Balance	\$52,434,101	\$32,948,478	\$19,485,623
Spend	-	-	
Additions	109,254	-	
Retirements	(12,124,112)	(12,124,112)	
Depreciation	-	2,317,611	
Removal/Salvage	-	(346,977)	
Non-LED Deferral		5,211,196	
2013 Ending Balance	\$40,419,243	\$28,006,195	\$12,413,048
Spend	-	-	
Additions	118,182	-	
Retirements	(9,912,952)	(9,912,952)	
Depreciation	-	1,886,120	
Removal/Salvage	-	(519,659)	
Non-LED Deferral		3,076,598	
2014 Ending Balance	\$30,624,473	\$22,536,302	\$8,088,171
	NBV	# of Streetlights	NBV/light
2011 Ending	21,963,869	126,832	173.17
2012 Ending	19,485,623	111,832	174.24
2013 Ending	12,413,048	96,832	128.19
	NBV/light	Streetlights retired	Deferral
2012 Deferral	173.17	15,000	2,597,594
2013 Deferral	174.24	15,000	2,613,602
2014 Deferral	128.19	24,000	3,076,598
2013 Addition*	\$5,211,196		
2014 Addition	3,076,598		
Total 2014 Deferral	\$8,287,794		

*Note: 2012 Deferral addition included in 2013 as 2012 Forecast had already been finalized

NON-CONFIDENTIAL

1 **Request IR-23:**

2
3 **With respect to OR-02 (Miscellaneous Revenues),**

- 4 **a) Please explain what is included in Retail Sales.**
5 **b) Please explain what is included in Misc. Revenue and Recoveries.**
6 **c) With respect to the note, please explain OM&G revenue and how it is accounted for**
7 **in NSPI's Filing.**

8
9 **Response IR-23:**

- 10
11 (a) Retail Sales includes amounts for sales of Electric Thermal Storage (ETS) units of
12 approximately \$1.3 million, and the remainder is for the sale of energy information
13 systems.
14
15 (b) Misc. Revenue and Recoveries includes amounts for field service work, specifically \$0.5
16 million for removal of meters and meter screws, \$0.2 million for converting temporary
17 services to permanent, and \$0.5 million for the amortization of deferred revenues.
18
19 (c) Operating, Maintenance and General (OM&G) revenue are amounts that are earned in
20 operational units, and relate to services provided by those units for which customers
21 make a contribution. These revenues are listed by operational unit in Appendix E, under
22 account 190 of the Application. Under Canadian GAAP these were recorded net in
23 OM&G and under US GAAP they are now recorded as revenues. The impact on rates
24 has not changed.

NON-CONFIDENTIAL

1 **Request IR-24:**

2

3 **As noted on SR-02, page 4 of 60 at line 30, the forecast assumes the largest paper mill will**
4 **remain closed indefinitely, removing over 1500 Gwh from the annual load.**

5 a) **What is the effect of this closure on NSPI's expected annual firm and non-firm peak**
6 **demand?**

7 b) **Please confirm that this same forecast is used to develop the fuel portfolio for 2013**
8 **and 2014.**

9 c) **Please confirm that this same forecast is used in the development of plans to meet**
10 **emission constraints (such as CO2, SO2, NOX and mercury) and renewable energy**
11 **targets.**

12

13 **Response IR-24:**

14

15 (a) In the previous load forecast, the largest paper mill had a non-firm peak demand of
16 174.5 MW. In this new forecast, the mill load is assumed to be 0 MW, which is a
17 reduction in non-firm demand and provides no contribution or effect on the firm peak
18 forecast.

19

20 (b-c) Confirmed.

NON-CONFIDENTIAL

1 **Request IR-25:**

2

3 **With respect to the integration of DSM into the load forecast, as discussed in SR-02**
4 **beginning at line 7 on page 10 of 60, please confirm that the load forecasts by sector are**
5 **first developed using the econometric models and customer surveys, and the resulting**
6 **forecasts are then adjusted by the DSM estimates shown in Figure 5 on page 12 to arrive at**
7 **forecasts which include DSM effects.**

8

9 Response IR-25:

10

11 Confirmed.

NON-CONFIDENTIAL

1 **Request IR-26:**

2
3 **With respect to SR-02, page 14 of 60 at line 15, please describe the series of end use models**
4 **used to calculate the appliance index.**

5
6 Response IR-26:

7
8 The appliance index estimates the annual energy consumption trend of the provincial stock of
9 eight major household appliances. It includes data for dishwashers, electric ranges, clothes
10 washers and dryers, freezers, refrigerators, televisions and electric water heaters. For each
11 appliance, it includes an annual estimate of saturation (percentage of households using that
12 appliance available from Statistics Canada) multiplied by the annual system average use (SAU)
13 of that appliance measured in kilowatt-hours.

14
15 Annual average usage estimates are based on Natural Resources Canada Office of Energy
16 Efficiency data for major appliances. The system average use for each of these appliances is
17 estimated based on a summation of the quantity of each appliance by vintage (year of
18 installation) that is still in use, multiplied by the annual energy consumption for that vintage.
19 The maturity (lifespan) of each appliance is based on a normal distribution with an assumed
20 mean and standard deviation appropriate for each type using information from Natural Resources
21 Canada. Annual usage for missing or unavailable years is interpolated and the system average
22 use for the stock of appliances is then estimated using a rolling vintage model.

23
24 For use in the residential econometric model, annual appliance consumption is normalized to an
25 index by dividing each annual value by the value of the year 1967, the first year of this data set.
26 The index varies from 1 in 1967 to a peak of 1.84 in the early 1990s and is calculated at 1.496 in
27 2011. The index is currently trending lower, suggesting that efficiency improvements now
28 outweigh the increase in the number of units.

NON-CONFIDENTIAL

1 **Request IR-27:**

2

3 **With respect to SR-02, page 15 of 60 at lines 1-6, the development of the ADIX variable**
4 **appears to include the effects of existing appliances being replaced by more efficient**
5 **appliances at the end of their useful lives.**

6 **a) Please discuss the possibility of a double count between this effect and the DSM**
7 **effects of ENSC programs.**

8 **b) If such a double count exists, please provide NSPI's estimate of its effect on the**
9 **residential forecast.**

10

11 **Response IR-27:**

12

13 (a-b) In its current form, the AIDX variable assumes only a slight efficiency improvement
14 trend in the system average use (SAU) for future appliance models, and is not based on a
15 specific energy conservation plan. As well, saturations for appliances are based on recent
16 upward trends and are not adjusted for Demand Side Management (DSM) programs such
17 as the Appliance Retirement Program which would tend to reduce saturations of
18 refrigerators and freezers. Therefore a material load reduction due to appliance
19 efficiency is not double counted in the load forecast.

NON-CONFIDENTIAL

1 **Request IR-28:**

2

3 **With respect to SR-02, page 15 of 60, line 32 to page 16 of 60, line 4, the decreasing trend in**
4 **the number of new customers appears to be inconsistent with a population that is growing**
5 **and living in smaller households. Please explain.**

6

7 Response IR-28:

8

9 While the population does continue to grow, it is projected to grow at a slower rate with fewer
10 additions each year. The forecast of new customers is greater than the population change, but
11 also follows that reducing trend. The projection of new customers is also aligned with the
12 forecast of total housing starts as provided by the Conference Board of Canada and Canada
13 Mortgage and Housing.

NON-CONFIDENTIAL

1 **Request IR-29:**

2
3 **With respect to the updated commercial model described in SR-02 on page 21 of 60 at line**
4 **13,**

5 **a) Please explain why NSPI chose this new model.**

6 **b) How do the results of the new model for 2013 and 2014 compare with the results**
7 **that the old model would have provided?**

8
9 Response IR-29:

10
11 (a-b) NS Power updated the commercial model following the recommendations of Board
12 consultants, Synapse Energy Economics Inc., in their review of the 2011 load forecast.¹
13 It was suggested that residential sales, with its inherent space heating load, was not an
14 optimal explanatory driver for commercial load. NS Power explored other possible input
15 variables including prices, weather, and the large selection of Nova Scotia economic
16 indicators available from the Conference Board of Canada. The model chosen had good
17 fit statistics, all variables were significant contributors (t-statistic) and the selected
18 variables had reasonable explanatory value with respect to commercial energy
19 consumption.

20
21 The updated model uses:

- 22
23 • Gross Domestic Product (GDP) for the service sector (RQSRS)
24 • Heating degree-days (HDD), and
25 • lagged commercial load (COMENG[-1])
26

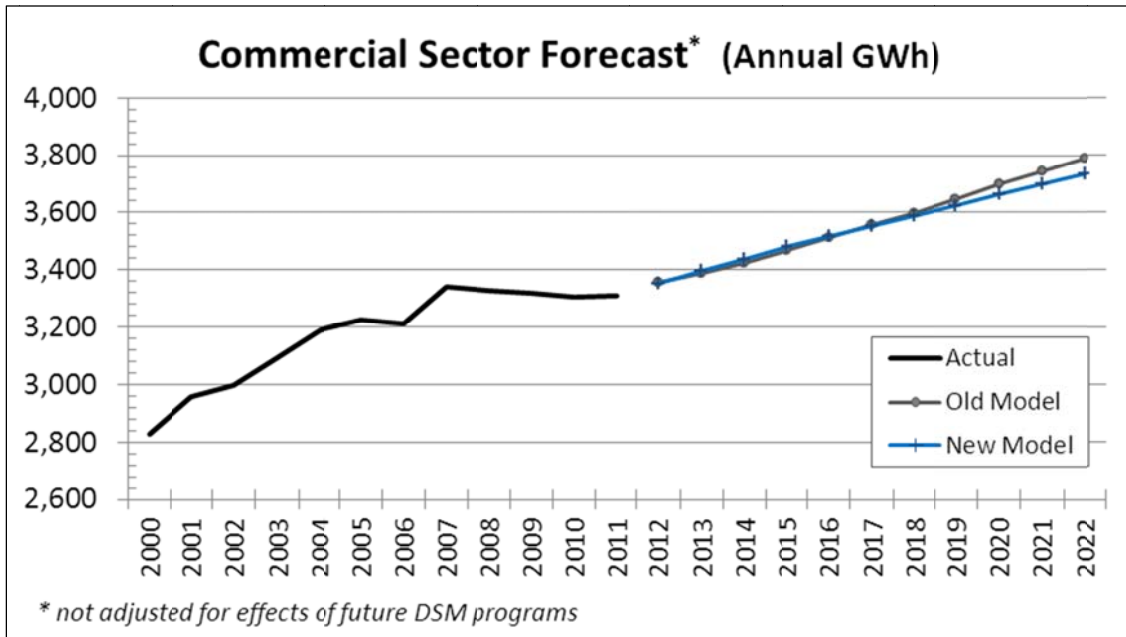
¹ David White and Bruce Biewald, "Findings Regarding the NSPI 2011 Load Forecast", December 27, 2011, page 8.

NON-CONFIDENTIAL

This replaces the variables:

- GDP for Nova Scotia (RQTOS),
- Disposable income (RRYDS),
- Domestic load (DOMENG), and
- lagged commercial load (COMENG[-1])

The graph below shows the new commercial sector model in comparison to the old model. It should be noted that when re-estimating the coefficients for the old model this time, the Disposable income variable (RRYDS) became insignificant and was dropped from the equation. The output from the new model does not differ greatly from that of the old model (7 GWh in 2013 and 14 GWh in 2014).



NON-CONFIDENTIAL

1 **Request IR-30:**

2

3 **With respect to the surveys of largest commercial customers referenced in SR-02 at line 15**
4 **on page 21 of 60,**

5 **a) When did NSPI begin conducting these surveys?**

6 **b) How many surveys are distributed in a typical year and what is the response rate?**

7

8 Response IR-30:

9

10 (a) NS Power has conducted surveys consisting of e-mail messages and discussions with NS
11 Power account managers for many years.

12

13 (b) Grouped with the large industrial customers, approximately 30 surveys are issued to the
14 various plant managers for which we have contact information. Of those surveys, we
15 typically expect to receive 10 responses. Additionally, information is gathered from NS
16 Power account managers who have had recent contact or discussions with customers in
17 these classes.

18

19 Large commercial customers generally have consistent load patterns, however, any that
20 have been in the media or that have had significant changes to recent load trends are
21 investigated more thoroughly.

NON-CONFIDENTIAL

1 **Request IR-31:**

2
3 **With respect to Exhibit 2 of SR-01,**

- 4 a) **Please confirm that the portion of Street Lighting assigned directly is the 2013 rate**
5 **base (capital spent to date minus accumulated depreciation) associated with**
6 **installing LED's.**
7 b) **Please explain what is included in DEF.CHG.- Other in Line 34 and the basis for its**
8 **functionalization.**
9 c) **Please explain what is included in DEF.CHG.- Other in Line 41.**

10
11 **Response IR-31:**

- 12
13 (a) Confirmed. The Street Light rate base assigned directly in Exhibit 2 is made up of two
14 items: LED installations (line 20) and non-LED early retirements (line 34).
15
16 (b) "DEF.CHG.-Other" is comprised of the LED Deferral and Other General Charges that
17 can be found in the Application, RB-02 – RB-16, lines 13 and 14. For a complete list of
18 Other General Charges, please refer to Larkin IR-9.
19
20 The treatment of the LED deferral as Direct Capital is consistent with the Board-
21 approved 2012 GRA Settlement Agreement which gave rise to the treatment of stranded
22 non-LED costs as a below-the-line category.¹ The functionalization of the remaining rate
23 base items among generation, transmission, distribution and retail is consistent with
24 previous general rate applications.
25
26 (c) Please refer to Larkin IR-9.

¹ NSPI 2012 General Rate Application, Settlement Agreement, NSUARB-NSPI-P-892, September 19, 2011, paragraph 72.

NON-CONFIDENTIAL

1 **Request IR-32:**

2
3 **With respect to SR-01, Exhibit 2A page 1,**

- 4 **a) Please provide a list of Steam assets added to increase the energy related portion**
5 **from \$244,020 in the 2012 Compliance Filing to \$341,418.**
6 **b) Please provide the Wind assets added to increase the energy related portion from**
7 **\$115,617 in the 2012 Compliance Filing to \$178,691.**
8 **c) Please provide the rationale for the classification of pension costs (Line 15).**
9

10 Response IR-32:

11
12 (a) The following assets have either been added to the list of Steam assets or increased
13 significantly in value since the 2012 Compliance Filing due to on-going construction.
14 (italicized items reflect those assets whose status will transition from Construction Work
15 in Progress (CWIP) in 2012 to in-service in 2013 test year):
16

- 17 • TUC Replacement of CEMS
18 • POT – *Develop New Ash Cells*
19 • POT – Wastewater Cell Refurbishment
20 • *TRE – Wastewater Treatment Plant Upgrade*
21 • *PH Biomass Project*
22 • LIN \$ U&U ESP Flow Mod
23 • TUC #1&3 Replacement of CEMS
24 • POT- Ash Contacted Water Mgmt.
25 • POT – Lab Upgrades
26 • POT – Refurbish Unit 2 Precipitator
27 • POA Cell 4 Stage 1 Residue Mgmt.
28 • GS – Equipment Replacement
29 • TRE Ash Lagoon Closure
-

NON-CONFIDENTIAL

- 1 • TRE – Ash Site Phase 2 Development
- 2 • TUC – Lube Oil Storage Building
- 3 • TUC2 – CEM Upgrade
- 4 • TUC2 – Stack breeching Seal Replace
- 5 • POT – Ash Cell Capping Cell D
- 6 • TRE – Ash Site Management
- 7 • TRE5 – O2 Sensor Replacement
- 8 • POT – Electrostatic Precipitator
- 9 • POT – Lab Upgrades Phase 2

10

11 (b) No wind assets were added, however the project dollar amounts have been updated to
12 reflect current costs.

13

14 (c) The deferred pension cost rate base (Line 15) is classified between energy and demand
15 based on weighted average shares in these categories of generation-related Operating,
16 Maintenance and General (OM&G) expenses from Exhibit 5 (lines 6 through 9). The
17 approach used is consistent with previous general rate applications. Please refer to
18 Attachment 1, specifically the section labeled as Line 15 in response to NSPI (Multeese)
19 IR-32 from the 2009 GRA.

2009 General Rate Application (NSUARB P-888)
NSPI Responses to Multeese Information Requests

NON-CONFIDENTIAL

1 **Request IR-47:**

2

3 **With respect to SR-01 Attachment 1, page 13 (Exhibit 2A). Please provide the basis of the**
4 **initial classifications in Lines 10, 12-16, 18, 19, 21, 22, 30 and 35.**

5

6 Response IR-47:

7

8 Exhibit 2A, Page 1 of 3, SR-01, Attachment 1:

9

10 Line 10 – Cash, Other – This item is initially classified using the total functionalized Power
11 Production Operating, Maintenance & General (OM&G) expenses from Exhibit 5, Lines 7 to 10.

12

13 Line 12 – Materials and Supplies, Other – This item is initially classified using the results from
14 Total Generation Plant on Line 6 of the same exhibit.

15

16 Line 13 – Deferred Charges, Financing – This is initially classified using the results from Total
17 Generation Plant on Line 6 of the same exhibit.

18

19 Line 14 – Deferred Charges, Tax – This is initially classified using the results from Total
20 Generation Plant on Line 6 of the same exhibit.

21

22 Line 15 – Deferred Charges, Pension – This is initially classified using the total classified Power
23 Production OM&G expenses from Exhibit 5, Lines 7 to 10.

24

25 Line 16 – Deferred Charges, Steam Assets – This is initially classified using the results from
26 Total Steam Plant on Line 1 of the same exhibit.

27

28 Line 18 – Deferred Charges, Other – This is initially classified using the results from Total
29 Generation Plant on Line 6 of the same exhibit.

2009 General Rate Application (NSUARB P-888)
NSPI Responses to Multeese Information Requests

NON-CONFIDENTIAL

1 Response IR-47: (cont'd)

2

3 Line 19 – Deferred Credits, ARO Steam – This is initially classified using the results from Total
4 Steam Plant on Line 1 of the same exhibit.

5

6 Line 21 – Deferred Credits, ARO CT – This is initially classified using the results from Total
7 Gas Turbine, Other Plant shown on Line 5 of the same exhibit.

8

9 Line 22 – Deferred Credits, Other – This is initially classified using the results from Total Steam
10 Plant on Line 1 of the same exhibit.

11

12 Line 30 – Transmission Plant < 138kV Cash, Other – This is initially classified using the total
13 classified Transmission OM&G expenses for > 69kV and < 138kV from Exhibit 5, Lines 23 on
14 Page 1 and Line 1 on Page 2.

15

16 Line 35 – Transmission Plant < 138kV, Deferred Charges, Pension – this is initially classified
17 using the total classified Transmission OM&G expenses for > 69kV and < 138kV from Exhibit
18 5, Lines 23 on Page 1 and Line 1 on Page 2.

NON-CONFIDENTIAL

1 **Request IR-33:**

2

3 **With respect to SR-01, Exhibit 4, Line 7 which shows Operating and Maintenance costs for**
4 **biomass,**

5 a) **Please confirm that these costs relate to NSPI's biomass plant in Port Hawkesbury.**

6 b) **When is the biomass expected to be in service?**

7 c) **Please explain why the biomass plant does not appear in the rate base in Exhibit 2**
8 **or in the rate base details in RB-02 – RB-16, Attachment 1.**

9

10 Response IR-33:

11

12 (a) Confirmed.

13

14 (b) The Biomass Plant is expected to be in service in the second quarter of 2013.

15

16 (c) The Biomass Plant is included under the steam plant rate base in Exhibit 2. Please refer
17 to Multeese IR-39 for the discussion of how carrying costs associated with this asset are
18 treated in the Cost of Service Study (COSS).

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1 **Request IR-34:**

2
3 **With respect to SR-01, Exhibit 4,**

- 4 a) **Please explain the increase in Hydro – Operating and Maintenance to \$9566 from**
5 **\$5237 in the December 9, 2011 Compliance Filing.**
- 6 b) **Please explain the increase in Customer Service/Marketing and Sales to \$37,026**
7 **from \$32,595 in the December 9, 2011 Compliance Filing.**
- 8 c) **Please explain the increase in Other Expenses to \$11,135 from \$2387 in the**
9 **December 9, 2011 Compliance Filing.**
- 10 d) **Please provide the derivation of the DSM Amortization expense (\$2150).**
- 11 e) **On what basis is the FCR Deferral expense functionalized?**
- 12 f) **Please explain the increase in Other Revenue to \$14,108 from \$7020 in the**
13 **December 9, 2011 Compliance Filing.**

14
15 **Response IR-34:**

- 16
17 (a) The Hydro – Operating and Maintenance expense of \$5.2 million used in the 2012
18 Compliance Filing was reflective of a corporate overhead credit adjustment of \$4.7
19 million.¹ Upon further examination, NS Power determined that this overhead credit was
20 overestimated. It should have been \$0.1 million. The overhead credit adjustment in the
21 2013 test year is \$0.2 million. The corrected 2012 GRA figure aligns closely with that
22 proposed in the 2013 GRA.
- 23
24 (b) The Customer Service/Marketing and Sales expense category increased from \$32,595
25 thousand in 2012 to \$37,026 thousand in 2013 primarily due to increases in the following
26 areas: bad debt expense, electrical wiring inspection, and call centre. For more details
27 please refer to SR-01 Exhibit 4 – Detail A, lines 36 to 58 of the Application.

¹ NSPI 2012 General Rate Application, Compliance Filing, NSUARB-NSPI-P-892, December 09, 2011.

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- 1
- 2 (c) The primary driver of the increase from the 2012 Compliance Filing to the 2013 GRA is
- 3 the US GAAP reclassification. Please refer to Liberty IR-55.
- 4
- 5 (d) Please refer to Attachment 1 for 2012 GRA NSPI (NPB) IR-12.
- 6
- 7 (e) The Fixed Cost Recovery (FCR) Deferral expense is functionalized between generation
- 8 and transmission on the basis of relative rate base shares of these two functional areas.
- 9 Please refer to DE-03 – DE-04, page 129, lines 5 to 14 of the Application.
- 10
- 11 (f) Please refer to Multeese IR-40.

2012 General Rate Application (NSUARB P-892)
NSPI Responses to NPB Information Requests

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1 **Request IR-12:**

2

3 **Reference: DE, page 59. “In the 2009 Rate Decision, the Board approved the amortization**
4 **of DSM expenditures for 2008 and 2009 over six years starting in 2009.”**

5

6 **(a) Please confirm that as part of the 2009 General Rate Application, the Board**
7 **approved DSM expenditures of \$12.9 million for 2008 and 2009.**

8

9 **(b) Please confirm that the actual DSM expenditures by NSPI in 2008 and 2009 were**
10 **\$11.85 million.**

11

12 **(c) Please provide a revised table that re-amortizes the remaining \$5.4 million of actual**
13 **DSM expenditures (\$11.85 million - \$6.45 million collected in 2009, 2010, and 2011)**
14 **over the remaining three-year period.**

15

16 **Response IR-12:**

17

18 **(a) Confirmed. Please see the 2009 Rate Case Decision¹, page 39, line 106.**

19

20 **(b) NSPI invested \$11.85 million in 2008 and 2009 on DSM expenditures.**

21

¹ NSPI 2009 Rate Case, UARB Decision, NSUARB – NSPI – P – 888, November 5, 2008

2012 General Rate Application (NSUARB P-892)
 NSPI Responses to NPB Information Requests

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1 (c) See table below:

2

Year	Opening Balance (\$M)	Adjustment⁽¹⁾ (\$M)	Amortization (\$M)	Ending Balance (\$M)
2009	12.9	-	2.2	10.8
2010	10.8	-	2.2	8.6
2011	8.6	-	2.2	6.5
2012	6.5	(1.1)	1.8	3.6
2013	3.6	-	1.8	1.8
2014	1.8	-	1.8	-

3

4 Notes:

5 Represents adjustment of Board approved 2008 and 2009 expenditures to reflect actual
 6 expenditures. Figures presented reflect whole numbers which may cause \$0.1M in
 7 rounding differences on some line items.

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1 **Request IR-35:**

2
3 **With respect to SR-01, Exhibit 4 – Detail B,**

- 4 **a) Please explain the purpose of this Exhibit.**
5 **b) Please explain how the percentage distributions of the \$1,288,320 are derived.**
6 **c) Please explain how the dollars associated with each line item are incorporated into**
7 **the cost of service study.**

8
9 **Response IR-35:**

- 10
11 (a) Exhibit 4 – Detail B in SR-01 of the Application is designed to functionalize the fixed
12 cost contribution under the Load Retention Tariff (LRT) rate between generation and
13 transmission for the purpose of determining the amount of direct cost adjustment in these
14 categories as included in Column (6) in Exhibits 4 and 4A.
15
16 (b) As described in the NPB Load Retention Proceeding, NSPI (Multeese) IR-2, Attachment
17 4, page 2, lines 19-27:

18
19 The costs associated with serving the BTL ELR rate load, before
20 accounting for the \$2/MWh fixed adder contribution, have been treated as
21 fuel and purchased-power related direct costs in COSS. This approach
22 aligns with the COSS cost treatment of the BTL GRLF class. At the
23 projected average avoided unit cost of \$53.60/MWh these costs are set at
24 \$102.1 million. The non-fuel cost contribution of \$3.8 million¹ has been
25 prorated across-the-board to all non-fuel related generation and the high-
26 voltage portion of transmission costs to determine the amount of direct
27 cost adjustment in these categories in Exhibit 4. A new “Exhibit 4 – Detail
28 B” shows how the \$3.8 million amount has been broken down among the
29 direct cost categories.²

30

¹ \$2/MWh * 1,903,014 MWh = \$3.8 million.

² NSPI and NPB Application for Amendments to NSPI’s LRT and LRR, NSPI (Multeese) IR-2, NSURAB-NSPI-P-202, July 18, 2011.

2013 General Rate Application (NSUARB P-893)
NSPI Responses to Multeese Information Requests

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- 1 (c) Please refer to response (a) above.

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1 **Request IR-36:**

2
3 **With respect to SR-01, Exhibit 5,**

4 **a) The Operating and Maintenance expenses in Lines 7-9 are grouped differently from**
5 **their groupings in Exhibit 4, Lines 4-9. Please provide the expenses in Lines 7-9 in**
6 **the same groupings as Exhibit 4, and for each provide the basis on which it is**
7 **classified.**

8 **b) Please explain why it is appropriate to combine hydro, wind and biomass expenses**
9 **and treat them as a single expense for the purposes of classification and allocation.**

10
11 **Response IR-36:**

12
13 (a-b) Exhibit 5 would break down as follows:

14

Generation Function (in thousands of dollars)	Total Company	Demand Expenses	Energy Expenses
Thermal – O&M	109,335	29,366	79,969
Hydro – O&M	9,565	2,569	6,996
Wind – O&M	6,024	1,618	4,406
Biomass – O&M	6,972	1,873	5,099
LM6000 – O&M	426	114	311
Combustion Turbine – O&M	1,223	1,027	196
Total	133,545	36,567	96,977

15
16 The operating costs associated with Biomass are classified in the same way as those of
17 Hydro and Wind. Please note that in all previous general rate application submissions,
18 the wind category was combined with Hydro and classified in the same manner as Steam.
19 Please refer to Attachment 1, which is NS Power's response to NSPI (Multeese) IR-44
20 from the 2009 GRA, and provides the basis for this classification.

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1 **Request IR-44:**

2

3 **With respect to SR-01 Attachment 1, page 32 (Exhibit 5):**

4

5 **a) Please provide the basis of the classifications in Lines 3, 5, 7 -11.**

6 **b) Please provide the basis for the classification of Generation Grants in Lieu of Taxes.**

7 **c) Please provide the basis of the classifications in Lines 14 – 21.**

8 **d) Please provide the derivation of the Total Company O&M < 138 kV in Line 23.**

9

10 **Response IR-44:**

11

12 a) Line 3 – Purchased Power Reg Fixed - Classification of this item is the same as that for
13 Total Generation Plant in Service (Rate Base). Initial classification is demand-related
14 with the exception of environmental plant which is classified as energy-related. Further
15 classification to energy is based on system load factor. Classification of Total Generation
16 Plant in Service is shown in SR-01, Exhibit 2B, (demand and energy columns in “Fully
17 Classified Rate Base” on Line 8) using the Total Generation Function Plant in Service
18 (Rate Base) from Exhibit 2A (page 1 of 3, Column 1, Line 8).

19

20 Line 5 – Purchased Power Wind Fixed – This item is classified to demand and energy
21 using an assumed 30 percent capacity factor for wind generation. This classifies 30
22 percent to demand and 70 percent to energy.

23

24 Line 7 – Operating & Maintenance, Steam – This item is classified to demand and energy
25 using an initial 16 percent assignment to energy (the variable operating expenses
26 associated with generation) and the balance is split based on the results determined using
27 Exhibit 2B, demand and energy columns under “Fully Classified Rate Base” on Line 8
28 and the Total Generation Function Rate Base from Exhibit 2A, Column 1, Line 8.

29

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1 Response IR-44: (cont'd)

2

3 Line 8 – Operating & Maintenance, Hydro – This item is classified the same way as Line
4 7.

5

6 Line 9 – Operating & Maintenance, LM6000 – This item is classified the same way as
7 Line 7.

8

9 Line 10 – Operating & Maintenance, Other CTs – This item is classified to demand and
10 energy using an initial 16 percent assignment to energy (the variable operating expenses
11 associated with generation) with the balance (84 percent) being assigned to demand.

12

13 Line 11 – Demand Side Management Expenses – This item is classified in the same
14 manner as Total Generation Plant in Service. Please refer to classification of Line 3.

15

16 b) Labeled Line 8 – Generation-related Grants in Lieu of Taxes - This item is classified in
17 the same manner as Total Generation Plant in Service. Please refer to classification of
18 Line 3.

19

20 c) Labeled Line 14 – General Property Depreciation – This item is classified to demand and
21 energy in a manner similar to Steam Plant. It is based on Exhibit 2B, demand and energy
22 columns in “Fully Classified Rate Base” on Line 7 and the Total Generation Function
23 Rate Base from Exhibit 2A, Column 1, Line 7.

24

25 Labeled Line 15 – Interest Net of AFUDC – This item is classified to demand and energy
26 based on Exhibit 2B, demand and energy columns in “Fully Classified Rate Base” on
27 Line 25 and the Total Generation Function Rate Base from Exhibit 2A, Column 1, Line
28 25.

29

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1 Response IR-44: (cont'd)

2

3 Labeled Line 16 – Preferred Dividends – This item is classified to demand and energy
4 based on Exhibit 2B, demand and energy columns in “Fully Classified Rate Base” on
5 Line 25 and the Total Generation Function Rate Base from Exhibit 2A, Column 1, Line
6 25.

7

8 Labeled Line 17 – Corporate Taxes – This item is classified to demand and energy based
9 on Exhibit 2B, demand and energy columns in “Fully Classified Rate Base” on Line 25
10 and the Total Generation Function Rate Base from Exhibit 2A, Column 1, Line 25.

11

12 Labeled Line 19 – Export sales – This item is classified 100 percent to energy (directly
13 related to energy sales at the New Brunswick border).

14

15 Labeled Line 20 – Other Revenue – This item is classified to demand and energy based
16 on the demand and energy classification percentages resulting from the sum of items in
17 Lines 1 through 17.

18

19 Labeled Line 21 – Return – This item is classified to demand and energy based on
20 Exhibit 2B, demand and energy columns in “Fully Classified Rate Base” on Line 25 and
21 the Total Generation Function Rate Base from Exhibit 2A, Column 1, Line 25.

22

23 d) Labeled Line 23 – Operations, Maintenance & General < 138kV – this item is classified
24 to demand and energy based on Exhibit 2B, demand and energy columns in “Fully
25 Classified Rate Base” on Line 26 and the Transmission Plant < 138 kV from Exhibit 2A,
26 Column 1, Line 26.

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1 **Request IR-37:**

2

3 **With respect to SR-01, Exhibit 6B, please explain why the total field expenses have**
4 **increased to \$16,678 from \$12,552 in the December 9, 2011 Compliance Filing.**

5

6 Response IR-37:

7

8 The increase in total field expenses is primarily driven by the increase in the overall retail-related
9 divisional expenses, a portion of which is allocated to these categories. The main drivers behind
10 the increase to overall retail-related divisional expenses are due to net bad debt, pension costs
11 and labour/non-labour escalators.

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1 **Request IR-38:**

2

3 **With respect to SR-01, Exhibit 6C, please explain why bad debt expenses are expected to**
4 **increase to \$5,736 from \$3,519 in the December 9, 2011 Compliance Filing.**

5

6 Response IR-38:

7

8 Please refer to CA IR-31 and CA IR-32.

NON-CONFIDENTIAL

1 **Request IR-39:**

2
3 **With respect to SR-01, Exhibit 6D,**

4 **a) Does this Exhibit include any depreciation associated with biomass?**

5 **b) If the answer to a) is yes, please identify the amount included and the line in which it**
6 **is included.**

7 **c) If the answer to a) is no, please explain why not.**

8
9 **Response IR-39:**

10
11 (a) Yes.

12
13 (b) The depreciation expense associated with biomass is included in the energy classification
14 of the steam production category, displayed in line 18 of Exhibit 6D of SR-01 of the
15 Application. NS Power classifies expenses of generation investments made for
16 environmental purposes as energy-related only. This is done indirectly by developing
17 cost classification factors based on an appropriate classification of environmental assets
18 in Exhibit 2B. The approved Cost of Service Study (COSS) approach does not require
19 that NS Power tracks depreciation expenses by individual asset groups such as biomass.
20 Hence, they are not directly available from the COSS. However, NS Power's financial
21 accounting system has this information available. The estimated depreciation amounts
22 for the biomass plant are \$4.8 million in 2013 and \$5.8 million in 2014. Please refer to
23 Multeese IR-32.

24
25 (c) Not applicable.

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1 **Request IR-40:**

2

3 **With respect to SR-01, Exhibit 7, please explain the increase in Other Non-Rate Revenue**
4 **(Line 16) to \$14,108 from \$7,020 in the December 9, 2011 Compliance Filing.**

5

6 Response IR-40:

7

8 The increase in other non-rate revenue in 2013 to \$14.1 million from \$7.0 million in 2012 is due
9 to the re-classification of revenues netted in operating costs under Canadian GAAP but included
10 as revenue under US GAAP.

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1 **Request IR-41:**

2

3 **With respect to the monthly versions of SR-01, Exhibit 9A, please confirm that these are**
4 **for 2013, as opposed to 2011 as labelled.**

5

6 Response IR-41:

7

8 Confirmed.

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1 **Request IR-42:**

2
3 **With respect to SR-01, Exhibit 9A,**

4 **a) Please explain why the system co-incident load factor for the Small General class**
5 **has increased to 71.63% from 51.87% in the 2012 GRA COSS.**

6 **b) The Domestic class Non-Coincident Demand is calculated differently from prior**
7 **years, as noted in Appendix O. Please provide the non-coincident demand and the**
8 **coincident factor for this class if the method had not changed.**

9
10 **Response IR-42:**

11
12 (a) The system co-incident load factor is a calculation based on the class annual energy
13 requirement and the class demand at the hour of the system peak demand.

14
15 In the 2012 GRA¹, it was calculated as:

$$240,416 \text{ MWh} / (52.9 \text{ MW} * 8,760 \text{ hr}) = 51.87\%$$

16
17
18 In the 2013 GRA, it was calculated as:

$$251,486 \text{ MWh} / (40.1 \text{ MW} * 8,760 \text{ hr}) = 71.63\%$$

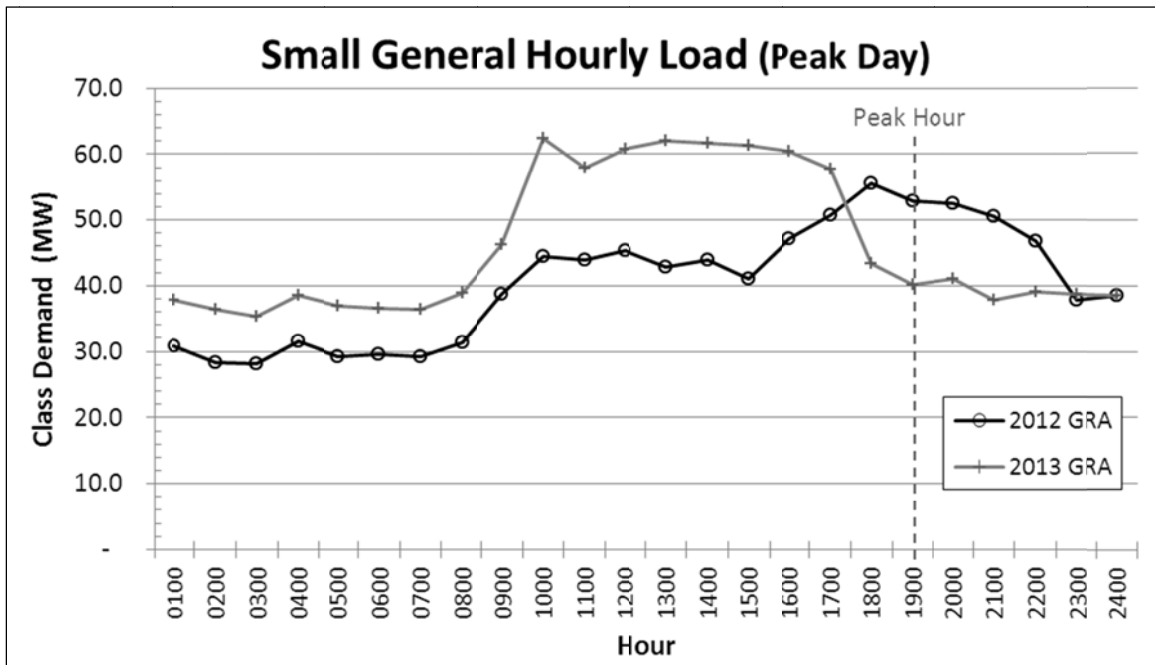
19
20
21 As shown above, the major factor behind this change is a magnitude of the decrease in
22 class demand at the hour of system peak.

23
24 The class demand is estimated using an hourly class curve developed from a stratified
25 random sample of customers in that rate class. The class curves were updated between
26 the filings. Class curves differ from year to year due to various changes including
27 weather and other factors that affect customer behaviour. From the chart below, it can be

¹ NSPI 2012 General Rate Application, NSUARB-NSPI-P-892, May 13, 2011.

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1 seen that the class loads, as represented by the curves, were noticeably different at the
2 peak hour. In both cases, the system peak occurred at 19:00 however were on different
3 days of the week and different months of the year.



5
6
7 (b) If the method had not changed, the non-coincident demand and the coincident factor for
8 the domestic rate class would have been 1,124,642 kW and 92.2 percent, respectively.

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1 **Request IR-43:**

2

3 **With respect to Appendix I, page 5 of 14, Lines 6-8, please identify the amounts related to**
4 **the LED rate base and expenses that are included in the COSS and the COSS Exhibit and**
5 **Line numbers where these amounts appear.**

6

7 Response IR-43:

8

9 Please refer to Section 11.2.4 of the Application page 138, lines 24-25, and page 139, lines 1-2.
10 NS Power intends to set streetlight rates in the regulatory proceeding on the LED capital work
11 order submission.

12

13 The LED fixture rate base amounts are \$11,020 and \$24,256 thousands in 2013 and 2014,
14 respectively. These amounts are displayed in line 20 of Exhibit 2 in both years in SR-01 of the
15 Application.

16

17 The capital-related expense amounts associated with LED fixtures are \$1,963 and \$4,341
18 thousands in 2013 and 2014, respectively. These amounts, broken down by their cost
19 subcomponents, are displayed in Appendix I, Schedule 5A of the Application and are included in
20 the corresponding categories in SR-01, Exhibit 4, Column (6), lines 32-52 of the Application.

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1 **Request IR-44:**

2

3 **With respect to Appendix I, page 5 of 14, Lines 10-11, please identify the capital and**
4 **expense amounts related to the early retirement of non-LED that are included in the COSS**
5 **and the COSS Exhibit and Line numbers where these amounts appear.**

6

7 Response IR-44:

8

9 Please refer to Section 11.2.4 of the Application page 138, lines 24-25, and page 139, lines 1-2.
10 NS Power intends to set streetlight rates in the regulatory proceeding on the LED capital work
11 order submission.

12

13 The rate base amounts associated with early retired non-LED are \$2.6 and \$6.7 million in 2013
14 and 2014, respectively. Please refer to the amounts in line 34 of Exhibit 2 in SR-01 of the
15 Application.

16

17 The capital-related expenses associated with these deferred amounts are \$271,000 and \$707,000
18 in 2013 and 2014, respectively. These amounts, broken down by their cost subcomponents, are
19 displayed in Appendix I, Schedule 5A under “LED Deferral” column. For rate setting purposes,
20 NS Power included these costs in full service LED rates. These amounts are included in the
21 corresponding categories in SR-01 Exhibit 4 Column (6) lines 32 – 52. Also, please refer to
22 Multeese IR-43.

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1 **Request IR-45:**

2

3 **With respect to Appendix I, page 5 of 14, Lines 17-20, please confirm that the rates being**
4 **proposed in this application complete the alignment of rates with the costs of energy,**
5 **maintenance and capital.**

6

7 Response IR-45:

8

9 Confirmed.

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1 **Request IR-46:**

2
3 **With respect to Paragraph 21 of the September 19, 2011 Settlement Agreement,**

- 4 **a) Part b(i) describes how interim rates for LED's would be established and Part b(ii)**
5 **indicates that conversion fees would not be charged "until the 2012 LED Streetlight**
6 **rates are in effect". Given that the 2012 LED rates have been in effect since**
7 **January, what conversion fees are currently being collected?**
- 8 **b) If no conversion fees are currently being collected, please explain why not.**
- 9 **c) If conversion fees are being collected, please provide their derivation, with reference**
10 **to Part d. of the Settlement Agreement.**
- 11 **d) If conversion fees are being collected, please provide the UARB decision which**
12 **approved them.**
- 13 **e) Please identify any outstanding issues related to the recovery of stranded assets**
14 **caused by early retirement of non-LED lights that are still to be addressed.**

15
16 **Response IR-46:**

- 17
18 (a) There are no conversion fees currently being collected.
- 19
20 (b) NS Power did not include LED conversion charges in its 2012 Compliance Filing.
21 Instead, NS Power proposed that these charges be introduced at the time of the LED
22 capital work order submission. The currently Board-approved rates do not include LED
23 conversion charges. The LED rates referred to in the statement "until the 2012 LED
24 Streetlight rates are in effect" are the permanent rates which will be determined in the
25 LED capital work order submission.
- 26
27 (c) Not applicable.
- 28
29 (d) Not applicable.

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1
2 (e) NS Power continues to work with municipalities to assist in their understanding of the
3 costs associated with converting to LED roadway lights. If a municipality, served
4 currently under full non-LED service, chooses to own their own LED lights, the
5 municipality will remain responsible for the entire net book value of the non-LED
6 fixtures it acquires from NS Power. These municipalities will then decide which parts of
7 the non-LED fixtures, owned by them, will be reusable for the purpose of LED
8 conversion. For those municipalities who will opt to remain full service streetlight
9 customers, the net book value of the non-reusable portion of the current non-LED lights,
10 as to be determined in the LED capital work order submission, will be proposed to be
11 paid over the life of the project implementation. Any re-usable parts will reduce the
12 spend for the LED asset pool. Stakeholders and NS Power are working towards a rate
13 structure to be jointly filed with the capital project.

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1 **Request IR-47:**

2

3 **With respect to Appendix I, page 7 of 14, Line 4, should “Non-LED” be “LED”?**

4

5 Response IR-47:

6

7 Yes, line 4 should indicate LED.

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1 **Request IR-48:**

2

3 **With respect to Appendix I, Attachment 1, Schedule 4, please identify how the numbers**
4 **shown for “Total Cost per COSS (and adjusted for energy)” are derived, beginning with**
5 **identification of the starting numbers and the Exhibit and Line number from which they**
6 **are taken in the COSS.**

7

8 Response IR-48:

9

10 The numbers shown for “Total Cost per COSS (and adjusted for energy)” under the Non-LED
11 and LED headings as \$3,899 and \$1,963 thousand are derived in Schedule 5A of Appendix I.
12 The \$1,963 figure is comprised of LED cost of \$1,692 thousand and LED Deferral of \$271
13 thousand. The \$3,899 thousand figure comes directly from the cost of service model (SR-01)
14 and can be found in Exhibit 5, Column (1), page 3 of 3, lines 15 – 20. Also, please refer to
15 Multeese IR-43 and Multeese IR-44.

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1 **Request IR-49:**

2
3 **With respect to Appendix I, Attachment 1, Schedule 5A,**

- 4 a) **Please explain why the LED Deferral column is required and what it is intended to**
5 **capture.**
6 b) **Please provide the source of the LED net plant value deferred (\$2606).**
7 c) **Please explain why this column includes a deferral associated with grants-in-lieu.**
8 d) **Please confirm that the total scaled LED revenue in Schedule 4 includes the LED**
9 **deferral amount from Schedule 5A.**
10 e) **If (d) is confirmed, please explain why this is appropriate.**

11
12 Response IR-49:

- 13
14 (a) The LED deferral column represents the carrying costs associated with the deferred
15 regulatory asset comprised of early retired non-LED fixtures estimated until the filing of
16 the capital application. NS Power proposed that these carrying costs be rolled into full
17 Service LED rates and recovered as incurred.
18
19 (b) The net plant value shown under the “LED Deferral” column (please refer to a) above for
20 description) is calculated in the following way:

21

	Formula	2011 Ending	2012 Ending
(A) Net Book Value		\$21,963,869	\$19,485,623
(B) Total # of Streetlights		126,832	111,832
(C) Average NBV/Streetlight	= A ÷ B	173.17	174.24
(D) Number of streetlights changed		15,000	15,000

22
23 Adjustment to regulated asset = (15,000 x 173.17) + (15,000 x 174.24)

24 Adjustment to regulated asset = 2,597,550 + 2,613,600

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1 Adjustment to regulated asset = 5,211,150

2

3 The annual average is calculated through dividing 5,211,150 by 2.

4

5 The LED deferral column calculates the carrying charges associated with the value of
6 early retired non-LED fixtures. The inclusion of grants in lieu in these calculations is
7 consistent with the treatment of carrying costs of in-service non-LED fixtures in the cost
8 of service model.

9

10 (c) Confirmed.

11

12 (d) This is appropriate because the carrying costs are produced only when the customer
13 moves to an LED streetlight and thus strands the non-LED streetlight.

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1 **Request IR-50:**

2
3 **With respect to Appendix L, page 3 of 44, Lines 28 – 30,**

- 4 **a) What is the status of stranded cost recovery in New Brunswick and in other**
5 **Canadian provinces that have OATT's and vertically integrated utilities?**
6 **b) Please provide three examples of stranded cost recovery in U.S. jurisdictions that**
7 **have OATT's and vertically integrated utilities.**
8 **c) For any jurisdictions in a) or b) that have a stranded costs recovery mechanism in**
9 **place, please indicate:**
10 **• The approximate number of customers who were formerly supplied by the**
11 **vertically integrated utility and are now supplied by other parties, and the**
12 **percentage of total utility load lost because of this.**
13 **• The approximate number of customers who are eligible to use the OATT and**
14 **seek third party suppliers, and the percentage of total utility load that could**
15 **be lost if those customers pursued that option.**

16
17 **Response IR-50:**

18
19 The following response has been provided by NS Power's consultant, Energy and Environmental
20 Economics (E3):

- 21
22 (a) Discussion of New Brunswick as requested is provided below. The following Canadian
23 utilities remain vertically integrated: BC Hydro, SaskPower, Manitoba Hydro, Hydro
24 Quebec.

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1 **New Brunswick**

2
3 Stranded cost recovery policy in New Brunswick is still in the process of being
4 developed. No eligible customers have chosen to receive power from third-party
5 suppliers to date, although the New Brunswick System Operator's (NBSO) *State of the*
6 *Market 2011* report suggests that customers may choose to migrate in the future as the
7 market electricity rates in New England could be less than New Brunswick's standard
8 service rate. The *State of the Market 2011* report also includes the following conceptual
9 example of how an exit fee should be calculated (Appendix 2: Contestable Customers
10 and Standard Service): regulated rate minus avoided cost of the standard supplier. The
11 Energy and Utilities Board has not reviewed any methodology to determine the exact
12 formula of the exit fee to date, however.

13
14 Source:

15 [http://www.nbso.ca/Public/_private/NBSO%20State%20of%20Market%20Report%2020](http://www.nbso.ca/Public/_private/NBSO%20State%20of%20Market%20Report%202011.pdf)
16 [11.pdf](http://www.nbso.ca/Public/_private/NBSO%20State%20of%20Market%20Report%202011.pdf)

17
18 **British Columbia, Manitoba Hydro and Hydro-Quebec**

19
20 British Columbia's 2002 Energy Plan contemplated allowing BC Hydro customers served
21 at transmission voltage to seek alternative sources of generation services. The earlier
22 introduction of a FERC pro-forma OATT in both BC Hydro and (then) West Kootenay
23 Power's ("WKP") service territory had already allowed municipal customers to seek
24 alternative sources of generation service (BC Hydro served only one municipal customer,
25 but WKP served several).

26
27 Both the introduction of retail access for industrial customers and the potential departure
28 of municipal customers raised the issue of exit fees and stranded cost recovery.

29 However, the very low cost of electricity from both BC Hydro's and WKP's heavily

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1 depreciated hydro generation assets (relative to the marginal cost of new or purchased
2 electricity supply) made it apparent that the departure of customers from the system was
3 generally beneficial to remaining customers.

4
5 As a result, there was little foundation for an argument that utilities and their remaining
6 customers were harmed by either a municipal or large industrial customer leaving the
7 system (that is, there were no stranded costs). “Access principles” were put in place that
8 limited the ability of a departing customer to return to utility service, so as to avoid
9 arbitrage (between market and utility service) and to allow for adequate system planning.

10
11 Similarly, Manitoba Hydro and Hydro-Quebec, two other Canadian vertically integrated
12 utilities that have very low cost of electricity from hydro generation assets, do not charge
13 departing customers stranded costs because their market prices are higher than their
14 embedded cost based generation rates as well. This difference in price between the
15 market and embedded cost based generation rates explains why there are no applications
16 of stranded generation asset cases in these jurisdictions.

17
18 All three utilities, however, include stranded cost recovery mechanisms for transmission
19 assets in their FERC proforma 888 tariff. No specific methodology for the calculation of
20 these costs is provided in any of their tariffs.

21
22 **SaskPower**

23
24 We found no applications of an exit fee reflecting the cost of stranded generation assets
25 for SaskPower. Like most vertically integrated utilities with FERC compliant
26 transmission tariffs, SaskPower does have a stranded cost recovery mechanism for
27 transmission assets that is included in section 34.5 of their OATT. No methodology for
28 the calculation of these costs is provided, however.

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1 Source:

2 [http://www.saskpower.com/sustainable_growth/assets/open_access_transmission_tariff.p](http://www.saskpower.com/sustainable_growth/assets/open_access_transmission_tariff.pdf)
3 [df](http://www.saskpower.com/sustainable_growth/assets/open_access_transmission_tariff.pdf)

4
5 **Restructured Canadian Markets**

6
7 The two restructured markets in Canada, Ontario and Alberta, also have charges related
8 to stranded assets.

9
10 In Ontario, the Debt Retirement Charge (DRC), imposed by the Electricity Act, 1998, is
11 assessed to consumers of electricity and used to pay down a portion of the stranded debt
12 (\$20.9 BB) of the former Ontario Hydro. The remaining portion of the debt is being
13 retired through payments in lieu of taxes and dividends from municipal electric utilities
14 and Ontario Hydro's successor companies – Ontario Power Generation and Hydro One.

15
16 Alberta did not require the divestiture of generation assets. Instead, plant owners were
17 required to place ownership rights to the produced energy of these plants up for public
18 auction. Winning bidders of these ownership rights would pay the owners of the
19 generation assets a fixed monthly payment to cover remaining annualized fixed costs and
20 a variable cost for all energy produced via a power purchase agreement (PPA). The value
21 of the PPA was placed in a "Balancing Pool" to be returned to customers. The value of
22 the ownership rights from the initial auction for PPAs was \$1.15 billion which exceeded
23 the average embedded cost of existing generation.

24
25 For transmission assets, the Alberta Electricity System Operator (AESO) imposes an exit
26 fee for transmission customers if they reduce their contract capacity or leave the system
27 before 5 years of giving notice of the contract reduction or termination. The fee is
28 calculated as the "present value of the difference in bulk system and local system charges
29 which would have been attributed to the service with and without the reduction or

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1 termination of contract capacity during the notice period” (AESO Tariff, Section 9.5.3).
2 The ISO may waive or reduce this fee for several reasons, including if the fee is
3 calculated to be a benefit, whereby the departing customer incurs no stranded costs upon
4 its departure.

5
6 Sources:

7 http://www.auditor.on.ca/en/reports_en/en11/304en11.pdf

8 http://www.creden.univ-montp1.fr/Reseau/DOCS%20COLLOQUE/J_Doucet.pdf

9 [http://www.aeso.ca/downloads/AESO_2011_ISO_Tariff_\(2012-01-01\).pdf](http://www.aeso.ca/downloads/AESO_2011_ISO_Tariff_(2012-01-01).pdf)

- 10
11 (b) The following three US utilities have implemented exit fees through their FERC 888
12 tariffs: El Paso Electric Company, Progress Energy Florida, and Consumers Energy.

13
14 **El Paso Electric Company**

15
16 As a condition of their municipalization, FERC ordered the City of Las Cruces, New
17 Mexico to pay a present value of \$52.9 million in total exit fees to El Paso Electric
18 Company. Costs were calculated using the “revenues lost” formula in accordance with
19 FERC Order 888. The gross lost revenues for a future year were determined from a three
20 year annual average of historical data. Netted from gross lost revenues were transmission
21 and distribution revenues that would continue to be paid to El Paso Electric as well as the
22 market value of released generation capacity. As such, this application captures stranded
23 generation asset costs only.

24
25 To translate the stranded costs to be recovered from Las Cruces, the historical costs were
26 assessed over the duration of the utility’s reasonable expectation to serve of 20 years.
27 This duration was determined to be the length of the utility planning horizon and thus the
28 length over which generation planning decisions were made. The starting point of this
29 reasonable expectation to serve period was determined by the year when the costs in

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1 question, those associated with the building of the Palo Verde Nuclear Generating
2 Station, were incurred. The start year was determined to be 1987. Stranded costs were
3 based on a July, 1999 exit date and so were assessed until the end of 2006.

4
5 Source:

6 UNITED STATES OF AMERICA 87 FERC 61,201

7 Docket No. SC97-2-000

8 Opinion No. 438

9
10 **Progress Energy Florida**

11
12 Progress Energy Florida (PEF) was awarded a stranded cost recovery of \$7.89 million in
13 the terms of an arbitration settlement with Winter Park, Florida. Winter Park, a former
14 retail customer of PEF was seeking to purchase PEF's distribution system within the city
15 and negotiate a wholesale power agreement with PEF. Stranded costs were related to
16 investments in generation assets that PEF would no longer be able to recover in retail
17 rates.

18
19 Source:

20 http://cityofwinterpark.org/2005/depts/CAFR_05.pdf

21
22 **Consumers Energy**

23
24 Consumers Energy, a vertically integrated utility in Michigan, provided approximately 54
25 MW of retail service to the City of Alma ("Alma"). Alma proposed to depart from
26 Consumers Energy and form its own municipal electric utility. FERC determined that if
27 Alma used Consumer Energy's transmission system to access alternative power supply
28 they would be responsible for paying stranded costs to Consumers Energy.

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1 FERC determined that the reasonable expectation periods began on January 1, 1990,
2 since Consumers Energy ceased making long-term commitments to service Alma in that
3 year. The length of the expectation period was 15 years (January 1, 1990 through
4 December 31, 2004), consistent with Consumer Energy's planning horizon. Alma's
5 stranded cost obligation, calculated in accordance with Order No. 888, was found to be
6 \$3,090,853 per year. If Alma departed on September 1, 2001, their stranded cost
7 obligation, on a present value basis, was calculated as approximately \$9 million.

8
9 Source:

10 96 FERC 61, 163

11 Docket No. SC97-4-000

12 OPINION NO. 452

13
14 **Restructured American Markets**

15
16 Stranded asset charges are not unique to vertically integrated utilities with FERC 888
17 style transmission tariffs. In fact, many forms of stranded asset charges for both
18 transmission and generation related assets are commonplace in restructured markets that
19 now serve approximately two-thirds of the load in the United States.

20
21 Restructured electricity markets have their own version of stranded asset ratemaking.
22 Stranded costs in the restructured markets are the difference between revenues expected
23 to be recovered under rate regulation and those recoverable in a competitive market.
24 Stranded costs are collected through competitive transition charges that can be found in
25 restructured markets such as those in California (California Assembly Bill AB 1890
26 (1996)), Maine (Maine Statute 35-A, §3208), Michigan (2008 Public Act 286), New
27 York (e.g.: www.dps.ny.gov/conedsettle.htm#sc), Pennsylvania (66 Pa. Cons. Stat. §
28 2808), and Texas (Texas Administrative Code, Title 16, Part 2, Chapter 25, Subchapter
29 O, Division 1, Rule §25.345). The competitive transition charges were established to

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1 provide transmission and distribution utilities a reasonable opportunity to recover
2 stranded costs through the rates of the transmission and distribution utility.

3 Independent Transmission System Operators can also impose cost obligations on
4 members that withdraw from their organization. In 2011, FERC approved the Midwest
5 Independent Transmission System Operator (MISO) imposition of an exit fee on Duke
6 Energy Ohio and Duke Energy Kentucky for their withdrawal from MISO and integration
7 into PJM. (*Midwest Independent Transmission System Operator, Inc.*, 137 FERC 61,198
8 (2011)) Article Five, Section II.A of the MISO TO Agreement is titled Users Held
9 Harmless, and states: “Users taking service which involves the withdrawing Owner and
10 which involves transmission contracts executed before the Owner provided notice of its
11 withdrawal shall continue to receive the same service for the remaining term of the
12 contract at the same rates, terms, and conditions that would have been applicable if there
13 were no withdrawal.” Section II.B goes on to state that: “[a]ll financial obligations
14 incurred and payments applicable to time periods prior to the effective date of such
15 withdrawal shall be honored by [MISO] and the withdrawing [transmission owner].”

16
17 Financial obligations similar to MISO Section II.B for withdrawing members are
18 contained in the Transmission Operating Agreements for ISO-NE (ISO-NE Transmission
19 Operating Agreement, Article X, Section 10.01), PJM (Consolidated Transmission
20 Owners Agreement, Rate Schedule FERC No. 42, Section 3.4) and the NYISO
21 (Agreement between New York Independent System Operator and Transmission Owners,
22 Article 6.03 (2007)).

23
24 The Southwest Power Pool (SPP) in its Governing Documents Tariff (1/11/2011) takes a
25 different approach to the exit fee. For SPP, a withdrawing member’s existing obligation
26 (exit fee) would be their share of the SPP outstanding debt and other committed
27 expenses. The share is based 25 per cent on the number of members in SPP and 75 per
28 cent on the withdrawing member’s previous year share of Net Energy for Load among
29 SPP members. (Section 8.7.2)

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(c) We do not have estimates of the number of customers who were formerly supplied by a vertically integrated utility and are now supplied by other parties or the percentage of total utility load lost because of this. Nor do we have estimates of the number of customers in each of these jurisdictions who were eligible to use the OATT and the percentage that could be lost to third party supply.

This detailed information is not readily available for several reasons:

1. FERC's 888 transmission tariff has been in place for more than a decade in most jurisdictions. There is no single place to find the number of customers eligible for the service or the share of customers who took unbundled transmission service and were assessed either a generation or transmission related stranded asset charge.
2. Each jurisdiction defines the eligible transmission customer class differently.
3. In some cases utilities used a confidential negotiated settlement process to assess stranded asset or exit fees.

For these reasons we did not attempt to quantify responses to these questions.

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1 **Request IR-51:**

2
3 **With respect to Appendix L, page 5 of 44, please explain differences between the revenue**
4 **requirements in Figure 2-2 and the transmission revenue requirements in Exhibit 4 of the**
5 **cost of service studies.**

6
7 Response IR-51:

8
9 The differences between Figure 2-2 and Exhibit 4 are as follows:

10

Expense (in thousands of dollars)	2013		2014	
	OATT	COSS	OATT	COSS
Operating, Maintenance and General (OM&G)	\$26,586	\$26,104	\$26,762	\$26,286
Depreciation	\$24,072	\$26,167	\$25,639	\$28,866
Int. Tax/Return	\$54,643	\$46,252	\$59,543	\$50,499
Fixed Cost Recovery (FCR) Deferral	\$3,216	\$2,968	\$3,342	\$3,118
Total	\$108,517	\$101,490	\$115,286	\$108,769

11
12 The differences in revenue requirements are due to different cost methodologies used in Cost of
13 Service Study (COSS) and Open Access Transmission Tariff (OATT).

- 14
- 15 • The interest and carrying costs of tax and return are calculated under the OATT by
16 applying a tax adjusted weighted average cost of capital (WACC) directly to the average
17 total assigned transmission rate base. Under the COSS, this cost is determined by
18 functionalizing total corporate interest and carrying costs on the basis of relative rate base
19 shares of functional areas of the company.
- 20

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- 1 • The transmission-related depreciation expenses, as used in COSS, come directly from NS
2 Power's financial systems whereas the depreciation expenses, used in OATT, are
3 estimated by applying the weighted average depreciation rates of transmission and
4 general property assets to the total gross plant value of these assets.
5
- 6 • The transmission rate base amounts also differ due to different classification of substation
7 assets, under the two methods employed, and different treatment of deferred credits, such
8 as credit for asset retirement obligations. The COSS is using already functionalized
9 values directly from NS Power's financial systems whereas under OATT these values are
10 estimated by prorating total corporate expenses on the basis of relative rate base shares by
11 the functional areas of the company. This difference in total net rate base amounts is
12 responsible for the difference in assigned FCR deferrals between COSS and OATT.

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1 **Request IR-52:**

2

3 **With respect to Appendix L, page 9 of 44, please provide the derivation of the revenue**
4 **requirements in Figure 2-3.**

5

6 Response IR-52:

7

8 Please refer to Confidential Attachments 1 and 2, filed electronically.

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1 **Request IR-53:**

2

3 **With respect to Appendix L, page 10 of 44, please provide the data and the calculations**
4 **used to estimate the Forecast Average of Network Loads in Figure 2-4.**

5

6 Response IR-53:

7

8 The forecast average of network loads is calculated as follows:

9

	2013	2014
Month	NSR Peak (MWh/hour)	
January	2077.1	2071.1
February	2098.0	2093.3
March	1820.5	1816.8
April	1601.6	1599.2
May	1463.4	1461.0
June	1413.8	1419.5
July	1376.7	1375.4
August	1459.6	1457.7
September	1466.0	1465.0
October	1487.7	1485.3
November	1698.8	1696.0
December	2003.0	2000.0
Average	1663.9	1661.7

10

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Request IR-54:

With respect to Appendix L, page 11 of 44, Lines 9-14 and page 11 of 44, Figure 2-7, please confirm that the billing determinant for network service is NCP.

Response IR-54:

Confirmed.

NS Power did not correctly reflect the Network Services data in Figure 2-7. The Open Access Transmission Tariff (OATT) Schedules, filed as part of Appendix L however, do reflect the correct rates. Figure 2-7 should have contained the following information for the Network Services rates:

Figure 2-7

Determination of Nominal Rates by Service			
Services	Revenue Requirement (\$M/year)	Billing Determinant (MW)	Nominal Rate (\$/MW/year)
2013			
Point to Point Services			
Transmission Service	0.9	16	56,046.05
Scheduling, Control & Dispatch	0.8	16	4,838.94
Network Services			
Transmission Service	93.3	1958	47,639.14
Scheduling, Control & Dispatch	8.1	1958	4,113.10
2014			
Point to Point Services			
Transmission Service	1.0	16	59,875.87
Scheduling, Control & Dispatch	0.1	16	4,997.38
Network Services			
Transmission Service	99.5	1662	50,894.49
Scheduling, Control & Dispatch	8.3	1662	4,247.77

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1 **Request IR-55:**

2
3 **With respect to Appendix L, page 17 of 44, Lines 1-10,**

- 4 **a) Please elaborate on why the increased penetration of wind warrants the change to**
5 **10 minute intervals for regulation.**
6 **b) How does a 10 minute interval relate to the time interval on which automatic**
7 **generation control operates?**
8 **c) Please provide the data and analysis to support the 58MW and the 151MW.**
9

10 **Response IR-55:**

11
12 (a) The increase in wind penetration is not the only reason behind our proposal to change to
13 10 minute interval analysis for evaluating regulation service needs. However, the
14 significant increase in wind penetration has made it more critical that operational
15 practices correctly inform analysis on ancillary services. The following factors
16 influenced the decision to make this change:

- 17
18 • The technical role of regulation in power system operations is to address all
19 changes in net load (changes in load minus changes in non-dispatchable
20 generation) that the manual re-dispatch of generators by the System Operator is
21 unable to address. The System Operator is limited in its ability to update
22 generator dispatch by the frequency and granularity of forecasts and by technical
23 and procedural considerations. Because load following resources are not capable
24 of re-dispatch each minute, regulating reserves must be adequate to compensate
25 for longer term accumulations of error between energy dispatch and net load. It is
26 common practice for the System Operator to monitor the performance of the set
27 points of load following resources every 5-10 minutes. Fundamentally, regulation
28 resources must at least have the capability to satisfy ramping needs within the
29 interval of short term forecasts, including the delay between when forecasts are

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1 given and when they apply. Thus, common control room practice supports a 10
2 minute interval for analyzing regulation needs.

- 3
- 4 • NERC (North American Electric Reliability Corporation) control performance,
5 standard 2 (CPS2) focuses on a 10-minute average of area control error (ACE).
6
 - 7 • The current Open Access Transmission Tariff of the NBSO (New Brunswick
8 System Operator) places a higher focus on intra-hour regulation performance
9 which could result in sanctions against NS Power if our performance is deemed
10 to place a disproportionate burden on their regulation resources. This provision
11 was added subsequent to the 2005 Application.¹
12

13 (b) Automatic generation control operates on 4-10 second intervals in response to area
14 control error and frequency deviations. Thus, automatic generation control does not
15 directly relate to the chosen 10 minute interval for regulation analysis.
16

17 The 10 minute chosen time interval relates to the time interval upon which system
18 operators send new dispatch instructions to generators. Such a process is commonly
19 referred to as load following or real time energy dispatch.
20

21 (c) Please refer to Attachment 1 for derivation of the 58 MW (Regulation) and Attachment 2
22 for derivation of the 151 MW (Load Following), filed electronically.

¹ New Brunswick System Operator Open Access Transmission Tariff, April 1, 2011, Schedule 3, page 80,
paragraph 3.
[http://www.nbso.ca/Public/en/docs-EN/Tariff/TARIFF\(04-01-2011\)%20Reflects%20Interim%20Relief%20Approval%20\(E\).pdf](http://www.nbso.ca/Public/en/docs-EN/Tariff/TARIFF(04-01-2011)%20Reflects%20Interim%20Relief%20Approval%20(E).pdf)

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
Std Deviation δ	18.88	17.34	15.56	14.95	15.46	16.32	14.62	15.77	13.27	14.59	15.72	17.11	15.8
Monthly 3 δ	56.65	52.03	46.68	44.84	46.37	48.97	43.86	47.31	39.82	43.78	47.16	51.33	47.4
Monthly 99.7 Percentile	78.62	64.81	62.08	57.38	54.44	68.54	51.07	59.09	48.84	47.77	48.75	56.83	58.2
Maximum	251.26	124.80	93.83	110.94	96.11	111.38	68.80	93.85	72.51	100.35	88.52	143.49	113.0
Minimum	-145.70	-88.06	-104.97	-81.21	-97.85	-85.48	-93.52	-153.94	-90.99	-110.08	-92.36	-126.98	(105.9)
10-minute Net deviation MW	-1.75	-14.55	9.02	11.76	25.97	-11.70	-7.77	5.87	3.43	17.74	-9.94	-11.92	
	3.95	-24.20	7.82	12.58	-16.69	24.01	-2.91	6.65	13.15	17.20	16.40	-34.47	
	10.46	4.83	0.96	8.49	37.16	-5.47	1.18	17.86	5.38	23.03	8.91	3.64	
	-4.96	3.46	6.64	1.01	5.70	-11.14	11.21	22.68	6.91	-4.95	9.84	-1.88	
	12.26	2.80	5.78	5.44	0.89	10.82	13.20	16.03	7.41	-6.70	3.38	-2.52	
	24.17	6.54	-2.15	6.61	0.43	4.04	-3.75	-1.63	-7.68	6.70	52.08	-7.83	
	12.32	1.19	8.29	10.55	-1.12	3.85	8.66	-6.87	6.43	5.77	14.60	-7.05	
	5.12	0.89	8.45	7.17	-4.05	10.73	8.44	42.77	16.70	-13.28	35.89	0.64	
	2.37	-1.74	6.06	0.44	12.69	3.51	14.67	-6.16	3.39	7.53	-33.27	-10.64	
	14.84	4.96	2.17	1.70	16.04	6.99	2.01	-14.95	0.31	3.79	19.17	-2.30	
	18.62	34.16	5.63	3.21	-6.13	4.44	5.49	6.08	9.06	5.00	-3.89	7.17	
	7.71	-31.03	6.70	4.55	-8.42	7.88	7.85	29.15	-9.49	-5.62	1.86	-1.06	
	27.72	-5.75	-6.25	11.04	-11.46	6.56	4.67	3.80	-14.95	-16.88	21.86	4.27	
	12.26	-8.70	-2.74	18.85	-10.30	2.47	1.28	-15.26	-0.34	9.99	14.76	5.08	
	1.61	-3.89	13.51	5.17	-5.96	5.98	4.71	4.19	-0.92	8.18	6.99	6.62	
	5.69	-1.53	-5.15	-0.32	2.84	11.49	5.06	9.72	2.03	-0.10	-5.31	5.34	
	-1.24	3.11	-2.46	-1.09	3.38	0.62	4.53	2.82	2.71	3.88	-3.46	-1.96	
	-1.46	33.94	3.63	0.90	3.32	-2.29	-0.73	-3.68	-1.03	0.91	0.05	-0.89	
	2.61	16.40	1.97	1.81	-1.57	-8.78	-3.01	-23.53	0.31	-3.49	2.07	-15.31	
	1.28	6.00	-2.51	-2.08	-2.55	29.08	-4.65	14.38	7.92	1.93	0.22	-4.83	
	-0.73	12.61	-0.71	2.42	-4.27	-0.98	-2.66	17.76	2.24	4.71	0.82	-7.07	
	9.37	4.32	-2.70	2.67	1.90	17.22	4.97	-5.48	2.48	4.93	-2.88	-5.29	
	4.43	-6.44	-2.54	7.35	22.69	5.82	2.30	-9.60	-0.72	-5.54	-1.83	-4.13	
	-10.07	-8.14	1.10	3.82	-1.67	-2.29	-4.77	18.49	-5.68	-5.32	0.98	-2.83	
	0.77	-13.63	-3.65	0.85	6.18	1.76	2.78	-10.84	-2.58	2.29	-6.84	-3.36	
	-1.32	-3.83	-7.83	-4.24	-1.79	0.08	3.39	8.00	-0.22	4.50	-3.84	-5.37	
	-12.99	32.36	-3.38	4.19	1.03	-1.93	-0.86	-4.07	-2.68	0.78	-1.53	-2.11	
	7.29	31.90	1.56	7.53	3.64	-0.44	-1.01	-5.91	4.48	1.51	-11.32	-17.45	
	-0.83	-11.63	-5.28	1.66	0.10	-8.96	12.71	0.03	4.16	-2.22	-9.13	-9.12	
	-9.52	-48.42	2.39	-3.49	-1.76	-20.82	32.70	-14.05	5.86	-5.00	10.29	-14.53	
	0.81	-12.82	-10.88	-12.90	0.75	-18.59	23.14	-5.81	3.50	-1.23	11.39	-3.96	
	-0.22	-23.06	-22.92	-13.13	5.30	-7.48	2.76	-1.96	4.08	-9.23	36.69	-7.51	
	-7.24	6.55	-8.90	-16.49	-20.32	-2.60	2.27	2.99	-8.99	-12.02	-10.29	-23.06	
	-7.29	-17.97	-15.73	-20.16	-33.92	0.69	-0.56	5.93	-6.80	-3.01	-2.04	-38.00	
	-7.14	-20.34	-21.63	-8.21	-13.00	-0.98	-1.59	-9.07	-8.19	-8.61	-14.37	-12.51	
	-2.47	-22.70	-19.78	-21.33	-4.86	-21.49	0.75	-6.73	-21.29	-11.78	-0.85	-14.13	
	0.01	-30.84	-22.43	-21.85	-12.07	-36.35	-7.01	-3.37	-23.65	0.33	-7.95	-33.41	
	-1.99	-16.41	-27.11	-51.67	-6.21	-35.75	-6.73	-4.27	-13.30	-0.90	-30.47	-32.30	
	-4.88	-35.61	-37.00	-7.35	8.27	-22.35	5.30	-6.59	-1.51	-18.42	-44.68	-13.20	
	-3.17	-84.45	-50.46	-33.85	-3.88	-12.04	1.69	-6.91	-11.89	-8.32	-31.00	-37.88	
	0.06	-19.54	-20.26	-24.55	1.29	-13.38	-6.43	11.14	-13.84	-1.29	-18.77	-32.72	
	-10.01	-7.38	-15.96	-27.73	-5.23	4.11	-38.60	-38.21	5.59	6.02	-23.01	-14.34	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-10.23	-32.57	-21.12	-24.78	-12.05	-3.65	-12.33	-27.62	0.34	1.33	-26.34	-9.01	
	-3.00	-5.13	-16.08	-24.72	-16.20	-8.03	-10.06	-2.60	-25.51	-0.29	-35.79	-20.86	
	-5.05	-45.35	-11.88	-6.72	-17.89	22.50	-12.49	-18.83	-26.63	-2.58	-27.13	-11.07	
	-4.25	9.70	-7.15	-7.70	-18.72	-8.80	-2.00	-8.74	-12.68	-2.01	0.49	-3.27	
	-3.28	-0.97	-12.97	-13.03	0.05	-17.40	-5.34	-25.58	-5.07	-9.07	-10.55	-8.32	
	-1.21	35.33	-12.85	-15.13	6.07	-2.58	-43.18	-24.70	-9.84	0.00	8.27	-14.36	
	7.47	12.97	-5.91	-5.96	-9.59	-6.81	-22.05	-19.70	-19.67	-1.68	-0.49	-8.82	
	-19.79	-12.07	0.28	9.63	-21.53	-4.03	-20.70	-22.29	-19.81	-5.69	-1.17	0.20	
	-19.19	0.90	-11.05	-7.13	-22.25	-6.12	-16.08	-16.10	-9.44	-12.75	3.52	0.21	
	-3.73	8.83	3.33	5.21	-7.73	7.72	-11.77	-20.65	-7.94	-20.17	17.26	8.79	
	-4.41	13.84	2.38	15.43	-1.39	8.02	-13.78	-9.41	-5.51	-26.87	-0.48	0.03	
	-25.34	-12.08	-8.36	-10.07	-32.90	5.86	-14.48	-17.74	2.84	0.03	0.21	-32.48	
	-15.15	-25.23	0.58	-0.06	-23.84	8.58	-33.57	-10.12	2.31	-6.09	5.28	-3.17	
	1.21	-5.31	1.57	3.89	-24.30	-4.21	-5.48	-2.27	-13.40	-23.79	7.28	7.08	
	-2.70	11.25	-0.88	4.25	-21.75	8.33	-7.60	-31.58	-4.46	-7.76	8.79	-6.32	
	-6.09	15.79	15.77	-4.48	-37.75	-0.78	-11.11	-7.45	-8.74	-11.83	6.12	-0.32	
	-16.78	10.96	-6.38	3.23	-8.30	-8.96	6.45	-13.45	-0.74	-7.57	2.30	5.49	
	-14.64	27.67	-0.05	6.23	-24.32	1.06	26.78	-11.22	19.05	-8.04	17.84	-13.47	
	-7.01	11.25	-10.56	4.27	0.42	3.72	4.71	-12.91	33.62	5.27	-4.26	-2.46	
	-18.60	-0.45	6.61	9.77	2.66	18.24	-4.86	-9.43	22.35	-17.49	12.30	2.61	
	-3.74	12.90	-1.69	4.28	13.71	6.04	-1.80	-7.82	-9.00	-22.22	-2.56	8.55	
	-7.06	8.18	2.96	-1.37	-0.12	0.61	2.81	-5.12	-11.48	3.39	31.93	1.93	
	-4.16	23.41	-5.29	-0.38	-2.61	-20.23	0.49	-0.85	-4.34	5.09	-42.10	15.37	
	-9.75	61.94	4.96	4.73	1.68	-26.37	9.28	-14.49	-8.96	-41.20	-50.99	-1.09	
	-16.63	16.44	-14.69	8.31	-2.66	2.29	-16.20	-7.58	-0.69	-18.20	-38.28	9.54	
	-17.40	14.64	-27.48	1.96	-5.50	12.26	-4.73	0.41	-7.50	-14.66	17.73	1.55	
	-7.06	14.44	8.22	6.09	-1.95	20.62	2.91	-8.69	-1.65	-1.37	-8.27	2.78	
	-12.61	11.78	31.74	-0.32	-4.86	0.49	3.65	4.59	2.29	-4.09	41.96	15.79	
	-7.67	5.49	-3.64	12.11	-6.13	-8.08	-4.89	3.62	2.37	-6.86	4.46	-5.00	
	-7.03	-21.76	-4.69	5.76	1.18	7.72	-0.27	-0.44	0.84	3.30	47.20	-3.79	
	-5.54	-48.88	1.52	-9.01	-2.67	5.72	-4.78	4.30	5.62	7.56	45.68	1.19	
	-0.86	6.78	10.69	-0.60	-2.51	4.61	7.33	14.30	-0.21	7.58	-4.05	5.48	
	6.49	7.28	9.90	-2.20	2.79	0.12	-2.15	9.54	3.90	2.02	24.96	5.06	
	-0.71	-1.62	1.18	-10.77	-0.90	8.34	1.69	6.16	-7.24	0.05	10.75	2.47	
	4.38	-5.74	2.36	15.42	5.59	17.83	1.52	11.03	5.13	-3.05	0.41	2.30	
	4.30	-37.69	22.98	1.91	21.00	4.67	40.91	4.57	-5.41	-1.54	5.37	-2.46	
	-0.13	-13.25	-9.72	-12.67	26.09	-0.63	14.65	-1.64	-10.45	9.47	2.11	3.33	
	-2.71	2.72	-4.72	-8.12	13.01	-2.29	2.17	2.12	2.47	-1.18	4.55	7.66	
	12.66	-26.26	2.62	6.58	4.99	3.28	18.82	3.58	2.80	-3.30	6.75	5.81	
	17.52	3.36	-1.67	29.73	-1.59	1.61	9.57	10.22	2.62	0.07	12.03	2.11	
	2.84	8.27	-15.40	-23.65	10.43	-1.65	7.65	-0.69	4.01	1.54	0.91	5.66	
	1.73	5.42	7.27	-7.16	-2.37	-0.48	1.65	6.69	5.51	42.98	-14.64	2.13	
	-2.32	2.49	11.90	-6.93	14.66	0.50	-0.64	1.68	4.07	18.02	-1.11	-1.22	
	-2.67	5.31	2.44	4.28	5.59	7.90	4.28	-5.29	2.42	3.93	5.88	3.28	
	5.62	-10.78	-0.43	3.14	2.94	-0.06	2.34	11.80	3.03	10.21	4.11	11.86	
	14.82	2.66	6.25	1.21	-0.44	8.34	2.00	0.59	6.28	24.41	0.61	-8.58	
	1.06	16.80	4.84	19.23	4.48	2.97	-4.12	7.87	0.68	40.49	-7.89	-5.77	
	26.57	46.48	7.62	-10.33	-0.92	5.91	-1.18	6.41	4.83	7.72	-32.37	8.78	
	27.58	17.87	-7.49	-0.48	2.34	-1.05	5.60	50.12	-4.33	-28.27	-23.35	-6.32	
	3.20	36.59	-8.50	0.79	1.88	-9.04	9.33	1.74	28.31	7.69	-3.14	-7.98	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-7.91	-6.71	-6.25	4.34	-2.31	-8.12	6.16	4.71	8.40	3.05	-2.12	-19.20	
	-9.43	13.13	0.13	-9.61	2.66	-3.71	4.87	10.60	8.22	5.91	-5.83	-1.69	
	0.25	-57.21	14.79	-12.80	-8.72	5.35	1.40	-2.86	-6.93	-5.38	-12.71	-1.61	
	-4.45	-2.08	8.77	-18.58	-8.00	-3.07	2.21	-22.41	22.65	2.05	3.41	26.55	
	-8.43	-7.41	-4.22	-10.56	-6.66	-6.09	-0.65	-11.15	8.84	-1.77	3.27	7.79	
	-26.26	-4.15	-9.10	-6.26	-1.75	-2.56	-3.45	-11.43	1.14	-1.85	-9.84	-25.28	
	-18.89	-13.20	6.26	-15.70	-12.86	7.19	1.53	8.69	-1.88	-9.54	-8.49	-15.35	
	-12.75	26.91	-48.39	12.12	-23.37	15.46	-6.36	-4.06	1.10	-24.02	-6.42	-32.91	
	-17.58	-48.74	-6.54	8.22	-7.61	-21.02	-4.46	-6.57	3.09	-3.48	-17.50	-35.44	
	-4.88	-72.64	0.60	-5.51	8.67	-11.83	2.39	-2.22	-0.74	-1.40	-21.97	-38.03	
	11.34	-46.00	-25.62	-18.57	-8.49	0.07	15.19	2.55	-4.82	0.33	-25.01	-18.58	
	-8.45	-19.98	-25.78	-6.89	-11.16	-0.65	2.48	12.25	-3.36	-0.53	-11.77	1.11	
	-2.88	2.61	-16.85	11.05	-0.01	-0.42	-1.61	15.69	-12.22	6.28	-3.82	0.00	
	1.62	-9.77	-47.72	6.19	-0.83	6.58	1.00	-1.02	-9.70	3.61	-30.22	19.70	
	7.32	1.04	-5.46	9.62	12.75	13.09	13.77	10.00	-9.71	7.45	3.06	14.11	
	-5.38	29.05	-17.99	7.32	2.93	5.29	30.39	9.08	7.38	10.23	-26.21	44.32	
	-2.32	-0.91	-20.86	1.25	3.32	4.49	12.73	1.62	8.17	-4.38	-35.74	-2.60	
	2.32	6.87	-16.72	0.30	0.76	8.41	3.21	1.45	2.18	1.64	-19.72	-1.73	
	3.46	5.62	-16.78	-8.91	-2.54	4.18	3.29	5.43	3.51	2.00	4.59	5.88	
	-3.84	13.86	-7.84	-9.47	3.76	7.60	6.98	9.60	0.88	0.24	13.92	-0.69	
	-5.55	0.07	46.33	-2.42	-5.04	4.50	-6.30	2.97	0.94	-12.62	1.26	10.75	
	8.29	23.86	-2.30	-14.94	-9.63	19.24	2.41	3.39	-31.38	-38.21	0.57	36.21	
	4.85	10.57	-11.87	-8.10	-5.32	-18.15	16.55	6.56	-6.77	-20.82	-3.84	-5.61	
	7.48	33.61	0.73	-0.73	-1.48	10.40	3.59	1.55	-6.60	-4.00	-7.55	-1.02	
	6.66	-2.60	1.24	-10.71	1.37	35.96	1.68	0.39	-9.34	-0.27	5.93	18.28	
	-1.56	-1.82	2.12	22.35	-2.82	2.97	2.36	-0.98	-8.43	-0.74	-13.11	-6.06	
	-1.26	-4.33	13.87	5.06	-9.84	-2.88	1.44	17.44	-7.38	-5.94	-12.96	5.06	
	1.05	1.89	9.53	-3.56	-8.52	-1.88	3.23	22.53	-8.53	11.80	12.23	-40.43	
	0.59	6.91	-5.45	-1.70	-1.65	-9.29	5.16	-7.83	-12.23	12.55	1.71	-21.64	
	5.07	7.18	-9.21	12.40	-8.27	-3.49	4.41	-18.41	-4.19	19.64	2.66	-2.82	
	-2.01	12.74	-2.53	3.84	-11.51	-3.53	6.67	2.52	-3.18	0.13	13.96	-19.50	
	3.50	25.89	-1.97	0.58	-3.64	0.69	-2.60	-4.37	3.22	2.46	4.92	1.39	
	7.46	0.51	10.57	10.15	0.84	12.73	-6.78	-10.90	7.80	6.09	-10.40	11.01	
	-14.56	-25.27	10.26	15.64	1.62	-32.33	-25.05	-18.13	15.30	11.21	-19.22	21.64	
	-3.84	0.67	10.45	25.85	5.56	-11.64	-8.17	1.11	14.23	10.11	-2.08	14.45	
	8.14	20.69	20.90	21.10	11.69	-5.78	-16.54	2.13	10.03	9.02	8.65	15.88	
	2.42	16.84	0.30	11.94	4.96	6.76	-7.48	9.58	18.82	12.19	6.75	30.42	
	-0.20	23.43	2.72	38.23	13.88	10.76	-6.94	7.80	19.58	3.51	11.50	17.27	
	2.55	6.56	19.19	7.12	44.58	14.85	-1.24	13.04	9.35	3.00	31.23	11.37	
	11.41	-30.97	8.18	20.90	14.64	13.49	-38.23	11.12	-23.52	11.80	16.07	10.60	
	18.54	9.89	-30.45	33.88	16.72	2.71	-37.81	7.47	2.94	2.32	12.56	19.09	
	18.16	19.58	8.80	19.49	23.52	12.95	10.90	40.25	22.36	5.03	26.05	21.08	
	14.72	42.24	22.22	15.92	13.32	17.97	0.46	26.75	12.11	4.78	23.70	11.79	
	31.57	45.22	17.48	20.92	30.75	14.60	4.66	17.91	18.39	24.64	11.71	12.60	
	11.23	-1.02	15.12	10.13	30.85	13.39	9.11	17.32	16.73	4.30	2.35	10.35	
	10.37	1.30	21.63	-0.55	6.94	72.25	-21.58	8.31	-8.21	1.52	14.25	1.92	
	19.44	0.99	-6.00	-10.73	11.30	20.61	-14.59	14.47	-15.19	17.71	-1.48	1.09	
	11.56	-44.97	2.11	6.17	49.76	15.99	7.84	21.96	7.42	12.34	11.82	8.82	
	14.02	21.93	18.31	14.79	12.90	52.35	23.48	25.56	20.04	11.72	14.86	15.78	
	19.59	6.55	3.81	6.54	4.55	14.21	6.68	21.31	15.57	-6.67	6.62	13.01	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-2.30	6.85	34.52	30.24	7.54	0.30	13.60	17.09	15.10	21.86	-0.19	19.85	
	17.77	6.97	38.31	0.87	1.66	57.09	3.53	5.94	17.42	15.48	-7.08	9.52	
	35.22	5.46	22.41	-28.12	14.11	-14.81	-0.72	13.13	4.63	10.48	-3.91	0.50	
	12.95	7.33	1.82	8.08	1.52	44.76	5.38	32.08	8.00	12.48	41.22	-7.34	
	10.71	11.20	2.19	44.70	10.26	12.37	37.74	7.19	16.07	8.64	-1.61	11.49	
	7.04	10.80	21.97	8.82	8.23	-7.41	0.28	10.73	11.81	5.02	0.65	-0.62	
	15.90	7.72	-7.03	0.70	15.09	25.56	7.63	7.43	6.90	1.87	9.68	3.85	
	5.86	-19.09	-0.20	0.86	48.82	7.25	14.52	6.12	-5.25	12.78	17.49	36.71	
	-1.41	-5.30	3.20	3.71	23.82	22.22	9.87	-6.74	-3.44	7.63	-10.68	11.22	
	-24.19	8.25	-19.27	29.29	11.29	16.76	5.46	17.46	3.64	2.72	-4.96	18.03	
	3.97	6.45	-25.10	1.05	5.73	6.90	2.55	28.37	2.36	4.15	-2.35	9.24	
	4.99	32.96	-8.50	-13.21	-12.64	-1.85	-0.94	3.13	4.30	6.05	-1.02	1.87	
	9.85	-3.91	3.37	6.74	-4.65	-0.48	3.65	-11.83	5.19	12.40	5.02	-5.10	
	-25.11	50.49	-0.72	10.99	-6.41	8.92	6.55	-6.22	-2.30	-1.15	5.21	-37.96	
	-12.67	80.82	-9.05	12.46	7.91	-2.52	3.14	-25.13	-8.78	4.05	11.83	-4.00	
	-7.90	-2.95	-19.89	-1.16	5.55	6.55	15.89	-40.05	-12.82	4.20	5.04	1.57	
	-2.39	4.75	-8.69	27.65	5.90	-1.98	-3.12	-1.76	-14.40	5.89	0.73	6.49	
	-3.01	-24.72	-2.44	20.01	0.93	26.17	2.38	0.36	6.75	-4.15	-7.99	3.79	
	5.69	-41.80	13.00	9.05	10.30	7.42	1.55	19.04	6.94	-2.00	3.15	9.88	
	-6.81	-52.43	44.52	-5.14	-4.85	2.35	0.15	-2.25	1.11	0.22	8.40	49.26	
	-0.65	19.22	17.62	0.73	1.13	-2.64	2.29	-1.78	1.64	3.57	-16.34	-11.51	
	-2.89	33.42	0.01	16.91	-3.10	4.96	2.97	1.60	1.28	-2.37	8.19	-8.31	
	1.09	11.09	-1.49	21.73	8.81	-1.97	3.69	2.91	2.14	-0.84	-2.72	-3.30	
	1.28	-43.51	-4.03	17.17	-2.11	-3.29	0.94	-2.89	0.46	2.04	3.02	-1.72	
	0.06	-21.09	14.36	3.87	-5.20	-7.35	-4.06	1.11	-0.81	0.56	5.40	-0.07	
	-8.39	-6.41	-36.62	-0.65	0.69	-6.27	1.01	-8.07	-1.26	4.09	13.33	-0.98	
	-6.12	-10.46	-37.50	-2.47	-5.02	-7.65	-0.82	-4.27	-1.48	-4.69	4.84	-0.08	
	-7.43	-3.34	7.04	-1.48	6.86	-5.25	0.38	-6.38	-2.86	0.77	-1.52	-8.34	
	18.81	-5.54	1.11	-0.46	4.71	2.29	2.05	-3.55	0.96	-7.23	-3.57	-33.74	
	-12.37	0.76	-2.95	-3.33	-5.95	-9.77	2.42	-6.38	-1.00	-7.24	8.11	-24.52	
	-4.99	0.98	4.94	-0.75	-12.29	-3.57	-1.63	5.77	-2.45	3.94	7.07	-1.69	
	2.44	-6.86	50.93	-3.10	-42.14	-6.25	3.31	24.45	-0.39	-3.12	-7.53	7.83	
	-14.57	-14.64	20.37	3.80	-50.36	-8.43	5.33	15.06	-5.38	3.56	-11.05	-3.92	
	-0.25	1.85	4.67	-6.16	-10.82	-23.57	6.00	-0.11	-2.90	-4.79	-13.40	-12.88	
	10.52	23.96	-30.12	-10.30	-7.21	-35.49	-8.90	-7.68	11.24	2.25	-13.86	-25.00	
	-2.96	14.35	-9.77	-7.03	-17.96	-18.34	-0.27	-5.12	-4.12	-2.13	-19.26	-23.50	
	-11.30	-13.47	-18.56	-14.92	-14.46	-37.88	-11.97	10.31	-15.33	-6.37	-15.21	-8.17	
	20.74	-7.20	-104.97	-17.94	-50.30	-43.49	-14.77	-3.36	-14.43	-3.93	2.42	-27.70	
	3.04	-9.11	-45.04	-42.14	-25.63	-45.14	-12.94	-13.57	-15.30	5.50	4.57	-17.73	
	-5.98	-11.07	-16.69	-11.80	-13.17	-0.95	2.23	-10.19	-7.91	-5.21	-20.72	-24.95	
	3.20	-1.82	-17.39	-6.83	-49.50	-55.33	-3.45	-15.85	-5.09	-6.81	-43.64	-4.52	
	-3.92	-31.60	-46.55	-16.64	-36.85	-8.53	8.54	-15.56	-9.16	-3.89	-34.87	-56.91	
	-0.52	-22.01	-40.11	-20.36	-29.55	-30.16	-1.02	-9.96	-13.46	-5.25	72.91	-29.37	
	-5.31	32.79	13.45	-25.19	20.78	-17.65	-3.65	-24.52	0.94	-12.52	-69.96	-61.26	
	1.98	-33.24	1.50	-5.87	-25.20	-33.35	-6.12	-23.98	-0.68	-7.26	-13.72	-57.52	
	-23.10	-35.79	-5.97	-16.20	-25.22	-33.54	-20.73	-2.66	-13.35	-14.21	-35.40	-15.30	
	-18.14	-0.14	4.05	-19.04	-2.11	-4.21	-3.98	-19.59	-15.29	-22.34	-85.11	-17.77	
	-2.02	-28.44	6.83	-7.16	5.82	-22.13	-19.94	-11.71	-11.80	-4.78	-15.12	-4.02	
	2.09	17.96	0.90	-31.43	-10.86	-13.86	-14.21	23.70	-8.55	-16.44	15.29	-6.89	
	0.58	17.75	41.43	-38.11	-6.36	7.03	-34.68	-6.72	-8.78	-13.63	16.67	41.20	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-11.52	-4.32	51.20	-11.72	-10.32	2.56	-7.60	-44.08	-2.27	-22.66	4.26	-9.69	
	-10.78	-29.46	27.26	1.21	-10.85	-18.75	-21.46	-52.32	-13.71	-19.09	4.24	-3.48	
	-19.20	-11.20	19.87	-14.99	2.62	0.75	-17.04	-18.88	-15.38	-21.02	9.39	14.46	
	-28.98	47.53	10.33	-15.24	17.68	-3.62	-11.60	5.27	-7.53	8.29	4.23	21.62	
	-12.21	-2.40	5.83	-6.00	-1.67	-4.59	-14.39	-0.79	-11.93	11.56	4.92	15.89	
	-14.70	-51.96	-41.60	-15.91	-8.23	-27.43	-16.93	-17.52	-0.14	-9.82	27.35	-5.96	
	-14.23	-41.10	-13.29	-7.50	14.97	-0.43	-32.83	-12.45	-0.54	-15.68	25.00	-0.03	
	-39.47	-26.37	25.55	-13.77	12.30	-1.92	-25.83	-12.04	-4.11	-18.02	3.45	13.80	
	-23.21	-4.53	4.51	-14.86	-8.61	-14.40	-5.81	0.20	0.91	-25.98	-4.04	4.88	
	-7.52	-8.08	-2.59	-5.98	5.10	-7.20	-9.06	-0.53	11.12	-14.69	2.58	6.18	
	-15.31	-10.80	-21.41	-9.91	-13.31	1.78	-2.53	0.96	-5.16	-49.18	-2.07	-0.43	
	-0.23	-8.83	0.42	-3.79	-13.30	-8.34	42.91	-9.95	-10.87	-34.73	10.26	-16.21	
	1.70	4.16	10.83	-3.03	6.25	0.28	18.61	0.20	14.94	-3.81	7.90	8.38	
	-1.75	-1.23	-1.74	6.17	2.10	-19.18	3.82	3.51	6.49	-5.23	20.03	0.40	
	4.65	-9.21	-1.56	-2.13	4.30	-14.12	-0.37	-0.20	2.36	-1.97	-9.50	7.23	
	0.87	-10.17	-0.01	-4.26	5.96	7.24	-13.13	-23.64	2.61	-0.15	-13.02	6.00	
	-2.76	14.79	11.27	-2.06	9.91	7.08	-11.41	-0.75	-5.20	0.67	27.54	2.92	
	-7.61	75.09	8.99	-3.55	21.74	0.56	3.60	-0.56	-7.25	-2.97	19.78	-10.21	
	-25.37	26.27	7.01	-2.43	22.21	-15.16	-0.37	1.47	-1.21	-11.92	-8.92	1.68	
	-7.76	4.35	12.72	4.79	0.43	-5.77	-4.27	-1.05	-9.28	-4.46	36.44	-22.88	
	0.99	2.06	60.15	1.61	0.65	1.73	-3.58	7.62	-18.08	-10.23	12.74	11.70	
	1.87	-2.64	48.77	0.10	-4.16	-0.53	-3.39	-6.05	34.27	-8.34	-5.21	6.02	
	20.39	-6.34	-22.32	12.20	-13.42	-2.64	0.26	-2.61	-14.54	-2.84	12.40	2.91	
	28.56	-6.80	-23.87	0.30	-11.70	0.42	1.33	16.89	-0.90	-2.75	40.71	-28.43	
	-16.71	-6.37	-13.88	11.80	3.02	0.95	-4.95	22.70	-2.30	-2.87	23.72	-19.24	
	-30.29	-4.30	17.83	11.83	1.82	5.40	2.83	37.85	3.89	-7.46	-1.54	7.01	
	-4.11	-8.03	-4.13	1.94	2.55	4.73	2.32	10.98	4.05	0.88	5.73	3.10	
	5.80	2.10	20.95	0.91	2.78	38.54	1.11	11.08	1.70	-7.21	3.96	5.70	
	8.77	-20.44	11.58	9.04	3.91	51.20	25.48	-0.22	0.45	10.36	1.44	6.11	
	2.75	-15.42	9.45	0.44	0.47	-4.02	-17.81	0.59	5.42	1.69	-2.16	-4.95	
	-4.10	-2.77	-25.30	6.83	-10.96	-2.78	-9.87	-2.68	-0.86	-11.90	5.73	3.67	
	-8.46	3.71	-6.96	3.22	-2.11	7.37	7.68	-6.26	3.14	11.38	7.10	4.09	
	1.35	12.35	1.50	6.62	-2.42	7.67	0.22	10.11	1.56	-1.27	2.46	7.38	
	-8.51	3.11	2.39	15.62	0.87	16.19	13.34	41.74	2.16	2.80	9.95	2.54	
	-19.47	-14.19	3.25	-0.94	2.74	46.37	1.15	-23.06	4.60	6.77	4.16	38.01	
	-3.94	59.25	7.82	4.83	18.87	-59.11	11.62	-23.65	3.14	-2.54	-16.18	-22.02	
	26.79	9.57	1.65	13.43	-2.31	1.77	-6.59	-3.12	0.63	7.96	-41.48	21.66	
	11.83	1.45	3.56	1.73	-0.39	-0.11	4.93	-7.83	-3.38	1.15	15.62	-3.00	
	251.26	6.54	-4.84	3.64	-3.65	-3.54	4.11	-4.41	7.73	7.40	9.82	-19.75	
	-136.94	4.03	20.98	10.33	2.01	8.24	-0.47	9.24	5.74	-3.66	5.38	-0.13	
	-51.50	13.70	17.01	8.09	1.36	-5.85	6.83	25.42	0.83	0.49	14.73	13.01	
	-20.46	2.44	-16.31	-8.01	2.99	-2.68	12.26	2.85	2.06	-2.25	-0.33	9.34	
	-25.88	8.45	-5.65	-2.69	-18.56	-3.89	1.01	-3.67	0.11	3.06	17.44	-7.68	
	-3.33	-3.24	-10.24	-0.18	-18.66	-11.81	-1.41	-1.41	-3.59	5.47	23.76	-7.44	
	-12.19	-0.63	-8.26	-6.24	-12.84	-13.47	7.87	1.17	-1.51	1.16	-24.16	-3.14	
	-2.17	-3.32	-5.47	-8.26	-3.84	-8.79	-7.43	-8.30	4.47	5.84	-1.59	-8.25	
	8.10	4.35	-5.73	1.55	-13.50	-2.32	6.33	-11.32	-1.28	-0.08	-8.11	-21.88	
	75.45	-10.68	8.38	1.33	-2.44	37.82	-12.37	-3.18	2.84	8.17	-12.88	-21.68	
	43.82	-5.80	-1.83	-4.39	3.22	-40.09	-16.67	0.69	36.15	11.48	-35.44	-26.95	
	-23.47	2.31	-20.41	-23.29	-5.86	-1.93	7.39	-12.79	44.89	-10.20	-16.29	-21.55	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-10.75	-3.25	-50.58	2.12	7.63	-3.02	-11.34	-3.97	-4.37	-5.07	-5.74	-38.12	
	-43.64	-11.51	-11.65	-0.35	-1.77	-8.64	-6.73	-6.15	-9.54	-3.50	5.24	-26.17	
	-6.87	-5.95	-9.82	-1.99	13.54	-9.05	-0.09	16.44	-0.49	0.75	-56.03	-35.03	
	89.43	0.44	-5.46	0.26	29.06	-7.31	5.94	-3.73	5.65	-3.26	-90.48	-18.12	
	21.80	2.05	-9.36	-1.82	27.49	2.30	4.12	-1.95	4.18	-7.49	-51.63	-12.70	
	-44.73	-4.31	-10.31	0.40	10.24	8.96	1.02	17.02	3.12	0.95	-7.26	-14.78	
	-8.85	9.98	0.01	3.13	12.12	13.91	1.14	-17.14	-2.57	-7.34	-1.88	2.54	
	-5.98	-4.71	-7.33	-4.74	13.92	-7.15	2.79	14.78	10.97	7.50	-2.98	1.55	
	38.39	-2.78	-10.11	-17.23	-20.49	8.51	8.12	-1.21	-0.41	17.43	0.70	14.94	
	6.91	-0.81	2.46	32.28	-41.08	13.54	25.98	24.72	-29.96	13.18	56.57	69.38	
	-1.98	-17.14	34.97	17.92	-27.45	19.35	50.14	-5.01	-13.14	5.66	36.69	25.20	
	5.33	-2.99	-2.26	-3.70	-18.53	11.96	-0.42	-13.61	8.77	-1.46	-10.92	9.09	
	5.89	12.84	-23.17	3.06	7.90	-2.70	-6.10	26.80	16.42	-8.41	-28.70	7.50	
	-14.07	28.05	9.22	2.66	2.12	8.08	-1.35	37.81	5.56	-8.48	4.84	2.78	
	-19.53	-5.10	8.54	-10.85	-2.30	8.16	3.66	6.26	15.80	-10.06	4.14	6.52	
	-76.66	-14.38	-1.81	-5.47	-1.87	0.95	7.19	1.57	0.00	3.35	-16.12	-17.81	
	-27.45	1.82	-12.07	1.75	-0.95	-10.13	4.28	15.82	-2.79	-9.44	10.66	-16.56	
	2.42	7.32	5.83	-0.95	-4.84	6.94	4.03	-14.34	7.33	-6.14	2.34	3.75	
	6.64	15.37	2.92	-12.26	3.58	1.50	19.16	1.39	-1.18	-3.77	3.66	9.23	
	16.59	13.68	-28.80	-26.11	-7.56	-5.58	-7.58	26.42	-2.68	17.20	1.98	1.39	
	-6.60	-2.01	3.63	-7.57	-10.77	7.95	3.07	13.46	-19.79	17.66	-0.41	9.23	
	-11.31	-29.96	-21.55	-3.13	-8.99	0.44	3.62	-0.69	-51.10	12.02	3.55	-1.88	
	-9.99	5.29	2.12	-1.26	-2.76	-10.58	1.93	-14.70	-33.62	17.03	7.97	-8.11	
	9.31	12.57	7.69	20.45	-13.00	6.17	1.18	6.43	-2.09	10.72	17.61	10.05	
	9.59	15.61	-0.29	12.02	-9.90	-5.70	2.87	-5.06	8.25	13.64	-0.59	2.20	
	10.08	7.42	-11.08	7.60	-5.57	-18.20	0.02	-1.30	9.28	4.44	-4.04	-3.71	
	-2.91	7.41	10.17	1.95	11.34	-4.63	4.80	-8.08	7.53	14.39	-6.55	16.24	
	-29.89	19.85	31.80	10.10	-12.84	3.15	4.67	-10.64	8.37	16.17	-25.56	31.20	
	2.14	31.99	79.41	12.37	-5.41	8.93	1.45	3.94	5.53	15.40	-2.53	30.09	
	9.67	8.94	26.27	7.06	12.36	9.42	1.66	16.41	10.14	5.06	2.02	-1.15	
	9.78	18.18	12.88	14.27	24.93	-4.27	7.78	23.90	14.63	7.58	22.91	2.62	
	29.57	42.72	0.22	13.06	12.17	-7.51	3.28	2.09	11.06	5.90	32.23	25.30	
	12.82	12.82	-4.68	4.57	8.19	7.87	-14.22	18.43	-1.82	4.81	17.61	-3.71	
	0.79	2.44	4.06	20.50	33.44	-10.96	2.27	8.51	-2.47	26.87	5.90	-17.74	
	21.99	11.65	27.57	2.60	27.96	6.04	-7.30	-2.47	2.68	12.43	18.93	2.94	
	11.49	7.68	18.50	8.95	13.65	23.84	25.94	10.77	10.75	2.72	18.71	-2.09	
	-13.04	54.36	16.75	5.53	26.29	19.69	-7.54	33.01	10.75	21.52	33.68	19.13	
	19.25	26.32	-4.41	13.79	18.98	24.44	13.57	16.50	14.25	18.50	14.47	10.97	
	16.97	13.90	14.34	19.93	15.19	12.50	-0.44	6.35	11.24	15.31	9.51	30.08	
	21.50	-7.71	-25.64	23.49	8.10	10.05	-24.27	10.08	-15.19	33.76	20.23	-10.83	
	32.71	-64.34	-5.26	16.50	6.07	18.89	0.57	24.68	-16.46	10.51	-2.37	-1.01	
	5.77	-14.01	1.40	19.54	11.13	7.95	1.40	13.64	2.28	14.39	-20.25	6.71	
	18.49	21.82	10.22	16.83	10.28	14.63	10.72	0.91	8.65	5.83	24.98	21.40	
	-10.02	31.48	11.41	15.78	5.48	20.47	12.24	-26.07	10.72	39.31	31.53	28.02	
	13.80	0.08	18.84	10.62	0.73	22.81	5.65	-9.40	15.18	21.34	10.33	20.08	
	26.47	-12.30	12.01	13.86	26.01	5.00	9.90	0.67	38.33	3.72	1.00	31.62	
	7.71	-23.49	11.22	21.61	16.97	5.78	6.93	17.09	-5.75	1.56	-2.83	22.64	
	28.90	-21.38	23.92	4.62	6.74	10.72	-6.19	16.51	9.02	7.97	14.09	16.08	
	9.65	0.98	13.72	9.28	9.31	24.60	3.29	16.40	26.82	8.12	-26.94	10.05	
	7.92	11.64	-0.74	-1.96	11.55	10.20	7.56	13.45	23.33	8.28	3.70	15.93	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	5.16	21.38	5.18	9.17	9.96	8.30	8.74	19.68	4.12	7.38	10.87	10.43	
	17.40	3.99	-4.74	4.15	5.70	4.97	5.41	0.61	-6.76	7.43	17.00	-2.54	
	1.51	-1.17	-6.03	6.41	3.55	12.20	8.67	-11.83	-2.66	7.02	4.06	2.47	
	10.94	0.27	5.48	-2.29	7.04	14.48	6.08	1.12	-3.44	9.30	1.81	16.25	
	8.65	2.60	5.02	-5.34	22.85	1.15	18.80	1.07	0.48	0.34	-4.14	11.28	
	-2.50	3.85	6.60	-3.96	6.33	7.07	26.46	1.62	17.98	0.79	-22.72	-2.43	
	1.11	5.01	9.28	-3.60	5.19	3.48	0.18	24.46	-0.93	1.03	18.48	9.33	
	8.03	8.93	1.69	8.26	14.01	-1.82	13.24	35.76	-10.52	1.46	8.72	1.95	
	21.88	2.28	-13.77	20.76	13.99	8.47	20.48	2.09	-1.76	-0.11	10.75	1.83	
	4.42	7.62	-15.12	5.94	14.02	19.72	6.80	-0.40	0.85	-3.17	12.45	16.50	
	-2.54	0.44	-6.90	-10.06	12.45	1.40	9.29	-5.15	2.23	1.41	1.06	21.41	
	3.08	28.59	3.51	-0.77	-0.41	10.20	13.64	-8.05	7.49	7.50	5.32	5.74	
	-2.18	-14.54	6.17	1.78	-5.36	-13.66	-0.43	-7.38	9.15	6.17	4.22	30.60	
	2.92	0.03	3.58	-8.29	14.63	-4.71	2.24	1.36	5.32	-0.05	-3.72	-0.43	
	8.02	-10.14	5.01	3.08	-2.17	0.39	7.94	-0.35	-4.23	2.52	0.36	1.06	
	-5.21	1.48	29.19	0.25	2.17	0.17	3.01	3.40	-6.93	-3.20	-0.96	-13.49	
	-3.28	-11.84	19.43	-2.69	-5.13	2.28	0.57	9.53	1.88	-7.50	-0.51	14.78	
	-4.45	-4.51	11.49	-7.98	4.52	0.06	0.14	11.45	0.14	-2.42	-4.32	6.22	
	-0.95	3.31	3.58	-10.71	-10.25	0.74	2.35	10.84	0.61	-4.08	-1.96	1.71	
	-4.83	3.57	18.49	-4.75	11.39	-7.52	9.10	-11.58	-2.93	-6.09	16.56	2.30	
	-5.02	-0.22	3.17	0.12	4.94	-6.31	8.54	-10.16	-1.45	0.25	21.51	2.89	
	8.34	-7.89	-6.93	-11.94	-6.62	-5.04	-1.81	-11.60	-0.79	3.00	-27.35	2.65	
	2.29	1.79	-19.58	3.25	-4.88	-6.97	-1.96	1.28	0.35	6.63	-7.25	0.99	
	8.02	5.25	-10.09	-6.52	2.42	18.99	-1.17	3.15	3.43	2.12	-0.27	-0.20	
	0.39	20.23	-2.66	-7.25	-12.26	-7.42	7.32	-3.73	0.01	-3.34	-0.10	-1.60	
	5.00	-16.33	-14.40	1.75	-13.84	-43.35	-0.96	-6.92	-10.12	-5.13	-8.56	-1.01	
	-1.21	-23.43	-32.83	-9.17	-9.28	-1.11	1.84	-9.89	-17.56	-9.80	-2.95	0.30	
	-3.94	0.46	-8.48	-22.58	-35.28	-4.28	-0.76	-13.48	-3.76	-7.92	-2.16	-2.48	
	-12.33	-3.17	-15.91	-5.14	-19.73	-4.87	2.15	-27.83	21.51	-9.20	-2.04	-1.98	
	-13.96	-34.67	-17.42	7.49	-12.69	-12.52	3.72	-18.97	9.46	-27.25	-25.53	-0.14	
	-4.73	-27.92	-22.90	-7.65	-7.04	-21.52	8.97	-6.47	-25.33	-34.68	-24.60	-3.44	
	-1.83	-17.86	-55.92	-18.23	-76.97	46.83	7.09	-26.67	-27.22	-21.54	-19.35	3.99	
	-3.23	-36.71	-33.82	-20.66	-58.50	-6.58	0.73	-39.69	13.88	-27.10	-42.19	5.00	
	2.50	2.98	-23.39	-11.20	-23.16	-22.35	-7.25	-15.04	3.26	-61.53	-45.52	-5.98	
	-7.55	-2.11	-16.42	-9.24	-36.13	-28.19	-9.72	-24.34	2.42	-25.29	-34.17	-0.31	
	-13.33	-22.63	-22.84	-21.66	-34.25	-71.42	-5.19	-13.05	0.05	-34.47	-26.59	-8.03	
	-0.62	-15.29	-45.39	18.10	-16.95	-29.86	-3.48	-11.47	-4.07	-30.10	-18.58	-26.53	
	-29.51	26.70	-33.00	5.30	-4.14	-32.78	-14.91	-24.59	-4.96	-29.59	8.95	-77.20	
	-51.83	13.95	-17.20	-8.51	-2.30	-25.44	-29.48	-22.85	-50.60	-23.80	-4.88	-42.76	
	-17.87	-15.33	-22.77	-16.79	-7.32	-29.91	-17.72	-19.43	-18.35	-16.35	-15.87	-15.95	
	-10.65	-7.72	-36.20	-16.85	-15.53	-19.64	-14.03	-15.61	-7.53	-18.89	-19.21	-14.33	
	-19.59	-9.54	-12.18	-6.64	-12.10	-12.01	-22.36	-19.92	13.82	-16.06	-9.47	-21.98	
	-14.56	-25.54	6.39	-9.13	-3.99	-28.45	-44.55	-17.90	18.01	-6.73	-11.83	-25.94	
	-5.08	8.72	31.67	-23.48	17.06	-26.04	-52.62	-20.57	46.50	-17.50	-1.78	-55.36	
	-11.86	-3.88	25.79	-6.56	15.56	-44.34	-80.35	-23.43	5.87	-7.23	1.42	-69.55	
	-16.47	-3.97	-11.83	-6.83	6.49	-46.27	-10.44	-13.97	-11.37	-5.20	-4.69	-3.87	
	-18.46	-15.25	-2.44	-14.36	-1.29	14.35	-18.51	-31.87	-16.20	-7.06	2.73	-29.60	
	-24.63	-12.52	12.32	-4.64	5.50	38.37	-19.64	-23.04	-26.17	-7.06	10.71	-8.53	
	-17.88	-11.57	25.35	-16.50	3.67	-3.37	-10.00	-0.79	-19.89	-2.15	11.28	-10.95	
	-21.93	19.99	6.66	-15.34	21.17	9.80	51.53	40.02	-18.37	1.38	6.14	-13.37	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-11.63	35.92	-6.45	-22.57	11.36	27.29	-0.43	16.08	-15.91	-0.31	11.98	-9.85	
	6.73	19.58	-10.59	8.21	1.21	25.52	-15.76	-6.83	-11.96	5.89	20.07	3.44	
	-7.99	-5.76	0.11	-21.91	0.49	13.80	-15.59	7.60	-3.91	0.12	21.47	-2.10	
	-23.82	-4.56	20.09	-2.06	1.74	-30.22	-0.90	7.23	0.04	-22.44	-0.94	8.66	
	-12.73	4.06	6.67	-7.01	-3.58	-35.18	-9.28	-9.06	-9.97	-4.52	-0.68	6.07	
	-0.63	-1.92	-0.34	-1.77	-27.18	-36.18	-29.03	0.36	-9.81	-8.01	10.03	-4.45	
	-3.41	-1.37	-20.00	-20.93	-17.99	-5.56	-13.57	-1.02	-10.39	2.92	7.90	16.95	
	-4.80	14.86	-16.94	-8.27	0.46	-0.39	-1.29	-0.38	-9.79	-7.44	6.39	6.18	
	15.53	2.13	17.26	-4.64	2.12	0.46	-1.98	-7.41	3.29	-2.83	25.93	-7.94	
	-19.87	0.67	11.10	-5.13	-2.62	4.94	-8.25	-7.26	0.15	-0.46	16.95	2.33	
	-5.39	-1.78	2.94	7.69	-4.35	1.65	-1.86	-20.05	-5.96	-5.82	-10.29	-4.20	
	-16.22	-6.91	0.69	4.11	-9.17	-0.26	-9.91	-43.73	1.28	1.78	-67.48	-2.35	
	-17.80	-12.71	6.07	1.98	-1.71	-6.04	2.82	-50.40	1.50	-3.61	-18.85	-5.27	
	-5.23	0.53	0.04	-1.69	-13.56	-2.81	3.21	-2.49	-11.52	-5.85	4.67	-2.52	
	-1.47	-3.83	0.49	-5.90	-10.08	13.81	4.49	1.89	-4.74	3.56	3.41	3.80	
	-6.41	-2.33	5.99	7.15	-1.04	9.36	-9.35	17.05	2.64	-3.77	5.15	4.25	
	-1.14	-11.47	-4.93	-1.47	-6.01	-1.53	8.78	5.89	6.20	2.83	2.15	-1.11	
	-6.52	-2.39	8.33	-6.20	6.55	0.49	46.46	39.93	24.61	0.76	-1.26	27.88	
	-1.02	-12.53	-21.49	6.89	1.73	3.81	6.60	37.44	7.76	-2.55	1.53	13.60	
	3.77	-4.33	18.13	-0.40	-16.75	7.36	12.94	22.13	4.84	6.45	5.20	-4.38	
	1.70	1.39	7.03	11.62	4.56	1.63	4.97	18.68	17.91	2.08	3.64	0.11	
	7.78	-3.08	2.88	14.66	5.71	-5.05	-0.52	-11.08	0.92	0.05	-0.63	3.35	
	-8.86	5.20	3.97	10.99	4.38	-1.93	8.95	-12.77	-10.00	3.51	11.73	3.23	
	-3.40	15.38	23.06	1.36	13.74	0.88	12.05	-8.19	23.26	3.64	34.20	4.25	
	0.82	3.42	11.36	-4.19	17.72	2.80	20.93	1.99	4.06	1.73	19.13	1.41	
	3.84	0.64	2.46	16.25	12.03	11.46	9.07	7.23	7.06	4.83	3.74	0.39	
	2.47	6.71	7.33	26.88	-4.69	8.68	2.44	10.06	23.48	2.19	10.09	3.62	
	5.92	15.10	2.29	7.92	9.41	11.21	1.54	7.34	5.34	1.23	0.14	9.27	
	1.51	2.23	12.89	17.45	18.69	13.97	13.08	70.40	8.57	1.78	-5.85	-0.97	
	7.30	-4.51	12.97	21.84	17.61	3.34	54.63	7.57	4.51	7.79	0.69	54.07	
	0.07	-1.07	2.13	6.50	2.22	-5.80	16.60	-4.97	-1.79	-0.04	5.16	28.49	
	3.11	7.82	-18.85	0.21	2.13	-26.86	14.24	-19.66	2.82	1.11	2.33	9.12	
	1.52	-19.97	-25.31	-11.05	-2.95	-10.05	-0.72	-37.16	-2.30	1.03	-3.80	11.57	
	4.33	11.90	14.35	15.19	-4.10	10.41	12.26	-19.62	-1.67	-5.41	-4.48	-2.20	
	1.73	3.12	1.87	5.05	0.44	51.17	5.56	-5.35	0.05	2.96	0.19	-4.52	
	9.80	-0.38	-10.86	3.03	6.06	-1.15	-41.45	0.70	-42.82	1.84	3.22	-2.08	
	-7.28	-9.62	-4.75	0.32	-2.02	-2.12	-18.89	-11.04	-29.48	0.16	5.86	-31.95	
	-3.84	-2.15	1.84	-2.00	1.22	1.62	-1.42	-4.66	-10.60	-8.71	-9.32	-12.76	
	-12.00	-1.25	-5.24	-0.33	-23.57	0.01	-0.46	-0.02	5.56	-12.43	-13.05	-10.32	
	-0.16	-6.93	-9.98	1.90	-24.84	2.68	-11.29	-0.55	8.50	-1.34	4.17	-1.61	
	-8.75	-16.58	-19.26	-5.96	-11.79	0.91	-20.91	-3.32	18.24	-0.69	-22.36	-11.91	
	-8.60	6.22	0.22	-17.68	-6.29	-21.48	-10.30	-6.19	21.08	-5.53	41.02	-46.64	
	-3.27	-4.43	-6.71	-9.00	-9.73	-22.27	-6.27	0.29	-6.87	-13.74	-9.33	-25.07	
	-12.23	-24.25	-15.29	-6.49	-14.34	-21.11	-0.25	2.14	-8.96	-4.39	-6.53	-6.77	
	-23.66	-13.99	1.69	-13.61	-3.34	-10.96	-0.60	-8.30	-0.73	0.21	-22.47	-21.78	
	-54.21	-9.15	-12.04	-6.84	-4.20	-1.83	-4.19	-8.55	1.73	-8.47	-2.50	-30.26	
	-6.17	-21.27	-19.63	-1.40	-5.05	1.73	-7.91	-7.04	0.66	6.43	-4.38	-18.02	
	12.31	0.68	-40.30	-1.92	-2.23	-0.12	-16.31	0.95	-7.47	-2.60	0.04	-48.46	
	-6.74	-5.52	-19.86	-5.97	3.40	-2.65	-23.82	10.01	-9.47	-4.69	-3.48	-14.07	
	-4.79	-19.61	17.29	-18.67	2.42	-4.03	5.14	-10.42	-0.49	4.24	7.19	-11.20	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	15.70	-19.58	27.73	-14.52	1.27	1.53	-8.11	8.46	5.26	6.18	1.13	0.07	
	-8.61	-26.90	-30.60	19.94	12.74	5.99	-12.54	-3.16	-1.53	1.55	-0.49	-4.76	
	-9.49	-4.26	-4.55	-1.20	4.62	17.36	5.98	2.71	5.99	7.10	-9.79	10.25	
	5.57	-2.45	-1.99	4.59	-10.96	24.48	15.46	-19.55	9.48	12.13	-10.34	-18.65	
	9.53	-0.85	-15.19	-0.16	-9.51	-0.62	-9.10	-46.80	-7.81	-0.25	-13.68	-8.25	
	8.54	-7.99	-16.04	-5.52	-6.30	5.09	9.04	-5.16	4.46	13.23	-30.64	0.33	
	4.48	-44.19	-8.11	-7.78	4.30	9.04	14.01	19.34	3.86	2.67	-10.18	23.85	
	0.37	-7.72	17.54	7.60	0.52	10.01	4.47	7.94	7.11	-1.30	-3.08	1.29	
	3.24	-5.68	-0.13	2.62	-9.29	8.04	5.51	7.79	6.20	-6.95	1.24	11.24	
	-2.13	-20.99	-27.09	-10.90	-34.82	7.51	-1.24	-37.66	10.72	-15.62	6.16	4.68	
	-7.39	-24.11	-30.18	-30.90	-15.63	-2.54	-1.96	-12.55	11.18	-15.88	-2.99	7.65	
	0.98	1.38	-20.79	-17.50	-5.94	-1.81	8.05	-8.58	23.05	-7.32	8.53	11.67	
	21.35	-1.87	6.01	-12.68	2.02	4.00	3.26	-1.61	7.97	-0.55	-15.35	12.03	
	11.59	1.97	10.92	-9.21	-5.34	2.79	4.90	-2.95	-5.66	-3.55	-5.31	1.13	
	4.41	5.00	-0.19	-14.05	3.37	10.99	-8.42	-5.41	-3.87	5.57	20.62	4.88	
	2.44	44.96	6.61	-23.85	19.15	7.31	-7.07	5.81	-23.43	7.03	12.23	6.48	
	4.42	60.56	6.11	-20.24	11.06	-14.71	-1.27	-7.39	-13.57	6.56	1.84	7.80	
	6.69	13.63	4.84	-5.60	1.85	-4.68	-4.36	-1.60	0.52	3.01	2.80	9.81	
	9.25	-1.75	3.05	10.77	-26.10	-5.53	7.35	-4.13	-0.62	6.18	5.16	3.34	
	7.55	12.18	9.39	-0.59	-9.94	7.62	-7.52	-21.81	-4.79	11.22	10.84	4.73	
	11.83	5.99	-1.24	3.38	-3.95	-5.63	-4.25	-5.95	12.03	13.26	17.24	14.14	
	-22.61	-10.76	20.38	9.01	3.67	-5.07	-8.70	-5.71	9.16	1.02	11.26	8.74	
	-1.96	6.86	11.56	-3.95	22.24	-4.19	-12.30	6.28	9.91	41.43	26.26	5.21	
	20.70	22.96	15.49	14.55	32.16	-5.98	-2.08	-2.42	15.45	-0.99	16.22	12.80	
	1.69	13.55	13.23	4.36	8.19	3.09	-3.36	7.05	14.23	8.90	-2.30	19.33	
	6.79	3.42	62.40	35.84	-0.22	11.82	-6.77	9.62	6.83	14.77	-5.92	14.55	
	13.88	7.23	71.38	-10.74	17.63	1.62	17.59	33.55	13.03	21.40	5.56	9.86	
	48.07	7.15	-42.17	20.02	-9.66	-24.14	31.41	10.43	-8.64	39.24	25.96	-15.48	
	15.70	12.14	-8.23	33.98	1.12	-6.21	24.69	23.25	-9.29	17.65	22.37	1.90	
	23.15	26.14	6.12	-5.03	21.25	29.22	11.82	35.83	9.29	13.57	18.20	14.90	
	17.79	23.32	-15.98	5.23	27.21	-2.92	16.98	13.11	8.31	12.67	26.38	15.07	
	4.85	23.89	-3.86	18.91	40.86	2.53	15.82	1.71	6.13	16.41	9.28	16.82	
	46.65	9.90	-18.55	12.31	29.67	0.55	18.10	4.36	-6.91	27.06	20.68	18.38	
	-4.43	-16.12	-17.03	8.74	10.52	21.16	-17.75	20.80	-6.85	12.51	26.69	13.01	
	8.86	-2.22	4.82	19.32	8.92	17.14	20.91	13.37	5.54	6.75	15.39	4.53	
	20.94	21.16	22.13	27.33	15.65	0.49	14.89	12.01	7.56	10.25	11.28	30.52	
	20.41	14.73	8.13	0.67	7.30	-0.27	9.16	16.32	8.86	11.03	-1.38	12.73	
	20.96	24.42	27.60	15.16	23.70	13.99	15.08	32.82	10.14	18.55	23.37	12.42	
	23.82	17.19	18.72	15.56	6.02	15.76	23.17	27.51	9.12	40.49	30.34	13.22	
	8.11	3.58	60.06	18.38	38.23	-2.46	4.89	6.94	-10.72	3.31	-8.36	13.26	
	15.62	-5.51	26.48	9.67	8.50	-16.56	3.76	13.35	-16.20	2.55	-5.73	14.15	
	12.80	1.44	4.27	9.20	18.06	6.55	4.67	3.26	27.87	12.16	6.38	15.48	
	2.09	24.69	9.17	3.32	10.92	4.75	35.68	22.50	4.78	4.55	0.59	11.01	
	6.46	8.46	-0.45	4.87	23.31	4.16	28.28	27.83	-4.07	17.12	7.18	6.20	
	20.46	11.10	-8.36	2.49	35.01	5.21	14.07	1.39	2.26	19.41	0.60	6.36	
	-38.80	2.04	5.12	1.89	14.49	6.40	-9.52	15.10	-5.85	-1.13	0.24	6.46	
	-1.32	6.57	6.24	-3.04	-20.85	14.57	2.12	8.96	0.77	5.06	5.21	11.16	
	6.73	4.57	-1.73	-1.32	10.33	15.39	-3.76	-1.92	-0.99	5.69	3.13	0.29	
	-9.48	-2.04	10.33	4.36	-5.64	-2.21	9.28	2.73	12.08	2.24	-8.39	6.02	
	-14.66	17.32	8.50	3.12	1.94	0.64	13.15	10.12	1.90	-0.27	14.99	7.78	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	25.62	-7.67	-0.77	-3.02	21.03	2.84	14.80	6.12	1.36	3.27	26.09	22.10	
	25.82	-2.62	-5.75	-4.87	1.05	7.01	-7.85	0.64	0.69	3.48	-0.27	11.20	
	73.13	-12.01	-4.30	-3.92	-2.57	1.57	-10.82	-3.29	-3.60	7.62	5.56	3.98	
	-1.75	1.22	-6.47	-2.22	7.37	6.91	25.82	0.51	3.15	11.61	16.92	6.49	
	0.34	-0.66	22.28	3.69	7.03	3.50	3.06	2.09	0.56	1.60	-0.85	7.08	
	-2.88	1.74	22.50	-1.40	13.68	12.15	6.38	1.86	3.61	1.14	-6.42	2.86	
	-55.76	2.07	10.02	-3.97	21.72	20.85	-3.22	5.46	-2.27	1.77	-9.84	2.01	
	17.46	-0.10	3.73	-2.16	-6.63	24.96	-1.31	5.74	-2.22	0.94	5.61	3.69	
	-20.00	-1.09	2.34	-0.93	-8.55	21.27	0.72	37.18	1.14	-1.62	-2.94	-1.21	
	-5.83	-3.52	-5.31	2.73	-7.19	5.85	-0.22	-4.56	1.79	-5.41	-3.50	1.21	
	-0.46	0.86	-2.12	3.44	-3.55	-7.31	3.65	-14.20	2.00	4.49	-8.52	-0.95	
	-10.03	1.12	-14.51	-11.69	13.04	-16.75	-1.88	-15.58	-0.18	0.52	-5.84	-0.61	
	-22.97	2.15	21.52	-10.08	-5.12	-8.95	-5.45	-16.74	0.63	8.34	-4.62	13.20	
	-3.76	5.51	45.21	-5.41	-6.06	5.29	-8.34	-1.15	1.04	9.13	-0.95	5.63	
	-0.14	-8.34	-6.40	-2.71	6.24	1.19	-8.88	-27.76	2.36	1.39	0.38	-4.14	
	-3.10	-4.71	-0.46	-7.68	24.54	1.21	5.27	7.33	-0.43	0.09	2.05	-0.10	
	-2.29	1.53	-35.19	-4.29	-8.40	0.95	5.05	12.49	0.33	-6.52	6.64	2.63	
	-1.57	4.75	-15.13	-1.88	18.72	-2.67	8.11	4.55	3.20	-4.74	0.82	0.50	
	-8.46	13.41	-8.01	18.80	-5.47	-0.31	3.26	1.70	1.46	-2.56	1.00	-0.51	
	-15.09	33.50	-32.56	12.92	8.46	-0.93	0.98	8.27	-6.91	-6.52	16.86	-3.37	
	-8.45	9.20	-18.09	-1.24	15.36	2.46	-2.53	-1.31	0.87	-9.73	10.84	-0.36	
	-6.21	-5.62	-21.34	-17.34	-6.01	7.62	-3.06	-9.86	-7.91	-11.31	-1.02	4.30	
	-23.27	-13.74	-22.26	-9.76	-16.97	-1.92	-8.12	-2.54	-9.13	-11.43	-7.56	-4.14	
	-24.79	-9.92	-21.71	-15.25	-9.01	-2.95	-3.87	4.15	0.20	-6.55	-23.82	-15.90	
	-16.31	-12.91	4.57	-24.45	-10.04	-2.30	-14.66	30.45	-3.14	-27.45	-49.24	-6.96	
	-37.35	-22.63	-70.76	-30.40	-28.28	-13.87	-11.37	9.76	-5.90	-9.66	-25.82	-9.74	
	-35.57	-62.96	-69.94	-36.48	-84.06	-14.77	-25.82	-23.14	-10.94	-32.78	7.18	-7.16	
	-29.42	-8.16	-15.72	-44.27	-13.80	-5.39	-16.00	-19.29	0.02	-30.33	18.56	-5.76	
	-43.18	-34.16	-32.70	-26.52	-12.66	-13.85	-18.67	-21.18	5.43	-19.82	19.75	-5.80	
	-20.53	-36.08	-40.35	-28.38	-11.99	-33.11	-16.15	-10.63	5.30	-35.61	-59.07	-1.50	
	-29.84	-26.89	-24.05	-16.56	-6.03	-19.23	-17.54	-9.90	-1.78	-29.49	-27.40	-21.34	
	-1.34	-25.43	16.88	-0.11	49.15	-29.85	-24.97	-18.64	-13.69	-39.47	13.79	-19.94	
	-29.00	-22.66	-8.83	-8.93	13.91	-31.45	-33.96	-27.53	-3.38	-25.92	-13.88	2.33	
	-14.47	-29.21	10.42	-5.09	-5.05	-12.75	-17.58	-37.09	-17.47	-16.95	-23.23	-2.93	
	-34.95	-5.36	-12.45	-15.40	-17.23	-10.59	-19.41	-27.74	-13.77	-4.53	-5.97	-25.79	
	-2.94	56.43	-8.49	-19.88	-17.99	-23.52	-20.19	-16.05	-19.94	3.44	-9.09	-12.78	
	-22.01	-0.84	24.67	6.20	3.27	-13.59	-12.48	-21.83	-13.54	-1.04	-12.52	-10.30	
	-4.99	15.44	-19.72	-8.21	22.36	2.42	-2.26	-9.76	-14.60	-27.10	5.38	-15.87	
	5.38	-8.45	-26.80	-4.38	5.63	8.54	-10.77	5.54	-16.67	5.51	-12.61	-20.79	
	5.35	28.57	12.89	9.15	-5.64	-12.40	-9.27	-17.40	-16.90	1.89	0.09	-28.23	
	5.64	-0.82	21.78	5.88	17.51	-1.26	-2.07	-21.53	-22.38	2.28	-1.13	-20.27	
	-0.58	4.42	13.70	2.74	8.89	-4.67	3.62	13.90	-27.75	-9.27	3.70	-12.49	
	5.35	0.70	2.29	7.80	4.19	-12.50	-51.29	-5.25	-4.12	2.02	-10.85	-11.44	
	62.55	1.82	65.30	6.28	8.49	0.16	-8.27	-1.75	3.62	-5.07	-0.71	-9.00	
	47.24	11.45	28.16	10.28	4.32	5.83	-5.97	-1.62	10.78	0.42	5.15	-3.11	
	-34.62	15.28	-7.27	7.34	1.48	-5.19	-12.56	-18.24	-2.63	-7.36	-14.68	-6.26	
	8.51	5.27	1.13	3.86	-5.65	-3.47	-6.42	-16.61	-12.71	-6.87	-7.10	-21.64	
	28.38	15.61	7.81	17.16	-3.26	-2.65	-5.07	5.79	-9.91	-4.75	7.96	-0.18	
	27.44	-3.81	5.31	22.89	-1.96	-11.07	-16.36	-5.49	-11.17	-2.17	1.35	-6.98	
	14.53	-42.57	-0.88	21.35	-57.31	-13.14	15.47	-11.86	-7.88	4.33	-68.81	7.96	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-38.07	-19.31	-10.78	40.46	-18.89	-3.96	26.37	31.70	-5.12	4.35	-28.73	6.10	
	-3.90	-8.33	6.38	4.03	-13.85	8.13	-40.07	-7.99	-5.93	-11.78	3.65	4.07	
	14.53	10.88	-0.89	2.39	-2.67	-3.94	9.09	-13.90	-5.17	-3.47	5.84	1.52	
	-0.57	12.84	-5.30	4.84	12.60	-9.42	-4.11	-8.80	0.51	-0.92	8.80	14.61	
	-11.47	5.28	6.85	10.80	18.18	2.99	23.32	-16.97	4.29	3.23	-1.20	4.19	
	3.04	-24.89	-23.12	5.27	-2.18	8.65	-32.20	-30.75	40.76	3.72	-21.92	-4.10	
	-20.30	10.00	-4.89	-0.46	-7.63	1.77	-24.55	-39.83	36.47	3.28	-15.50	7.83	
	-10.27	24.75	24.98	3.49	-5.51	-0.84	-58.15	-19.31	0.81	5.40	-3.78	3.78	
	3.30	-2.97	-1.88	7.17	-9.78	-3.17	-23.15	16.49	3.32	0.92	-5.65	-8.58	
	-8.53	0.48	44.47	4.48	2.36	3.16	-23.57	-6.02	-11.08	6.17	8.25	4.68	
	-7.07	3.24	-26.11	-3.06	0.89	18.52	9.75	-15.99	-3.36	-17.27	-2.13	0.17	
	0.64	19.22	-42.41	-47.62	-0.62	-12.13	33.76	0.98	-8.71	3.64	-22.57	-2.74	
	0.52	19.79	9.40	-10.80	6.43	-2.65	6.86	-4.09	-11.93	1.90	5.35	4.48	
	-4.30	-5.60	20.76	-4.76	1.13	6.46	4.08	2.00	-2.14	4.36	5.57	8.87	
	-5.12	8.55	3.49	8.11	-9.75	10.84	2.07	-5.66	3.79	0.65	15.89	14.88	
	9.03	11.72	-31.19	5.15	1.07	7.51	10.58	1.67	2.63	1.59	3.47	13.86	
	-4.08	4.57	64.59	0.42	8.64	-2.10	29.35	1.86	2.98	1.99	-1.36	11.05	
	13.07	15.63	25.72	-20.63	26.96	3.90	-2.34	4.03	4.38	0.50	-24.58	5.58	
	11.95	3.21	-5.30	-8.19	19.64	3.77	-9.19	1.90	-0.46	3.31	1.98	9.39	
	8.90	11.27	-16.09	-2.49	11.93	4.54	11.36	3.86	6.17	-2.65	-17.25	11.80	
	3.09	0.08	24.83	6.64	12.46	2.21	15.07	4.19	2.47	5.57	21.13	14.98	
	-6.21	18.36	54.25	9.99	1.17	-1.34	12.36	-9.46	1.26	3.91	-0.48	9.06	
	-6.40	-5.23	-51.75	12.08	4.70	5.52	4.69	7.06	-1.96	4.97	-6.27	9.87	
	14.82	-34.58	-11.81	6.54	16.55	4.09	5.66	3.77	-8.18	-2.06	13.94	3.87	
	-3.96	-40.38	4.44	4.29	-4.28	10.02	2.98	4.75	-10.49	-2.51	18.52	9.80	
	-4.11	0.92	64.49	1.46	-9.91	3.38	2.77	8.15	0.66	0.25	-2.07	-2.09	
	-3.42	4.20	8.20	2.88	9.31	-0.45	11.39	11.10	-1.61	0.24	8.86	4.55	
	-0.08	-3.10	1.10	2.56	0.38	2.15	-5.20	-10.88	-0.95	-3.67	3.48	0.37	
	6.76	35.35	-0.94	-1.32	7.63	-1.10	-5.44	-7.05	1.69	8.82	2.26	-1.64	
	-8.80	8.91	-47.85	0.19	-10.20	2.86	-5.50	-2.55	3.03	-2.24	2.00	18.34	
	-6.08	-8.66	-31.23	-5.05	-4.65	1.75	-15.18	0.85	2.26	-5.84	-3.10	4.59	
	-3.93	1.45	-11.63	-8.65	-6.24	-2.40	5.22	15.10	4.44	-7.70	8.20	-5.64	
	-9.42	-11.87	-10.46	-15.32	1.45	-4.62	-6.09	8.55	-0.76	-1.98	10.44	-9.76	
	-2.20	8.20	-5.71	-4.03	-14.12	-0.62	-19.63	-3.99	-9.51	0.12	-0.67	-3.71	
	-0.30	-4.28	-4.66	-9.98	-7.63	18.06	7.01	6.23	-0.82	-3.37	-4.73	-6.11	
	22.84	12.02	21.35	-7.29	-1.47	-13.67	6.68	2.35	-0.35	-5.04	21.46	-22.98	
	11.35	-31.99	10.93	-9.29	-17.35	-3.30	-21.08	-1.15	-2.48	-12.33	-5.39	-36.21	
	-5.08	-51.92	-16.81	-4.86	-3.65	-8.37	-2.50	-9.73	3.10	-19.57	-10.13	-20.61	
	-25.73	-12.31	-3.41	-10.95	-6.52	-8.72	-12.30	-1.81	-2.29	-6.41	3.54	-38.89	
	-34.79	11.45	-4.23	5.62	-2.53	-10.39	-11.74	-28.95	-0.32	-10.23	-7.17	-35.69	
	-50.06	-15.04	-18.79	-7.87	-12.06	-7.13	11.96	-14.11	-27.27	-8.29	-2.05	-38.71	
	54.65	-18.45	-30.63	-6.97	-5.92	-1.26	0.31	14.98	-21.40	-1.15	29.79	-32.56	
	3.17	-18.91	-37.42	5.56	7.63	0.89	12.84	14.21	-8.60	-2.49	-26.57	-15.88	
	-12.59	-15.29	-11.32	-8.75	-11.01	0.79	13.73	-6.18	11.69	-2.81	-17.91	-3.18	
	0.58	-19.82	-7.15	4.79	4.24	0.57	-36.02	-4.44	25.54	7.78	-10.68	0.40	
	-7.39	-1.40	-11.21	-6.78	-3.52	5.74	21.19	-15.28	8.39	-8.47	10.49	11.99	
	7.32	-6.88	-16.04	6.83	2.70	9.76	7.23	5.85	2.39	1.24	-1.76	20.74	
	-1.59	-18.41	0.81	14.34	16.56	6.65	11.18	39.00	-73.91	14.67	-12.54	-12.62	
	2.39	10.13	-14.75	15.24	20.59	-0.82	28.56	-1.56	-25.44	2.77	-5.30	-11.03	
	3.65	7.03	-47.07	38.22	-1.21	0.27	6.90	-5.22	0.68	-1.55	-16.65	-0.53	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	69.30	4.33	-24.81	29.84	5.61	5.33	4.73	8.95	0.38	-8.67	-6.45	-1.97	
	18.84	18.91	-3.39	7.00	3.37	5.54	-11.59	3.29	5.17	-11.67	-5.68	15.47	
	-14.19	17.45	-1.44	5.99	2.13	7.71	6.71	1.13	9.86	-4.55	-4.60	2.71	
	-39.87	-15.83	9.50	0.71	1.89	4.79	11.88	13.97	38.62	-3.43	7.07	-2.99	
	-32.61	-0.63	-5.93	-6.32	-0.88	3.34	2.78	9.01	32.58	6.57	-3.24	10.42	
	-1.86	15.40	1.33	-7.37	-1.21	0.30	15.64	27.34	-1.68	1.26	-8.99	3.63	
	17.82	26.85	-1.18	-6.08	2.41	-2.20	7.67	5.89	0.11	-2.30	4.57	41.92	
	8.92	4.88	6.18	1.28	3.88	-3.61	6.13	7.74	5.23	1.12	17.92	-3.48	
	-3.74	9.82	11.81	0.94	8.98	4.44	4.56	-20.15	-3.67	11.47	1.54	4.48	
	69.35	4.69	11.56	11.26	-11.52	2.68	-47.78	7.88	-10.58	3.22	-31.28	6.69	
	17.95	1.07	3.27	-0.20	-28.00	0.44	-3.82	-5.39	-4.99	11.31	-30.82	14.53	
	12.17	12.84	6.14	12.73	-10.61	-0.45	-7.34	0.90	1.31	13.88	-6.09	5.22	
	2.14	-6.92	6.93	3.72	-16.82	1.32	-6.48	-11.01	-34.91	10.85	12.46	6.92	
	10.20	14.02	2.84	11.77	-5.06	-2.28	-6.02	-19.64	3.31	5.35	14.75	10.09	
	2.70	9.04	8.93	11.20	-0.14	-6.69	-23.79	-39.13	25.28	5.08	3.85	11.24	
	21.76	-2.75	13.91	19.46	5.24	-0.01	-14.46	-4.42	51.79	14.23	8.09	9.88	
	15.87	14.62	17.21	-3.68	2.47	-19.34	-9.38	-4.13	20.31	14.90	14.23	19.02	
	16.64	12.53	9.53	10.91	6.91	-3.70	-8.75	4.79	16.63	21.30	21.34	27.66	
	30.07	10.38	11.25	13.93	11.91	1.22	4.01	7.40	6.00	31.44	55.85	12.24	
	20.54	10.03	14.17	35.80	19.34	11.44	8.53	21.84	11.02	17.30	17.21	8.12	
	35.90	5.36	17.11	30.68	10.72	-3.26	9.14	26.48	14.97	12.74	-3.54	15.77	
	-34.77	5.06	93.83	25.42	-23.29	-1.15	33.65	-10.03	7.49	18.47	15.44	43.86	
	-22.87	2.30	41.74	25.76	10.68	-0.63	25.17	20.38	21.47	28.68	22.17	16.63	
	-3.46	14.36	16.13	25.44	18.78	-3.70	17.70	6.66	20.53	36.98	8.53	36.19	
	41.96	-0.27	24.91	59.59	20.48	9.46	31.35	14.01	10.71	4.16	28.73	37.06	
	6.05	2.46	27.73	24.76	22.69	15.15	6.73	12.82	3.64	19.55	16.23	16.14	
	21.55	8.68	-3.61	10.04	13.93	16.73	21.03	9.63	8.88	20.24	1.02	12.41	
	-20.75	1.24	38.48	18.97	9.42	3.07	0.50	23.71	-19.06	4.82	-8.64	0.32	
	-1.25	-5.77	14.64	0.67	4.42	18.02	1.96	0.53	-0.97	9.09	11.85	39.50	
	2.03	-3.75	24.69	0.07	18.09	55.63	19.46	12.82	14.91	28.08	62.59	18.06	
	14.05	10.42	10.35	6.45	20.82	-9.58	30.48	16.47	25.42	21.79	3.31	28.87	
	21.82	25.24	9.46	17.15	32.88	-10.74	61.64	25.12	11.90	7.41	-2.67	12.93	
	2.86	11.35	18.29	21.57	8.23	17.63	10.41	19.78	16.91	49.28	8.23	16.85	
	-36.41	-7.65	-18.64	12.35	-1.79	12.00	-4.05	14.17	-5.05	16.82	25.31	4.86	
	7.11	-4.43	-46.46	-6.02	6.81	11.15	-13.44	10.28	-1.21	20.51	-23.08	6.69	
	7.02	11.60	-4.99	7.55	17.14	4.05	-8.25	14.23	9.01	15.84	12.46	8.14	
	-0.69	22.00	-0.46	-7.90	21.52	9.38	8.18	25.27	7.76	42.28	26.02	9.50	
	-1.89	8.58	8.47	-36.32	7.46	14.56	4.24	1.82	16.61	25.01	13.50	22.33	
	-14.53	3.34	7.85	-4.46	11.86	-11.79	-2.82	7.75	7.59	-9.31	0.93	16.82	
	-24.85	4.94	-0.18	6.52	8.22	11.86	4.24	2.76	7.10	-9.40	3.39	-1.58	
	1.26	-2.26	1.67	4.44	12.31	15.19	41.95	6.19	9.17	0.74	-26.52	5.23	
	9.39	-4.74	2.22	8.99	-1.70	11.54	1.59	15.50	3.14	12.78	7.14	8.75	
	3.32	3.74	13.27	31.04	6.68	17.07	1.89	0.66	0.22	12.70	-1.39	3.35	
	-7.09	17.73	5.37	30.08	12.16	-0.03	-46.68	4.09	10.47	8.01	2.31	12.45	
	0.00	31.34	-1.65	1.82	7.58	16.70	15.80	-0.92	4.10	-3.53	5.90	12.01	
	-17.46	28.24	-46.04	3.95	2.82	9.07	29.36	3.93	-1.33	-11.89	-8.75	1.38	
	-10.95	29.40	-5.54	-2.01	1.61	4.45	41.56	8.44	-1.10	4.66	-1.06	-4.29	
	9.58	-3.66	-13.90	3.24	-2.95	2.40	-5.95	7.91	-2.46	3.75	3.20	9.71	
	1.75	-12.85	19.51	8.00	-0.60	5.14	-13.40	10.24	1.29	-0.35	9.83	-2.11	
	0.88	-4.03	8.63	1.13	-1.53	-3.55	-4.60	6.41	11.91	-5.84	24.85	0.92	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-1.38	-7.85	9.78	-1.03	5.62	6.16	-0.24	0.55	2.49	2.57	22.58	-6.11	
	11.54	-11.85	67.18	-0.54	1.50	1.37	-20.25	-3.70	-4.04	3.74	3.51	0.20	
	-9.30	9.88	35.41	2.71	-5.96	-0.27	-6.86	-1.84	1.65	6.12	4.57	-0.60	
	-0.18	8.54	-0.03	8.77	5.32	1.73	1.61	4.81	3.14	0.74	10.12	0.31	
	8.70	4.41	-0.66	6.66	-1.51	-0.08	5.57	-0.69	-4.72	-1.29	0.49	-3.93	
	0.68	2.47	7.69	4.57	-6.66	1.55	4.88	0.74	-7.64	-2.80	0.70	-13.70	
	0.97	-4.17	4.09	-0.31	-4.65	-0.22	-3.31	4.11	8.86	5.05	-5.13	-6.96	
	1.28	-11.61	-9.23	-2.77	-10.48	-1.83	-1.06	2.07	0.72	-1.46	5.19	-26.02	
	10.73	-25.50	-1.85	-11.99	-13.90	-2.82	5.95	0.73	-10.37	3.31	2.16	-19.98	
	38.83	-26.16	-1.27	-9.32	-19.82	0.06	4.95	-0.21	0.98	2.76	0.96	-9.72	
	-1.57	-8.67	-4.94	-11.46	-2.22	0.91	6.30	-0.32	8.80	-4.16	1.16	-7.84	
	2.98	-1.13	-0.31	-0.88	8.68	8.94	-7.14	1.91	-2.96	1.90	8.11	-8.03	
	2.40	-5.54	-10.81	-4.38	-17.43	4.38	6.03	-1.93	6.53	-5.63	-14.25	2.07	
	-1.31	-3.31	-66.73	-1.58	-5.64	-10.55	35.30	1.35	3.28	1.88	-0.30	-2.50	
	1.04	-6.17	-33.04	1.77	-0.93	-5.76	15.92	-6.80	-1.82	0.16	9.31	-3.61	
	-11.72	-5.03	9.35	-11.70	-2.08	-3.18	-7.27	-7.25	4.39	0.99	-3.22	-17.45	
	-10.69	0.34	-13.11	-24.68	-13.10	16.55	-2.74	-2.70	-6.32	-2.69	0.91	-8.09	
	-8.37	-3.07	-1.53	-15.47	-10.60	9.82	-10.47	-0.61	3.43	-0.50	1.36	-17.30	
	-16.17	-16.95	10.84	-4.95	-2.43	-23.06	-15.89	-2.61	-6.06	-1.81	-4.92	-44.50	
	-7.95	0.86	39.94	-11.21	-32.54	-2.29	-3.86	-3.14	-6.84	2.13	12.86	-53.81	
	-19.38	-6.12	22.50	-17.53	-25.77	17.65	0.32	-10.23	-0.23	-9.53	-3.37	-22.92	
	-31.93	-36.09	10.15	-81.21	-27.08	3.25	-20.59	-27.85	3.28	-19.33	-18.63	-17.21	
	-26.30	-0.44	-10.24	-51.32	-60.14	-7.03	-11.95	-7.04	0.19	-39.27	-0.90	-12.74	
	-32.70	-15.50	-6.34	-45.11	-30.01	-5.84	-35.56	-7.90	0.77	-33.57	-46.12	-23.31	
	-60.82	10.01	-1.66	-10.21	-18.08	-2.41	-35.64	-16.01	-2.92	-23.96	-7.51	-37.00	
	-90.12	-24.05	-2.10	24.43	-14.70	4.35	-56.68	-18.99	-2.06	-19.95	25.56	-38.69	
	-61.09	-17.58	-4.92	46.50	-17.41	-0.48	-32.74	-35.96	-5.96	-51.99	4.84	-29.13	
	-5.08	4.30	-13.77	-0.25	-34.10	-4.45	-28.60	-28.94	-0.84	-5.09	-8.13	-9.07	
	-4.95	-10.81	-14.51	-8.90	-21.59	-8.08	-33.02	-17.48	-1.60	-0.63	0.40	-3.65	
	-3.81	-21.48	-7.76	-19.32	-50.57	-7.89	-10.07	-13.08	-16.01	-7.21	-13.24	-7.14	
	5.52	-25.49	-24.51	-0.82	12.74	-12.36	-14.73	-11.96	-21.00	-43.01	-7.27	-0.48	
	36.71	-29.39	-58.86	-11.64	-0.35	-8.17	-20.39	-10.35	-12.54	-17.90	-51.10	-6.12	
	43.17	-11.87	-22.08	-5.20	-11.15	-14.91	-11.71	-11.18	-15.27	-11.47	-26.42	-11.16	
	1.12	-6.38	-11.72	7.53	-6.88	-10.04	-10.00	-11.90	-26.87	-22.80	-23.00	-9.31	
	1.30	-14.74	-4.87	-9.29	0.86	-15.74	-6.92	-0.40	-16.41	4.42	-42.90	5.93	
	19.17	-6.22	-4.38	7.01	-4.72	-26.40	-0.25	-3.48	-17.63	6.32	-31.46	-2.27	
	13.48	-3.94	-4.72	-8.03	-10.77	-18.79	0.34	-13.65	-2.17	3.49	-16.38	11.46	
	125.39	-5.34	-6.12	-11.66	0.77	-85.48	0.65	-6.08	15.37	-9.02	-46.76	-17.39	
	38.18	8.30	42.13	-8.04	-9.26	-32.62	-9.15	-9.09	20.88	-20.74	-52.38	4.43	
	10.00	10.41	46.57	-13.68	-4.21	-6.91	-11.51	-8.37	4.09	-6.58	-9.98	-2.30	
	3.39	-0.91	0.81	-1.67	-9.33	-9.28	-11.72	-2.57	-12.83	-8.47	-2.49	-2.19	
	4.24	8.15	14.68	4.65	2.06	-17.64	-9.63	-9.63	-21.84	-3.09	-2.13	-9.31	
	-7.32	-3.36	8.96	-35.41	-5.23	-0.18	-3.40	-3.50	-30.56	-0.48	-1.24	-7.01	
	-50.74	0.67	-7.68	21.01	-2.06	-4.58	26.81	9.34	9.07	2.02	-5.40	1.09	
	-11.16	2.72	-71.14	-1.04	21.80	-8.26	6.32	0.45	8.24	1.58	2.68	6.71	
	8.36	10.23	-30.33	16.13	22.31	-9.16	7.77	3.29	-4.71	-0.66	-4.63	2.82	
	14.22	6.24	12.86	-5.50	1.86	-1.46	-4.69	0.04	-0.86	-9.36	-10.19	6.06	
	0.08	13.87	16.52	2.57	-6.32	4.26	-6.25	-2.91	-5.28	-5.54	1.15	7.39	
	0.43	-6.90	14.14	-3.63	-0.41	0.65	-7.47	-3.30	-3.89	-6.27	3.70	5.02	
	-25.88	-1.43	28.38	-3.48	3.87	-12.95	11.94	3.24	36.71	1.37	4.21	10.34	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-4.30	-7.48	5.51	10.06	0.13	-8.20	0.19	-4.92	-15.25	-62.14	26.51	-2.12	
	16.71	18.71	13.59	7.30	-2.45	-7.09	1.45	-0.69	8.02	55.23	-6.88	0.47	
	-0.66	7.97	15.75	10.65	2.96	-1.95	-6.15	5.61	3.10	-5.71	-2.45	-2.55	
	0.49	5.85	9.45	2.84	0.93	-15.30	-3.99	-8.89	1.79	9.18	-12.83	-3.33	
	-0.75	8.60	29.20	-0.28	-16.52	-3.15	-2.17	18.34	-5.59	9.75	-12.02	13.32	
	-37.19	1.13	-8.29	-8.85	1.42	4.90	20.55	1.43	-31.41	28.79	17.41	2.37	
	-10.18	3.49	4.89	1.39	1.24	-4.12	4.81	-12.05	-35.11	11.46	-8.26	-1.20	
	-1.49	11.56	13.46	1.88	10.95	3.83	-0.28	-3.30	-13.64	8.76	-2.90	5.69	
	2.27	10.31	12.36	11.73	-6.20	6.19	4.57	20.36	-2.06	2.62	8.18	4.20	
	8.28	12.04	20.34	12.23	5.89	5.56	-4.64	-2.08	-0.99	5.71	29.86	10.85	
	5.17	7.27	40.55	8.94	-2.55	0.00	8.77	-15.44	-1.84	20.29	-12.27	20.69	
	-53.96	6.04	44.79	34.65	-2.80	2.44	-6.71	-1.63	-12.48	40.94	-4.92	14.79	
	-1.53	-2.52	25.77	-3.40	-2.43	2.44	-4.26	-7.63	-8.97	-22.98	-8.00	25.22	
	15.22	9.06	-22.01	0.63	1.57	5.55	4.87	4.86	-4.09	-2.99	-13.65	8.93	
	-4.24	13.58	14.82	5.55	6.98	16.04	1.87	-1.98	-12.24	52.55	15.71	-0.59	
	-0.64	31.04	17.06	10.63	7.82	7.40	-0.41	5.25	-2.92	18.70	21.80	-0.32	
	9.36	1.44	11.61	5.38	13.76	7.04	5.42	-9.84	4.58	-3.99	0.94	14.82	
	16.69	31.08	-15.22	-4.51	15.19	-0.94	-0.52	7.19	-0.54	1.69	3.63	-0.41	
	9.81	2.65	17.43	26.46	5.65	2.06	-4.58	6.28	0.57	0.12	4.72	6.49	
	-4.87	5.38	-6.03	-17.50	3.71	2.73	-5.07	0.69	-0.62	0.81	-1.68	0.86	
	5.63	-4.73	-1.16	-4.91	12.67	1.73	12.90	-7.15	-0.02	-4.02	-0.70	1.54	
	5.90	-11.01	9.37	5.69	8.56	3.30	-1.59	-10.72	0.57	-0.95	14.51	-1.97	
	7.53	-5.29	-13.10	-18.87	0.00	10.62	6.34	10.11	1.90	14.82	5.65	0.35	
	26.89	-0.59	17.03	-20.37	-6.95	-1.93	-12.22	5.93	1.19	-4.33	-18.50	-2.10	
	5.73	1.02	-7.49	-4.01	1.62	-8.68	-11.97	-0.99	-6.28	-4.42	0.32	-18.97	
	-14.22	5.85	-1.20	-0.49	-0.16	0.68	-2.69	7.44	1.77	-5.50	-14.58	-12.16	
	-2.93	8.58	-15.02	5.88	-17.28	-5.22	0.19	-7.56	-8.21	3.23	2.75	-8.06	
	-9.02	-3.22	-7.37	-6.10	-7.14	-4.23	-7.78	2.13	-2.44	-6.14	-21.17	-1.86	
	-12.10	-19.00	9.53	-28.37	-16.83	-4.90	6.53	0.37	6.41	-46.82	-11.48	-3.59	
	32.16	-3.50	44.04	7.53	-13.93	-3.80	9.42	8.02	2.91	-25.88	-13.23	2.58	
	9.29	-9.46	-13.30	-3.46	-17.81	-6.41	0.02	-11.07	-3.37	-13.65	-17.14	-4.15	
	-18.58	-4.10	-4.24	-14.60	4.96	-9.65	1.67	-6.60	1.05	-5.97	-14.60	-18.03	
	-29.29	-9.11	-46.63	7.41	-0.15	-3.33	-13.01	6.13	-0.29	-1.62	10.30	-66.71	
	-31.72	-13.61	-23.01	0.99	1.85	-5.79	-18.54	-5.46	2.65	-8.32	-26.05	-25.46	
	-17.15	-32.91	-8.56	-3.92	4.24	-13.95	-14.39	-9.74	1.10	-6.25	-10.65	-26.74	
	-0.02	-12.58	18.92	-10.39	6.44	1.18	0.67	0.82	9.41	-0.63	-5.13	-21.55	
	-26.64	-14.71	27.36	-0.92	-6.37	-9.78	-1.01	7.06	31.85	-10.14	-44.52	-2.25	
	-18.23	-41.60	-14.40	4.89	7.52	1.89	7.81	-3.36	-9.77	-6.43	6.95	13.50	
	-6.54	-0.95	-11.85	5.92	1.01	6.43	2.00	-1.83	13.38	7.52	2.06	-1.27	
	-5.02	-16.35	16.35	9.79	-7.28	0.18	4.37	-3.27	5.78	1.83	-5.74	-2.69	
	4.58	-11.85	2.65	4.39	8.44	3.63	2.50	-2.51	-4.01	-2.93	-8.86	2.40	
	40.04	3.49	-3.95	1.98	13.74	-1.51	-8.29	-16.70	-1.08	-27.32	-13.11	-12.46	
	22.54	10.83	-24.90	5.07	4.82	7.26	4.12	24.61	2.16	-10.77	-10.70	-1.98	
	-3.24	4.71	-4.00	13.29	0.77	7.35	-0.85	12.58	-1.24	-9.89	-15.48	3.06	
	2.07	5.24	-13.40	12.31	14.91	-2.93	9.56	0.73	-2.71	-2.71	-2.10	-2.32	
	-11.74	6.38	3.72	-0.26	-0.47	3.46	7.48	-2.64	-2.69	-8.88	-1.97	8.65	
	-145.70	8.56	39.74	-22.64	-0.23	-2.63	8.41	3.28	-3.88	-9.50	1.98	15.12	
	-44.65	6.56	-8.93	-11.58	12.06	-12.52	-21.32	1.98	-1.18	-12.85	-3.69	8.07	
	-17.58	8.69	-18.82	37.81	-11.47	-4.55	-13.27	4.25	-3.47	-11.05	-2.05	1.21	
	5.15	7.04	2.92	-17.85	-36.99	-2.56	8.53	5.41	-5.62	-5.12	1.18	8.37	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	7.79	3.24	5.62	2.95	-7.82	0.12	-0.24	-1.92	-2.09	-12.65	-0.32	12.98	
	1.77	6.13	5.03	-11.14	18.24	1.30	-0.61	8.18	-7.64	0.10	8.90	5.93	
	33.92	7.53	2.25	2.84	4.12	-0.38	-1.15	3.23	-45.84	8.03	-0.86	-0.70	
	78.85	4.59	-27.57	2.26	3.13	-12.84	50.61	-12.25	-36.21	10.22	-3.27	0.89	
	49.67	33.24	-2.24	1.90	-17.46	-14.07	17.74	-2.11	-19.96	2.09	3.40	6.69	
	2.49	-11.22	10.83	2.52	-11.33	-2.39	-8.16	-2.19	-0.91	6.55	1.88	-2.49	
	5.33	10.33	7.57	0.45	-4.32	-3.44	-0.25	-9.20	3.68	7.90	3.93	2.21	
	39.91	17.19	0.65	13.62	-4.73	-7.71	-0.61	-9.59	4.28	11.45	1.98	-5.59	
	49.69	-12.30	9.99	-8.78	13.59	-5.13	-5.78	2.58	20.97	7.90	7.51	12.61	
	27.36	8.20	-2.44	-26.98	10.41	-3.00	4.62	-7.16	15.04	13.99	7.98	24.40	
	41.96	7.65	1.51	0.41	7.53	-3.59	4.85	1.04	12.46	13.15	10.24	18.68	
	9.25	17.33	9.61	77.94	7.23	-7.27	0.57	4.19	16.97	2.31	17.47	13.88	
	-0.37	5.32	-7.45	19.97	19.75	5.70	-0.84	14.83	26.93	32.81	4.58	26.88	
	9.01	9.51	9.99	22.96	15.70	7.75	14.51	12.35	14.04	21.86	6.39	17.99	
	10.15	9.11	20.25	27.60	1.31	23.88	2.37	7.65	14.10	13.23	4.12	3.04	
	-32.31	-3.45	9.94	-2.00	19.66	9.70	2.04	11.04	21.40	19.43	6.46	13.86	
	3.52	7.09	0.96	11.46	16.46	18.33	0.03	4.73	17.84	12.14	8.64	-2.56	
	17.65	32.07	-5.46	-18.72	2.55	21.09	22.08	5.78	27.11	17.84	13.17	11.97	
	-2.83	25.56	6.82	25.86	0.43	29.53	34.78	8.80	6.04	22.87	3.21	23.67	
	16.72	33.54	1.14	17.16	34.29	23.50	28.73	34.15	10.88	22.28	2.32	15.19	
	13.97	16.06	-6.45	16.40	15.21	9.85	29.75	4.43	17.64	16.84	10.93	17.08	
	-22.82	10.17	0.70	29.05	-10.00	15.82	-4.83	-6.05	19.51	9.16	4.47	3.72	
	-17.41	1.32	19.03	14.27	6.91	14.85	0.82	15.57	11.66	1.26	14.07	2.44	
	22.81	5.04	11.17	23.56	27.54	27.81	9.85	6.03	8.56	15.65	0.93	24.23	
	14.99	15.35	6.64	31.11	19.00	16.68	16.29	27.43	22.51	39.35	14.94	20.42	
	17.28	19.29	6.50	24.06	13.10	-3.08	15.05	18.58	13.55	4.03	11.67	20.89	
	3.18	17.92	6.82	21.90	8.45	13.50	32.91	6.97	15.37	9.93	8.55	33.59	
	-42.20	16.31	11.88	6.72	-4.79	14.72	-0.99	9.95	0.68	0.92	26.76	6.80	
	-44.30	14.21	19.02	-5.74	-1.33	14.28	13.55	18.48	18.79	6.44	7.88	-2.87	
	0.89	-12.66	27.94	4.74	7.50	16.63	11.19	9.00	21.98	16.42	10.49	23.66	
	7.32	25.60	22.52	3.08	14.26	10.18	3.14	29.51	1.55	17.75	6.99	12.16	
	-1.06	43.48	-4.32	1.98	24.47	5.42	7.42	10.44	12.43	-26.65	23.39	-0.12	
	-1.47	-1.76	11.67	5.95	0.10	4.90	5.09	-11.61	24.41	22.59	1.81	3.71	
	3.29	-10.76	2.63	1.49	2.39	2.97	2.68	9.97	-0.27	4.37	8.30	4.99	
	-2.72	-2.46	2.96	-3.11	9.96	4.02	16.78	16.13	7.66	-9.31	7.30	5.19	
	-6.04	-11.25	7.09	19.88	16.69	12.44	9.53	18.40	-19.28	0.83	0.35	2.00	
	-2.49	-17.17	35.02	-7.66	4.82	60.37	22.27	13.25	-18.79	5.77	17.92	10.87	
	0.79	-3.70	40.86	-7.07	11.02	11.61	1.74	4.29	-11.59	-5.75	18.10	22.10	
	8.89	-0.47	7.96	37.87	3.74	-4.08	-7.46	2.56	-2.33	-1.87	6.33	6.28	
	7.65	5.25	18.97	26.97	2.03	-3.08	-3.04	-2.84	1.05	13.55	-0.61	0.56	
	38.23	10.88	9.35	5.33	-12.75	3.47	3.52	10.40	0.58	3.59	6.90	1.31	
	-0.75	12.55	6.61	-1.71	12.57	0.74	3.59	15.31	2.14	-1.94	1.39	9.94	
	-0.08	-4.33	1.80	-5.80	7.43	4.92	21.89	6.09	1.64	10.39	20.65	6.96	
	9.30	-6.92	1.46	-7.40	4.29	1.56	7.04	1.31	1.49	-5.86	9.62	7.44	
	3.73	8.75	2.96	2.51	-0.03	-1.00	26.65	0.94	-0.71	3.98	-0.87	1.27	
	3.00	6.83	18.46	0.29	-19.65	-3.95	18.90	2.90	4.75	8.35	-4.48	-1.94	
	5.08	-10.89	-34.98	-7.64	3.33	-17.79	14.98	0.83	8.83	0.23	8.13	2.24	
	-21.47	4.25	-21.77	-9.94	-6.14	-15.94	4.41	9.13	4.24	-2.85	6.62	0.35	
	-21.72	14.60	-22.32	-11.93	10.96	0.45	-9.85	9.20	-5.64	3.11	5.30	-0.16	
	-19.23	-4.77	3.01	-4.02	9.43	2.80	-3.01	0.47	0.89	-0.08	2.67	2.40	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-7.48	15.31	-5.32	-2.05	-0.94	-7.80	-0.44	-1.17	1.47	2.28	-1.40	7.75	
	5.11	31.08	4.34	-19.44	5.17	-3.26	-32.13	-2.54	-2.34	3.79	-1.12	-0.48	
	-4.66	1.95	0.84	-28.05	-2.67	13.91	-23.54	-2.93	0.18	-3.50	-7.87	-0.44	
	-0.86	11.45	2.29	-15.75	-1.02	17.36	-4.90	-2.66	-2.64	3.39	-5.75	3.07	
	-4.72	-1.30	-0.27	-12.00	-3.28	24.31	-1.63	0.44	-4.02	-9.58	-7.52	3.46	
	-6.52	-7.87	-3.12	-24.71	-25.70	-3.55	1.68	1.53	-0.20	-7.53	2.25	-11.91	
	-9.49	12.89	-0.70	-7.72	-29.94	-7.13	-6.60	-2.86	-2.09	-2.81	1.00	-11.30	
	-0.14	-2.61	-4.47	-18.57	3.20	-8.13	-10.46	-9.81	-14.74	-6.28	-8.63	-12.50	
	-5.30	-2.22	1.53	-14.22	-10.44	-8.36	-24.65	-16.36	-13.45	-10.64	4.79	-21.50	
	-12.75	-20.94	-5.27	-7.89	-8.28	-4.02	-0.99	-9.24	-22.66	-18.89	2.72	-13.43	
	3.32	-16.83	0.62	-4.56	-8.10	-2.48	2.90	-5.62	-6.13	-8.13	-5.13	-12.80	
	3.58	-10.66	-3.23	-22.64	-18.90	-8.25	3.02	4.64	-3.38	-14.83	-7.19	-4.38	
	-9.06	-7.22	-4.80	-23.10	-2.82	-11.48	-31.02	-2.83	-19.01	-22.64	0.09	1.41	
	14.24	-6.61	-11.37	-15.18	-17.44	-16.23	-48.46	6.66	-29.96	-21.21	1.85	-10.73	
	10.62	-33.80	-5.47	-54.23	-24.22	-39.59	-21.77	1.50	-21.71	-8.48	-1.87	-24.60	
	-28.94	-21.06	1.09	-44.60	-19.48	-28.48	-18.96	0.62	-46.51	-10.73	-12.23	-34.88	
	-35.50	9.04	-8.43	-41.76	-22.96	-20.46	-19.53	-3.40	-28.04	-47.00	-10.72	-22.32	
	30.09	5.99	-3.07	-33.77	-22.49	-30.26	2.49	-7.17	-19.33	-53.46	-4.68	-27.71	
	-18.05	3.84	0.47	-15.78	-23.21	-11.25	-11.29	-5.96	-6.72	-16.51	1.83	-28.17	
	-31.52	24.45	-16.06	19.77	-27.48	-32.82	-10.79	-16.66	-1.85	-31.42	1.09	-18.29	
	-39.76	-61.42	-13.90	-15.76	-17.50	-52.85	-7.39	-27.87	0.31	-15.34	-13.91	-18.82	
	-7.61	-19.98	-15.26	4.32	-17.61	-25.77	-19.75	-20.55	-2.88	-63.27	-12.58	-16.73	
	-20.76	2.85	-11.54	-7.73	-22.19	-38.14	-28.73	-10.16	10.11	-19.83	-10.63	-23.70	
	-2.05	-43.29	-16.25	-16.76	-32.40	-12.11	-4.95	-22.86	12.43	-3.36	-17.47	-7.92	
	20.32	-18.22	-18.28	-10.89	-3.08	-11.20	-15.68	-15.43	5.69	-9.61	-11.14	10.22	
	96.17	-22.67	-9.90	-5.06	-97.85	-15.69	-12.65	-13.52	-20.95	-12.77	-6.63	-13.92	
	36.32	-31.57	-19.67	-35.76	-52.42	-13.72	-20.30	-35.06	-14.36	-1.18	-3.05	-7.61	
	13.13	-19.30	-7.95	0.58	11.03	0.48	-26.92	-28.49	-1.38	3.32	2.02	7.50	
	8.09	-18.90	8.16	-9.72	-2.58	17.33	-7.99	-11.98	-11.38	3.43	-15.70	6.59	
	18.13	5.30	16.95	3.83	19.34	0.46	-10.17	-10.71	-13.82	-1.38	-19.25	6.20	
	14.25	2.53	-0.99	8.03	3.00	-1.29	-11.69	-21.08	-4.65	-6.27	-6.81	-4.07	
	2.12	-25.01	-15.31	-4.26	8.43	-2.20	15.79	-13.61	-8.22	2.28	-3.49	-5.26	
	3.51	-3.56	-9.94	6.16	6.50	0.94	-0.94	-16.57	-4.82	-7.47	-15.65	0.17	
	6.35	-29.50	-7.29	7.61	-10.49	-5.54	-7.48	-18.35	-6.00	-8.33	-40.12	6.46	
	-0.15	-8.54	-1.96	25.81	2.46	-3.72	-4.43	2.05	0.25	5.28	-15.63	-4.76	
	-3.88	-14.79	-9.78	5.21	14.09	-6.68	-13.19	-4.22	9.80	4.64	0.83	9.52	
	7.93	6.71	-17.76	7.78	15.91	-9.17	-3.87	-3.10	7.95	4.39	-5.78	5.19	
	-28.10	-4.23	-27.30	-3.03	2.75	-5.64	29.22	1.76	22.83	23.82	25.43	1.39	
	12.58	-8.67	-2.74	20.17	-3.32	-5.93	18.25	-13.58	19.14	13.64	16.77	14.02	
	1.47	7.78	0.05	0.95	5.13	0.26	-1.31	-2.02	-7.31	16.96	6.34	1.26	
	3.14	2.50	7.43	-3.30	1.18	-3.96	5.89	0.16	1.03	7.39	-2.78	1.65	
	6.75	2.35	4.85	4.98	8.97	-4.98	-8.88	-4.68	-5.73	-1.71	-3.24	-6.76	
	-1.01	3.52	2.09	-1.59	13.95	-0.29	51.22	-6.14	-11.90	16.47	-0.83	1.58	
	-23.70	-12.36	-2.63	3.54	12.50	-1.12	24.71	-6.52	4.27	34.20	20.84	10.44	
	-1.13	-0.77	0.98	-6.99	16.26	-7.29	-2.01	4.30	2.31	37.49	13.66	9.27	
	2.75	11.56	6.44	-0.12	16.14	1.66	-6.30	-4.70	-6.42	10.42	5.79	-3.09	
	9.69	1.18	0.47	6.56	10.31	9.85	-51.34	-3.09	-8.90	-13.09	-0.40	-3.57	
	48.62	0.32	1.81	9.57	-7.15	2.61	0.09	3.53	-7.31	-3.94	10.73	2.65	
	-52.01	5.77	11.87	1.05	4.47	-1.35	6.79	7.30	-0.38	-4.41	7.18	-9.93	
	-36.60	-5.35	-2.51	2.09	75.25	9.30	-6.21	1.59	6.34	-15.94	-2.68	-3.87	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-7.46	4.97	1.62	0.76	54.14	1.01	15.94	-5.25	10.72	-0.62	-0.48	-0.53	
	17.50	19.60	-3.63	-3.05	6.94	0.41	50.85	2.83	7.80	-2.21	4.69	-5.04	
	4.98	23.07	22.00	1.69	-12.98	0.13	-3.27	5.21	14.44	11.86	14.80	6.36	
	5.66	-2.22	-4.35	0.18	-7.07	-4.81	8.44	2.73	-5.50	0.94	3.94	-1.33	
	0.67	-2.72	11.12	19.66	4.34	7.25	1.84	6.97	-19.51	1.02	1.09	12.59	
	-16.05	-9.60	9.92	14.08	9.79	7.77	1.34	3.27	-4.15	5.55	22.03	4.04	
	-6.36	2.08	-4.53	3.84	-5.23	-0.95	-5.13	13.83	-7.55	20.45	47.36	-8.66	
	5.07	-1.84	3.60	5.05	0.95	6.76	24.48	-17.14	-90.99	8.76	29.77	-2.12	
	6.01	24.89	8.07	1.61	4.66	-2.91	22.92	4.72	29.71	-8.12	-10.90	-1.15	
	3.02	-10.49	43.39	10.75	3.56	4.16	17.72	7.75	18.65	-6.17	0.24	-2.12	
	2.23	20.61	2.09	11.67	-13.52	6.95	5.63	5.69	-5.40	6.79	31.70	-12.20	
	-2.91	3.50	-12.26	9.13	2.77	3.02	-17.28	-12.77	-26.02	10.95	-7.53	-1.08	
	4.97	-14.50	-31.01	10.27	10.13	4.29	-57.64	-13.52	-13.59	-5.00	10.70	-12.77	
	8.91	7.04	3.75	-15.60	-8.71	5.14	-3.55	0.88	-1.84	-8.37	18.75	-1.70	
	1.32	17.54	11.51	-1.94	2.07	12.18	-0.56	1.75	-9.46	12.91	6.79	0.13	
	-6.62	13.29	1.01	22.30	-0.56	-5.92	10.96	2.49	-19.74	5.67	-2.79	1.64	
	6.32	27.91	-2.29	0.56	2.95	3.76	-12.81	0.54	-14.23	3.55	4.61	-0.71	
	32.20	111.09	-10.36	0.75	9.29	-0.42	-25.29	-11.88	18.68	71.23	-3.23	-6.90	
	4.13	2.18	-7.89	-5.82	-5.60	-5.76	-25.36	-11.40	-2.60	-88.59	5.82	0.91	
	-7.70	7.97	-7.32	2.32	10.14	-2.53	-1.21	-32.00	-7.13	-14.71	-4.80	-6.96	
	-1.40	-8.43	-3.08	0.57	2.56	-8.39	6.48	8.12	0.85	-14.48	6.67	-8.18	
	-8.73	-2.53	11.49	-16.48	5.75	-7.38	-6.03	4.30	6.45	2.89	1.36	-2.17	
	-11.13	-9.86	-9.58	-6.98	-2.54	-5.48	0.22	3.74	6.75	-24.49	5.75	1.22	
	24.72	-18.54	-10.48	-7.57	1.51	-6.31	3.07	-14.21	-6.68	-2.27	5.36	-9.55	
	8.84	-17.03	-22.52	-9.71	-4.71	-13.57	-22.91	-9.10	-18.76	-14.15	-0.98	-31.87	
	-16.40	-21.74	-5.83	-10.87	2.09	-14.06	12.24	23.12	-11.49	-17.05	4.27	-54.01	
	-26.38	-16.51	-37.46	4.07	2.29	-4.48	5.16	8.82	4.47	-16.86	-10.95	-8.60	
	-14.66	-14.31	-7.08	-3.63	-11.40	-4.25	-0.03	-5.53	4.62	-13.20	-13.62	-25.65	
	-45.88	-13.44	-19.14	-20.20	10.52	-6.91	-3.87	-33.97	9.40	3.37	-9.24	-13.89	
	-31.91	-20.76	-6.56	-17.16	-11.39	-7.86	-0.70	22.43	72.51	21.98	-22.47	-9.30	
	-40.50	-9.94	-4.61	7.99	16.63	-17.37	-9.66	18.27	58.82	17.72	-15.29	-3.44	
	0.65	-4.95	-3.94	10.75	-2.47	5.86	-11.87	-2.86	-15.51	15.75	-7.18	-3.43	
	-9.14	-17.45	-4.94	-7.48	-11.64	-1.05	40.04	-2.40	8.56	1.90	-9.74	1.02	
	-1.24	-12.10	-4.68	-9.59	-3.40	8.62	19.16	0.19	11.09	-5.00	-19.21	-2.79	
	-0.10	0.05	0.01	-1.37	-2.75	20.13	15.25	15.04	31.59	-9.67	-35.56	2.32	
	-33.03	-4.94	-22.61	18.99	7.01	16.27	12.02	31.91	23.64	-23.02	-60.25	14.04	
	-7.00	11.36	-11.94	21.84	15.69	15.20	6.22	6.09	5.90	-25.15	-42.67	9.19	
	5.26	-8.89	-15.68	14.62	4.98	11.73	0.31	8.90	7.28	-6.76	-21.45	9.25	
	1.80	-15.47	-11.92	-5.41	10.62	7.10	-0.68	7.31	3.95	-20.06	-8.23	4.35	
	5.90	-38.67	-17.93	-2.14	-6.13	11.32	-1.81	7.80	13.29	-5.66	-3.21	16.51	
	11.38	-2.61	16.90	-1.64	12.96	6.28	-2.10	0.75	12.93	-24.75	9.57	-7.61	
	36.80	7.62	5.81	-13.77	-6.35	22.83	-1.95	-0.60	17.13	-57.07	12.82	-6.16	
	13.60	22.10	-1.73	-12.38	-10.64	74.53	-1.43	14.03	12.14	-7.22	7.44	0.46	
	3.17	2.58	-9.59	-17.41	-1.27	6.15	25.83	3.33	21.51	4.68	6.42	2.96	
	3.83	7.08	-16.54	-25.65	-4.00	-20.03	-9.27	-7.35	-0.99	-20.64	6.55	6.49	
	-1.48	-7.35	9.41	-32.93	-3.33	12.18	-4.65	3.64	-7.82	-12.67	19.38	-2.08	
	0.89	7.86	8.91	-1.63	-6.19	0.64	2.66	3.02	-22.85	2.32	-12.39	1.32	
	-42.13	-29.30	5.87	-8.20	1.20	-24.63	9.84	2.40	-13.98	-23.81	3.53	5.93	
	-14.00	-13.17	8.37	-2.25	-13.42	-43.66	4.60	-4.13	-6.26	-12.07	24.31	3.15	
	14.36	-0.43	8.45	-0.50	-7.57	-18.74	0.34	-4.98	3.56	-3.35	39.73	14.23	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	7.77	6.85	28.12	-6.07	-13.89	-3.58	-2.45	-3.19	7.82	1.10	14.24	14.44	
	-1.68	12.34	-1.04	-35.36	-9.56	-6.02	1.80	-34.14	3.43	22.58	-6.25	7.42	
	-6.45	-5.66	13.23	9.94	-14.69	-11.43	16.33	-0.45	2.35	13.10	10.68	2.14	
	31.70	21.07	17.38	15.46	-16.02	-8.95	-3.16	12.21	-22.89	4.85	23.53	1.30	
	33.12	14.48	15.03	-0.13	-6.43	0.79	-6.44	-14.42	-20.83	11.21	1.97	3.72	
	8.29	0.22	7.70	22.42	11.07	6.42	-4.20	9.29	30.30	27.22	7.72	16.05	
	2.34	3.23	5.41	22.95	11.26	17.70	-13.66	13.72	10.01	6.44	6.97	15.74	
	26.86	1.90	35.47	-1.61	19.76	6.22	3.50	11.17	11.20	23.70	-4.27	-8.25	
	15.30	38.92	14.35	-4.20	14.52	14.42	5.19	14.58	8.80	1.05	-3.88	28.75	
	-47.77	5.90	15.85	-25.88	13.93	11.61	-64.35	2.74	-13.32	7.42	5.51	21.58	
	-0.88	5.23	19.53	-5.00	20.15	27.44	-12.76	17.84	-18.85	14.06	-1.06	19.26	
	7.16	39.29	15.35	19.66	12.54	13.86	19.99	4.51	1.75	15.94	8.74	22.86	
	10.93	-0.05	28.52	14.38	25.27	29.40	29.04	17.74	8.49	15.27	11.60	49.45	
	30.75	8.45	6.03	28.61	12.99	17.87	21.49	10.26	5.19	35.06	13.33	3.87	
	-13.23	27.40	21.93	5.17	4.80	15.29	-4.74	14.74	8.52	24.44	2.95	-8.15	
	-15.88	-11.59	21.03	-1.34	13.18	11.61	-52.77	11.01	9.43	8.93	4.50	-8.00	
	-27.02	10.96	13.88	1.59	-18.19	18.99	-12.26	13.84	-6.18	-9.43	19.16	7.61	
	-42.99	7.38	24.16	21.94	16.34	14.07	28.22	11.34	9.57	1.07	26.60	4.90	
	-1.92	44.27	9.84	21.42	36.39	71.00	24.74	7.54	5.38	25.03	10.32	13.17	
	16.60	14.22	16.42	2.58	18.72	-32.46	31.40	34.54	6.54	10.77	8.95	25.67	
	16.67	-4.76	18.19	15.65	14.62	24.39	26.97	7.13	5.62	44.38	23.52	21.41	
	10.82	8.74	4.28	16.14	7.02	14.00	16.41	10.26	0.84	44.10	-8.93	9.49	
	-4.44	4.15	14.63	4.65	2.04	11.59	8.88	12.10	-2.87	-8.47	5.23	-6.14	
	8.87	4.29	-1.82	75.25	4.97	2.31	31.15	3.05	8.96	-9.69	31.65	4.78	
	9.58	7.48	18.90	-1.43	5.97	0.56	13.70	11.10	6.22	3.68	21.28	5.39	
	13.32	7.19	10.79	0.94	9.76	13.40	4.65	16.28	1.46	13.44	4.21	15.89	
	4.63	18.11	6.71	-9.54	3.60	16.65	2.97	4.90	9.29	24.50	1.87	2.73	
	9.09	7.05	-2.74	-7.99	8.15	45.09	4.19	18.52	6.90	-13.99	-3.18	0.39	
	7.06	2.67	5.08	11.53	7.96	32.54	2.96	-1.60	13.74	-25.70	2.90	9.70	
	3.32	-3.36	5.56	12.62	13.95	20.44	4.23	8.62	-2.19	8.87	19.08	6.87	
	7.86	9.91	4.13	-31.63	17.21	11.20	4.38	5.14	-6.15	18.21	7.45	5.33	
	4.18	-17.92	5.70	-10.75	11.14	3.41	1.93	11.32	-1.28	-3.36	8.61	19.78	
	11.29	7.70	1.51	10.94	14.33	13.08	-2.96	4.06	0.58	-14.15	0.74	6.35	
	8.82	-8.17	-3.58	2.28	16.03	-0.81	0.68	4.12	0.56	0.15	-5.88	2.27	
	12.03	-7.67	0.22	13.45	9.21	-0.90	-5.03	-3.30	9.13	3.92	15.14	1.54	
	2.79	6.71	8.08	8.18	-0.21	2.55	4.86	7.42	-8.02	-3.85	-2.33	4.07	
	0.43	-5.15	0.79	0.23	0.40	0.61	-3.90	3.53	3.78	-1.66	1.35	5.56	
	3.43	3.87	1.67	-2.44	7.44	1.36	4.79	1.27	2.22	0.49	-2.62	2.57	
	3.24	4.96	0.49	10.89	8.05	-1.43	-0.19	4.15	18.46	0.60	-0.09	4.87	
	0.94	-5.74	1.03	17.00	-2.50	-1.53	-2.13	5.56	11.65	1.01	-6.97	10.04	
	5.00	-12.04	-0.93	16.07	-6.78	-1.85	7.80	9.97	0.66	14.39	-4.35	-10.63	
	4.82	-6.04	-5.48	-6.60	-4.90	-38.13	9.25	2.11	-2.75	14.03	-5.53	1.18	
	9.21	-9.72	-3.03	5.24	-6.71	2.55	2.36	-2.79	0.41	-1.96	-2.80	0.01	
	2.50	-8.99	1.35	-0.24	-2.00	2.03	5.46	15.36	6.10	-6.77	-0.78	1.40	
	2.05	-5.97	-0.46	-4.03	-4.97	39.98	-0.62	6.32	-0.24	-3.81	-12.80	-0.69	
	-3.17	-7.16	-8.95	6.68	-7.43	28.79	-4.11	-15.90	5.08	-0.83	-7.62	-2.90	
	3.79	0.79	-0.57	-18.83	-17.06	40.00	-9.50	-1.90	1.70	2.74	2.36	-10.60	
	-4.79	15.07	-2.39	-4.66	-6.89	25.31	4.34	3.20	3.65	6.09	-2.45	-3.82	
	-4.67	30.64	-2.80	-8.66	-6.51	-5.35	7.60	1.34	4.68	12.83	4.85	-8.86	
	-0.27	-2.74	-4.23	-3.89	6.59	7.95	0.19	-8.45	6.11	-8.57	-13.39	-4.53	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-3.32	2.71	-7.12	-4.68	3.17	5.41	2.10	0.64	-0.87	-38.95	-6.93	-11.59	
	-9.89	-23.28	-10.80	-4.96	-9.97	-13.34	-5.31	0.56	-10.02	-12.71	-33.80	-7.31	
	-8.01	-10.93	-9.26	-37.24	-7.20	-18.70	1.12	-10.15	-12.58	1.37	-15.09	-16.56	
	-9.55	-48.96	-9.70	-32.77	-17.88	-16.12	3.69	-5.40	-6.09	-14.52	0.24	-19.21	
	-31.18	-16.30	-15.66	-8.55	-3.17	-24.30	-5.49	-2.33	-23.97	-19.72	17.51	-8.30	
	-13.72	-4.80	-34.54	-22.39	-6.06	-44.98	-1.06	4.86	-23.23	-16.02	1.59	-25.35	
	-12.70	-23.54	-34.84	-49.45	-10.39	-56.30	-7.00	3.47	-18.38	-0.16	12.63	-49.12	
	-37.54	-20.97	-21.33	-12.48	-1.88	-27.12	3.30	1.38	-23.74	-45.40	-24.99	-14.21	
	-40.61	-24.11	-22.19	-20.12	1.60	-24.78	-25.03	5.76	-51.62	-51.75	-44.51	-18.14	
	-22.70	-65.74	-48.39	2.69	14.15	-22.30	-30.69	-0.28	-46.53	-46.09	-8.87	-16.61	
	-26.19	-24.10	-31.86	-4.09	-11.15	-27.33	-33.72	1.62	-5.58	-22.78	-19.88	-15.74	
	-34.75	-31.08	-15.81	-17.39	-6.14	-18.23	-16.23	-7.25	-13.48	-12.97	-12.01	-29.80	
	-0.32	-47.01	-23.05	-13.82	-16.09	-39.01	-12.33	-0.72	-28.07	-27.52	-25.56	-63.01	
	58.90	-47.96	-20.40	23.97	-30.71	5.08	-48.68	-7.84	24.96	-30.84	-67.07	-28.71	
	-21.22	-41.43	-22.27	-6.34	-8.99	3.94	-16.45	-8.28	-8.63	-40.73	-28.46	-36.34	
	-21.13	-26.34	-37.45	-25.05	-29.49	-27.91	-17.26	-27.85	-18.66	-26.68	-17.37	-25.73	
	-15.48	-13.87	-24.79	-13.40	-28.07	-27.39	-41.65	-14.47	-18.79	-17.63	-44.67	-4.94	
	-7.58	-7.90	-20.11	-3.96	-9.62	-8.52	-25.50	-18.61	-7.79	-11.06	-50.31	-13.91	
	3.12	-14.00	-8.27	-4.85	-13.05	0.21	-15.91	-18.46	-9.45	15.15	-44.65	-5.02	
	26.33	1.99	-10.29	-5.13	-29.40	30.37	-29.79	-11.80	50.91	100.35	-19.48	-8.37	
	-12.83	-1.04	-3.19	-14.24	-37.90	-10.75	-24.88	-14.28	16.87	59.38	-15.58	-6.19	
	-6.14	1.20	-3.10	-8.83	-23.17	-16.29	-17.28	-12.45	-9.96	-3.38	-5.46	-3.85	
	-0.23	2.68	-9.47	-9.13	-11.52	-8.99	-10.47	-34.25	-7.63	3.62	-24.32	7.05	
	-5.13	11.52	3.40	13.46	-1.28	-1.35	-5.75	-5.14	-14.90	-0.81	0.69	10.20	
	-4.76	10.37	24.15	-21.59	-0.80	9.44	-2.07	-11.89	-1.17	3.11	-1.17	-5.98	
	-64.88	-3.67	61.54	-8.69	38.93	-5.16	23.01	-12.83	-4.28	13.39	7.80	-2.41	
	-27.97	4.25	2.54	6.86	40.89	-10.71	2.10	-11.82	-3.22	7.23	1.34	4.07	
	31.39	16.62	-2.48	7.67	0.95	10.38	-2.77	-7.63	-11.41	4.02	-6.18	-0.11	
	27.17	13.27	-0.32	3.75	-4.53	-10.37	-0.72	-16.86	-6.86	-3.76	-4.06	-2.11	
	12.40	14.48	14.31	12.34	-0.68	-32.29	7.30	-17.27	2.63	-6.50	0.53	1.06	
	10.96	15.03	-2.99	19.29	16.94	12.95	-10.66	-9.69	-3.09	-8.07	6.21	-1.25	
	21.00	1.87	3.84	11.14	3.17	22.32	25.17	-12.77	-6.85	8.87	0.59	4.06	
	3.10	6.03	9.45	4.67	6.84	11.70	19.11	-16.47	-5.40	8.18	0.95	-4.79	
	1.12	2.83	3.16	37.94	-0.82	1.44	-1.11	-21.95	3.66	3.69	-10.36	7.69	
	8.15	2.93	4.10	-6.28	-11.17	-7.86	-5.27	-5.29	5.14	6.43	9.74	-3.95	
	9.09	14.95	0.18	-8.84	-0.46	-3.12	-2.28	-3.69	0.29	-2.53	20.54	-1.38	
	2.34	4.73	7.73	8.74	3.77	-2.54	-6.69	-7.30	-7.15	-0.38	5.01	-0.21	
	-22.26	2.73	5.26	-0.09	13.06	-9.71	9.43	-8.43	8.03	-6.99	4.11	-0.08	
	-7.98	12.39	0.42	10.85	1.76	-3.79	-4.39	-3.26	4.96	20.41	5.76	1.76	
	0.34	-2.46	6.79	10.10	-0.39	34.22	34.46	-10.83	-4.78	16.23	5.42	3.16	
	1.89	-0.23	-4.19	-0.06	8.78	-2.11	44.48	-10.96	1.34	13.34	14.05	-0.33	
	7.47	3.44	-10.53	2.58	16.26	5.16	18.11	-6.44	-0.26	-14.31	14.20	0.29	
	1.07	19.70	-7.75	29.80	10.56	-1.94	-3.17	-1.61	-2.85	-7.70	17.90	1.22	
	-11.91	124.80	-21.50	0.55	32.40	-6.51	8.92	-1.52	-0.44	-6.95	11.66	-11.47	
	3.10	19.78	-19.16	-10.00	6.52	7.93	-9.19	-11.65	2.61	-11.16	-10.11	-4.05	
	4.27	14.36	30.46	-7.34	2.59	7.63	-37.79	-13.23	34.69	16.32	-0.37	7.99	
	0.79	14.75	-26.28	-33.14	20.43	8.94	-3.61	8.50	-10.74	5.67	12.44	-0.79	
	1.20	0.91	-3.89	16.36	8.09	-0.62	-2.98	5.75	-7.66	4.23	20.19	8.93	
	1.45	13.00	-5.69	4.67	-1.19	12.21	-6.79	1.48	-7.00	-13.47	-8.78	2.20	
	0.41	34.62	22.98	4.47	13.73	12.09	15.06	5.21	-2.00	-32.04	-1.10	5.47	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	2.13	-5.84	21.66	5.13	1.21	10.31	-24.79	5.31	-0.83	-16.58	9.52	-1.10	
	3.46	3.95	19.87	5.30	5.54	-5.80	-7.10	6.17	-8.38	-7.84	14.97	7.76	
	10.15	11.08	-7.11	-1.45	-0.40	0.02	-15.46	5.23	11.14	12.26	1.95	2.72	
	10.69	11.43	15.74	10.86	11.59	5.65	-7.23	11.86	-8.98	-3.70	4.03	5.55	
	22.62	5.82	4.09	8.56	2.55	-3.75	-2.92	-9.46	1.65	10.99	-7.19	2.68	
	3.18	4.40	5.35	44.58	10.99	7.57	-3.12	10.83	11.03	-3.85	-5.56	23.99	
	2.29	18.13	-8.40	7.59	4.91	-37.37	0.82	-4.28	13.14	-9.89	3.24	-10.23	
	5.96	-7.04	-8.02	10.62	3.61	1.12	-2.27	1.35	10.01	-1.12	9.92	-2.98	
	4.69	1.64	1.12	8.21	2.40	2.09	4.18	-8.64	1.34	4.46	-1.19	-8.79	
	1.76	2.37	-15.85	6.73	3.55	-2.57	5.71	3.98	-5.73	2.58	-1.53	-3.43	
	-5.55	0.94	24.06	-4.61	5.74	-21.75	6.46	5.43	-10.56	0.37	23.37	0.02	
	-1.45	4.57	-22.10	-8.67	-6.72	-11.40	11.86	3.99	-22.65	2.44	13.43	-2.02	
	4.30	-64.35	-25.46	3.38	-6.59	17.07	-12.31	-5.00	-9.22	25.86	2.06	-12.80	
	5.27	-2.68	-31.05	-10.20	6.16	41.59	-6.02	7.37	-1.50	-4.01	-3.35	-9.55	
	1.98	2.44	8.79	6.23	-4.12	-2.53	-11.81	1.21	5.63	8.06	6.00	-14.52	
	-18.07	-45.37	17.11	-6.44	-5.35	-10.88	-3.27	-19.21	-7.85	1.07	15.60	-6.08	
	4.25	-1.40	2.75	7.96	-11.48	-11.86	-3.43	14.71	-6.52	9.03	12.74	-29.93	
	47.56	-3.12	-3.11	9.54	-2.03	1.38	5.66	-4.74	3.07	30.34	1.43	-42.03	
	3.17	-5.67	-16.50	-25.99	0.09	11.22	15.23	-3.52	3.39	-1.66	-5.03	-24.25	
	-21.92	-15.48	-22.34	-6.69	-10.40	20.12	-23.48	-4.73	1.18	-5.58	-0.52	-28.71	
	-29.28	-14.97	-8.01	-39.12	-17.91	-21.92	-4.49	-6.84	-0.64	2.31	-6.88	-37.85	
	-30.71	-13.41	-3.45	-8.40	33.70	-3.90	-13.04	-0.68	-1.29	-1.48	-0.12	-14.99	
	-9.12	-25.79	-11.91	-17.18	17.59	-0.32	-5.10	1.23	1.46	-16.20	-0.61	-13.80	
	13.17	-53.22	-12.20	7.11	-17.64	3.41	-1.79	-7.60	0.15	7.12	10.37	-10.42	
	-14.13	-32.83	-14.11	9.23	-17.73	-3.75	-2.68	-11.70	0.47	-13.77	4.73	-5.17	
	8.27	-32.74	-4.20	-15.77	-0.03	13.87	6.60	8.55	4.02	-26.35	-9.18	-2.14	
	11.23	-10.24	3.11	-10.83	-1.23	6.27	33.89	5.78	5.49	-0.89	-10.97	13.04	
	3.10	-28.55	-7.64	-0.38	-4.69	-18.15	12.49	2.49	2.25	-9.76	-32.85	2.19	
	1.77	-17.87	-10.55	11.62	-17.83	-8.18	8.38	0.84	3.33	-0.12	-16.27	1.47	
	17.81	-21.35	-0.01	31.80	-2.77	31.77	0.27	3.05	0.71	15.37	-16.22	-10.13	
	4.69	-28.00	-8.70	27.61	6.98	12.30	9.39	3.45	-8.53	7.95	-11.53	-1.41	
	8.55	-1.90	-9.76	-1.27	6.87	2.67	-30.61	10.56	-4.65	-2.58	-2.48	9.97	
	12.75	16.47	-1.84	-3.59	-1.15	1.92	-0.92	9.26	3.81	-4.08	3.25	10.73	
	1.13	15.76	6.87	-2.53	-7.26	1.19	0.77	2.69	3.81	6.29	-2.11	-0.75	
	-2.13	3.46	7.83	-7.26	-0.07	-1.16	-4.84	9.16	5.27	-7.62	-5.55	9.06	
	-46.05	-10.12	-13.61	2.24	-0.05	-38.61	6.83	11.19	4.62	-8.76	4.71	-3.84	
	-18.89	-0.39	-22.66	-6.25	-11.75	47.85	-0.14	2.82	-3.32	-6.57	8.50	-11.52	
	8.41	14.33	4.04	-23.69	-10.31	-17.01	0.12	-0.85	1.84	-10.43	4.26	-2.00	
	9.38	7.40	9.03	-29.57	-1.04	-4.68	4.84	5.30	-5.03	2.26	20.19	5.51	
	6.21	9.98	2.62	-31.47	-9.95	1.84	3.77	2.93	-1.60	-10.30	15.84	-2.58	
	8.27	13.13	4.01	-13.46	3.87	-1.61	-3.01	-8.44	-1.28	4.58	-1.48	19.63	
	-27.60	10.23	59.51	-20.19	-3.41	-3.69	-52.87	-6.18	-7.49	8.82	0.40	53.00	
	7.06	12.73	27.55	-16.00	-16.81	-10.83	-19.09	-6.53	-13.37	16.11	6.62	22.80	
	21.46	-1.08	13.45	-65.39	-0.86	-24.21	4.95	-11.69	-7.83	-2.14	6.81	17.26	
	6.11	25.07	5.74	-27.60	-4.25	-6.96	7.37	-8.93	-3.95	8.72	6.88	8.75	
	2.78	11.29	14.58	-0.77	-8.19	-0.54	-3.66	-20.05	3.81	18.24	7.38	31.36	
	11.87	6.78	9.16	2.17	0.22	-4.25	0.12	-9.21	9.72	3.79	-0.18	-13.29	
	12.53	5.13	27.77	6.62	-9.02	-8.24	-1.27	-31.11	19.61	-25.92	11.91	19.96	
	8.73	14.44	14.67	-0.71	7.60	-33.82	-23.18	-10.45	25.78	4.59	4.26	26.16	
	12.30	21.61	12.57	-21.65	4.95	-44.96	-8.68	6.99	19.95	19.38	-5.25	24.23	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	9.05	-6.02	15.62	18.51	5.48	-13.20	-8.81	8.39	12.50	8.83	-2.41	24.35	
	18.71	43.55	5.54	16.78	11.98	-9.46	-2.69	6.29	23.25	9.97	5.95	44.58	
	11.99	25.60	18.56	39.66	8.27	4.23	2.76	13.15	15.29	35.84	14.18	35.12	
	20.81	24.37	13.71	-31.68	-35.14	-68.66	-26.89	-29.97	-23.32	-7.42	10.19	9.44	
	29.00	69.54	11.72	-0.23	-4.73	4.24	6.81	-5.47	-11.35	-1.93	17.47	40.11	
	24.04	-2.83	5.98	12.15	3.62	21.59	24.05	11.89	0.72	4.10	27.42	62.78	
	23.42	15.29	49.20	20.82	27.90	25.71	28.82	21.20	30.64	30.24	8.43	6.45	
	16.58	-13.13	17.41	9.62	9.65	23.21	24.79	8.32	34.99	11.89	7.67	28.38	
	16.21	30.05	15.33	24.02	12.95	28.32	5.24	32.50	13.17	2.00	12.46	8.38	
	-20.24	-4.59	5.16	-5.62	21.67	-41.17	4.55	-34.49	-26.50	-12.86	12.86	3.19	
	-10.14	-9.14	-13.25	-0.22	22.96	-18.95	17.17	3.55	-4.61	0.27	5.85	-7.13	
	2.33	2.58	20.46	26.85	18.51	16.68	23.25	24.02	3.58	2.76	20.28	10.73	
	6.27	15.34	17.33	7.86	18.85	40.54	33.03	18.32	15.77	-0.85	33.90	50.87	
	6.36	23.73	25.97	-4.25	6.40	15.40	9.26	17.49	10.39	18.11	22.26	14.19	
	15.21	12.85	6.57	4.91	14.60	69.54	9.20	26.70	2.99	30.70	-1.65	8.38	
	-7.61	14.56	16.59	6.62	4.20	0.97	15.89	72.29	-2.57	-49.89	13.92	-20.55	
	-4.07	-17.08	-13.99	-16.52	7.87	2.21	14.39	35.17	-6.79	-13.04	-13.29	-28.74	
	-14.67	14.17	-2.49	0.02	6.35	10.57	9.69	20.73	-7.64	2.90	5.16	-9.66	
	15.24	17.20	9.90	6.79	8.10	13.53	14.83	26.94	11.70	15.20	19.58	6.54	
	25.31	10.61	7.40	8.55	11.27	8.00	7.58	2.60	7.07	9.03	7.24	13.22	
	4.27	-0.99	31.39	-4.37	-11.96	3.52	8.01	2.66	15.96	14.98	7.05	34.59	
	3.86	1.54	32.50	1.65	7.17	4.64	16.48	23.71	-8.01	6.72	2.95	53.63	
	10.58	7.90	20.54	0.19	2.32	0.13	22.33	20.93	-15.34	0.36	-2.57	28.46	
	7.58	12.07	-0.43	8.08	7.43	14.12	3.70	14.12	-14.25	15.57	2.88	11.55	
	-0.95	1.52	8.31	-15.23	-1.59	3.61	15.87	10.32	-1.04	13.22	8.99	9.54	
	6.88	5.35	0.60	-8.92	6.87	7.90	4.36	7.04	13.32	6.59	6.74	18.66	
	16.20	8.04	0.72	3.48	-0.78	23.28	2.03	14.37	6.94	4.48	1.89	-3.71	
	13.33	14.15	0.34	5.24	6.73	6.32	6.70	-3.54	0.28	6.20	5.79	-43.58	
	6.48	25.03	7.33	4.10	-6.29	2.60	8.77	5.97	-1.76	22.53	1.62	-41.79	
	5.16	3.70	3.02	4.17	-49.93	2.37	10.45	8.98	3.86	33.48	9.86	3.08	
	-9.26	-10.60	-0.87	6.70	-13.58	-3.12	1.71	14.51	0.75	4.04	6.07	16.44	
	-3.96	-6.59	-1.16	4.20	0.93	10.24	-10.79	11.17	0.30	2.77	21.36	-1.13	
	-3.65	-19.15	-2.90	30.26	0.98	4.20	-2.38	0.17	4.20	12.08	19.47	10.20	
	-0.84	2.33	2.14	79.43	1.96	-26.29	0.28	3.15	13.47	29.14	14.79	18.16	
	2.88	10.13	-1.67	16.24	8.57	-30.88	2.29	3.00	4.63	30.01	6.49	10.57	
	7.20	3.47	-5.26	-6.90	7.87	-4.02	2.48	4.60	5.47	14.91	5.13	2.13	
	7.98	-1.87	-22.82	-7.00	7.11	2.89	2.32	15.29	2.65	7.17	-5.54	2.34	
	0.86	-0.93	-1.45	-2.16	16.17	-4.23	2.80	9.83	-1.08	0.87	0.00	-1.32	
	-0.16	-2.36	-5.45	0.01	34.20	2.28	-2.51	1.13	-3.28	0.23	-0.70	3.46	
	-2.12	-5.19	9.85	-2.58	7.16	16.43	6.38	13.36	0.13	2.84	-2.40	-1.05	
	-0.04	0.90	-63.89	-5.54	4.96	0.22	0.10	12.99	-1.32	1.27	-1.52	-10.82	
	-4.78	0.36	-5.84	-9.56	-4.54	-13.20	-3.03	8.02	-3.94	1.88	-0.78	-8.12	
	2.17	-18.03	7.29	-3.68	-3.43	-2.36	0.62	16.28	0.79	-1.48	-1.67	-5.57	
	-0.51	-15.99	10.83	-0.70	-5.61	1.23	2.10	-15.14	0.81	4.70	-10.49	4.87	
	-0.95	-1.38	-5.58	-2.55	-0.13	-6.76	5.25	-26.78	-3.52	-1.82	-16.12	47.01	
	-4.46	-4.36	0.50	-15.52	-3.86	40.80	-14.57	-36.07	-7.35	-3.00	-5.53	37.62	
	-4.72	-2.26	-5.84	-23.30	-2.17	26.69	-6.46	-20.95	-8.16	-2.29	6.94	16.73	
	-2.92	-15.26	-18.97	-35.96	-3.55	3.22	-1.44	-0.69	6.73	4.34	-2.15	2.09	
	-3.51	-15.18	-15.90	-36.18	-10.20	-5.47	-3.58	0.21	-33.92	3.35	-15.83	0.28	
	-3.41	-8.74	-20.45	-21.99	-1.83	-18.18	-5.85	1.05	-33.49	-6.44	-3.72	-5.51	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-2.47	-4.08	-44.35	-14.65	6.32	-11.29	-10.49	23.81	-22.46	4.49	-1.06	-4.38	
	-10.11	-42.64	-39.58	-35.31	0.42	-23.56	-22.79	-45.08	-14.26	-9.95	-8.99	-18.46	
	-7.96	-36.61	-72.15	-39.97	-5.25	-41.97	-20.90	-49.11	-14.82	-10.14	-20.63	-11.63	
	14.40	15.55	-54.23	-11.99	3.96	10.16	-12.34	-13.04	-28.15	-6.06	-1.37	-17.86	
	10.55	-70.04	-8.73	-13.00	-12.48	-26.64	-18.58	-13.94	-6.18	-9.49	-11.52	-45.48	
	-6.96	-31.21	-18.20	-7.15	-13.28	-28.47	-15.65	-15.30	-33.62	-12.56	-22.51	-17.70	
	-40.78	-3.13	-5.45	5.69	-0.71	25.72	-44.50	-9.99	-20.55	-9.36	-14.81	-39.22	
	-17.84	-30.45	-25.97	-25.83	-5.15	-6.24	-13.17	-23.03	22.39	-8.00	-7.59	-30.54	
	13.70	-30.66	-11.94	-16.39	-7.94	-44.37	-15.14	-9.52	-0.68	-43.26	-24.96	-36.73	
	-3.97	-34.97	-14.94	-17.58	-25.18	-28.80	-30.64	-24.17	-29.96	4.35	-66.94	-36.26	
	-8.24	-25.25	-30.77	-15.13	-7.66	-30.47	-21.94	-9.53	-29.43	2.73	-23.17	-18.22	
	-18.62	2.55	-11.55	-1.83	-18.63	-13.81	-15.56	-6.94	-7.68	-1.20	-24.30	-22.69	
	-14.99	-5.19	-8.18	1.94	-20.28	-4.75	-10.45	-11.32	-5.47	-5.67	-15.52	-12.26	
	-30.41	-5.07	-12.08	23.54	-20.73	62.81	28.70	-8.58	42.33	11.27	-12.16	-2.12	
	-24.71	-14.40	-8.72	10.74	-23.63	76.53	8.52	-7.02	10.68	-15.82	-11.20	19.94	
	-12.38	-4.93	-7.90	7.75	-14.46	-7.13	-18.94	0.80	-11.86	-28.74	-38.16	12.80	
	-19.16	-2.03	7.16	12.62	-35.10	-23.27	-21.32	-5.99	-14.09	-11.60	-11.68	-12.34	
	-14.35	2.82	-10.04	15.06	-15.85	-4.09	-9.52	2.65	-6.52	-16.21	-7.01	-5.93	
	-12.16	-16.26	-25.52	24.18	-35.40	5.78	-11.93	-9.23	0.74	-14.24	2.94	-8.17	
	-17.37	-6.46	-16.21	47.07	-10.48	-1.42	-7.11	-6.70	10.02	-27.24	27.34	-9.01	
	-16.06	5.78	-3.05	17.72	-10.74	-5.72	-12.57	-4.76	28.33	-10.42	-4.04	0.16	
	-18.86	3.13	8.98	6.73	-13.54	0.83	-3.41	0.25	-8.69	-11.27	-19.85	8.04	
	-1.29	-7.25	5.02	6.74	-13.45	-1.07	-9.11	-2.71	-13.34	-4.87	-8.93	16.09	
	-7.03	-6.72	13.88	5.42	-14.73	-2.24	-5.20	-17.33	-1.02	-15.00	-4.11	-17.49	
	6.15	-3.92	18.84	4.05	-3.17	-7.43	-9.20	-7.45	5.94	-3.04	7.13	-5.38	
	34.11	-3.64	-3.62	5.36	-11.63	-60.70	-5.19	2.81	0.98	6.03	0.55	-11.43	
	-25.60	4.48	1.79	-3.82	-4.91	-15.97	-2.76	-36.10	-4.42	-0.79	-29.72	-3.46	
	1.78	-13.65	5.70	5.81	-4.91	-8.23	-9.92	-17.58	2.78	-5.00	-10.43	-0.46	
	-5.09	-14.04	-6.47	7.10	-6.71	0.28	-1.48	-2.67	2.70	2.58	4.90	-6.14	
	1.64	-5.04	-3.40	1.80	0.35	-3.48	-3.19	2.10	-1.49	3.14	-19.55	3.68	
	-5.28	15.79	0.23	6.29	-2.08	-11.57	-6.50	-6.79	0.91	6.91	7.53	-4.35	
	-48.19	-23.25	1.12	-67.80	-5.64	-50.30	-56.87	-41.63	5.97	-37.59	16.41	-13.98	
	-24.29	-10.15	-1.35	-22.84	7.90	-34.67	-13.16	-19.37	8.47	-32.10	21.39	-7.71	
	-9.37	-4.32	-1.93	4.61	-3.04	2.84	-8.00	-7.36	4.35	-13.19	22.83	-9.21	
	-7.47	-0.44	-9.41	6.93	1.60	1.67	0.34	2.25	7.39	-6.27	2.32	-12.99	
	6.06	2.53	-19.00	10.48	-0.63	-3.63	-3.50	-2.58	-1.37	-7.94	5.67	28.17	
	4.77	-6.25	4.68	0.56	-5.06	-2.72	4.09	-6.97	-5.10	6.58	8.18	-54.52	
	1.85	-3.14	3.71	-13.66	-25.21	4.33	6.80	-63.51	-2.85	14.01	10.97	72.12	
	-8.75	1.49	3.07	2.77	-23.64	-1.24	17.31	-12.09	2.52	2.66	-13.21	5.04	
	0.04	-14.50	8.39	11.42	-13.44	-1.32	13.78	-0.26	16.06	2.36	-7.31	17.91	
	-1.18	-4.06	1.74	20.13	-19.16	2.56	10.62	-4.35	7.55	7.71	-1.91	5.90	
	7.53	6.75	-7.29	9.86	-9.56	-2.89	-2.33	-25.46	-0.03	6.66	3.79	-21.59	
	10.85	10.82	12.26	7.67	7.71	-32.19	-16.82	16.07	6.37	9.86	5.93	2.77	
	6.77	103.04	25.04	7.73	10.88	-17.85	-6.99	3.38	9.19	72.17	8.98	26.30	
	7.58	15.34	32.45	6.41	22.01	0.17	-0.10	-5.07	0.33	42.40	2.88	7.58	
	8.41	6.34	18.85	20.11	21.55	-7.63	-2.85	5.73	-1.58	15.99	9.24	-34.19	
	0.77	-12.41	-7.19	5.45	-0.50	37.79	3.06	-10.67	-9.98	-18.18	8.84	24.32	
	3.07	22.70	2.76	-1.52	-15.12	12.07	7.35	1.20	-5.33	6.66	5.35	41.66	
	5.38	12.62	2.68	-2.62	22.01	3.16	2.90	3.25	-3.25	3.15	7.79	-4.70	
	6.93	40.91	-3.46	-12.37	24.88	6.71	6.07	-3.09	0.79	18.43	7.79	40.91	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	8.99	51.17	10.39	-21.77	10.60	14.23	-1.09	6.69	10.09	2.44	4.72	2.25	
	8.00	17.42	22.66	6.40	2.97	-8.37	4.78	-18.19	13.11	-0.94	4.18	-1.85	
	33.45	6.24	-6.18	17.52	19.27	-16.11	10.19	6.16	-8.41	5.15	-12.13	3.38	
	11.71	2.74	-14.57	5.79	3.58	-3.18	9.62	9.95	-9.00	4.33	-0.20	18.92	
	-28.13	14.09	-0.56	5.68	2.87	3.90	1.76	-24.26	-0.59	8.83	16.09	21.55	
	-22.74	-5.31	-1.71	-8.22	3.56	2.06	44.41	-26.05	-0.53	-3.32	-10.54	-19.88	
	1.40	-6.28	-8.99	-12.07	-1.42	-9.30	26.26	-14.41	-6.41	-2.02	-7.58	-15.37	
	3.46	-3.80	-2.93	-8.92	-0.84	-7.82	0.04	-0.19	1.64	-3.41	-7.87	0.94	
	-5.64	12.39	0.95	-8.50	-4.59	1.25	1.69	-7.84	-3.57	-2.98	1.55	-9.05	
	-4.61	-32.37	22.73	-7.95	2.55	-11.68	11.85	1.62	-2.68	2.13	-1.26	-13.39	
	5.30	-18.88	-6.06	4.27	-4.44	-11.50	6.00	1.41	-8.06	-0.25	1.10	-40.65	
	71.24	-23.61	-13.67	10.12	3.10	18.97	0.11	21.02	-9.79	-0.76	1.85	-9.03	
	43.11	-10.99	-15.74	-11.80	1.56	-9.63	-5.64	4.31	-9.08	-3.83	-9.08	-27.69	
	-5.59	-41.53	-12.03	-2.26	2.55	-10.89	0.97	-16.04	-8.59	-3.65	-11.26	-19.71	
	-24.58	4.87	-8.49	-12.26	0.23	0.59	-3.41	-0.78	4.38	16.45	-7.32	-36.81	
	-22.06	-10.81	4.15	-5.68	-13.09	-3.69	-6.10	-4.59	2.21	16.60	-9.68	-56.85	
	-22.52	-21.41	-16.68	-16.10	1.99	-1.12	3.95	1.79	-1.48	-21.83	-17.48	-28.19	
	-83.26	-88.06	-60.45	-7.01	0.61	3.72	6.48	35.05	-0.13	-12.87	-30.94	-61.52	
	-28.92	-30.18	-1.26	-0.03	21.54	26.44	6.41	9.55	1.92	7.98	-12.07	-37.15	
	-2.58	-18.02	9.13	3.18	9.62	53.36	-1.45	0.54	3.25	4.25	-34.26	-18.00	
	-7.95	-5.59	-4.67	7.53	1.18	8.89	7.77	27.72	-1.09	-0.80	-15.72	13.31	
	-22.45	-3.99	-14.21	-7.38	1.24	-42.87	7.89	-5.03	-17.01	3.66	-21.77	-12.78	
	-1.06	-12.12	-28.95	-2.84	-3.67	8.65	2.39	18.68	6.37	-1.58	-14.42	5.14	
	108.17	-4.11	-71.36	1.80	2.46	10.68	11.58	5.72	22.43	4.44	-13.41	12.58	
	38.70	11.11	-7.44	2.99	4.49	-0.32	12.28	24.94	25.86	1.90	-11.98	-11.54	
	3.59	0.49	-12.27	17.06	-1.94	1.38	4.78	16.54	14.98	4.03	-27.43	22.93	
	4.35	19.73	-25.21	-0.63	4.63	7.78	3.58	-5.41	-11.15	-1.44	-40.19	33.15	
	11.68	14.68	-9.20	-0.85	0.60	2.63	8.83	11.83	-0.18	-1.51	-7.38	9.66	
	8.04	16.40	-6.09	0.39	3.03	-0.95	26.83	14.28	16.28	-2.71	4.36	4.01	
	-30.49	-3.53	3.92	-7.29	-1.86	4.03	16.80	0.02	8.15	-11.32	19.56	4.01	
	-7.26	-3.54	-1.03	-17.61	-3.42	2.43	2.71	6.26	2.20	0.14	18.76	3.41	
	10.79	7.64	2.61	-14.79	-4.62	2.99	8.61	3.04	3.83	10.15	-3.41	3.33	
	9.17	24.71	15.86	-9.90	-3.63	5.49	1.75	8.12	-1.86	4.84	0.48	-6.89	
	11.22	14.51	-0.78	-8.48	-5.96	3.85	6.17	13.43	-10.22	12.63	6.21	2.32	
	17.73	1.84	0.13	-21.91	-29.48	5.94	17.62	26.26	-11.45	0.41	18.88	1.44	
	-63.50	45.53	-0.24	-21.84	-7.47	5.46	16.02	28.25	-11.78	-2.72	60.52	14.62	
	-34.64	9.75	-4.43	-21.84	-0.02	7.47	24.30	4.64	-19.93	8.65	35.29	12.11	
	10.62	13.37	3.54	-11.77	-1.80	2.14	2.63	-9.72	-10.03	11.63	18.41	1.97	
	15.64	9.82	5.87	-7.71	5.16	-0.29	9.82	-10.43	2.86	8.58	6.41	-5.29	
	5.95	16.36	-6.49	-3.51	-2.53	-4.19	1.23	-18.74	7.08	5.61	7.32	-1.65	
	2.27	18.61	-7.58	8.00	0.83	-1.02	1.07	-19.43	4.58	15.59	4.55	13.68	
	-40.12	27.37	83.96	7.61	-2.82	-11.48	-6.66	-6.95	11.36	-15.96	-6.45	15.53	
	-11.37	24.37	27.54	2.57	-2.09	-12.20	-1.63	6.94	11.69	3.35	-2.81	11.63	
	12.77	15.93	19.46	7.71	7.40	-6.73	-1.48	31.08	12.35	8.90	-5.74	8.51	
	11.54	20.85	10.73	3.82	5.46	0.43	-3.49	5.66	24.22	9.90	-1.52	22.89	
	8.68	25.81	14.73	5.05	5.54	9.38	2.18	3.37	18.40	14.78	1.47	13.78	
	12.94	-18.27	17.04	24.06	12.89	13.74	-7.00	6.19	3.21	12.66	9.67	19.13	
	11.34	4.18	13.22	-0.86	-12.69	12.05	-27.46	21.11	14.29	-7.36	-3.09	10.33	
	13.98	15.36	9.84	13.93	-12.32	20.84	-3.42	35.45	-6.08	2.45	-8.04	11.21	
	9.98	16.67	17.08	14.70	26.02	4.89	8.35	17.97	19.57	7.18	7.53	21.65	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	16.82	18.10	30.71	21.38	29.46	30.64	6.89	7.41	24.67	25.22	17.03	5.14	
	9.14	14.17	28.33	6.23	25.85	32.61	14.61	41.49	16.43	29.63	3.92	40.11	
	14.42	-0.38	46.33	3.70	9.69	4.00	12.24	17.57	39.34	-12.14	32.87	25.89	
	14.11	15.75	4.46	14.49	5.77	10.69	-33.71	0.92	-0.40	-77.12	17.76	1.89	
	15.31	-14.08	-14.74	-5.02	25.44	18.04	-10.92	6.26	-7.19	-14.89	17.25	-10.81	
	12.52	3.28	-10.96	-3.95	53.81	15.70	8.47	15.15	8.68	13.40	10.15	33.54	
	16.86	23.83	15.05	9.17	10.36	25.23	-0.45	43.41	27.50	15.11	15.52	13.28	
	14.37	22.68	9.64	10.14	9.04	26.86	15.62	11.03	33.39	29.59	7.85	10.51	
	14.43	16.64	17.63	14.45	19.34	14.39	10.66	-5.84	-11.08	-5.26	19.73	12.98	
	13.35	-0.49	-4.22	13.17	23.96	0.02	15.90	-1.90	8.55	0.50	10.99	-3.71	
	16.82	-1.29	-4.38	-3.06	16.12	3.55	11.55	0.50	-1.01	10.61	4.01	-17.67	
	12.84	13.52	15.01	-21.55	15.61	34.14	27.97	-0.19	8.21	6.00	13.98	-9.11	
	8.55	-10.44	0.93	1.69	12.44	15.49	9.80	1.64	18.20	8.48	22.14	3.02	
	19.07	0.81	-1.69	9.86	9.04	17.25	10.13	7.64	17.05	6.81	22.05	-1.54	
	21.10	-13.91	6.77	10.13	6.15	34.57	21.96	16.75	7.06	1.95	-7.15	1.25	
	0.75	3.82	33.23	15.80	-4.41	0.05	45.24	0.79	-6.87	20.94	-4.57	19.44	
	9.73	33.16	7.98	-2.39	0.29	-17.44	19.47	4.17	5.63	-9.66	-3.59	4.45	
	0.83	37.54	-17.31	3.97	4.19	-1.63	9.91	1.16	11.29	1.59	-5.42	-4.20	
	9.27	31.30	-21.09	6.94	0.14	20.74	19.33	7.29	14.23	0.50	1.40	3.16	
	1.43	-2.89	-6.48	-3.04	0.09	4.27	12.50	4.18	-7.58	4.37	3.95	6.94	
	-1.25	6.35	34.78	11.38	2.43	3.37	2.02	3.70	-2.75	-7.04	6.21	-6.39	
	-7.40	8.94	-16.03	2.64	-0.30	36.65	3.18	6.50	9.55	20.80	-1.35	32.08	
	4.10	17.09	-0.63	9.11	5.80	5.34	4.09	1.79	10.17	-11.69	1.67	8.16	
	7.41	6.86	1.93	5.52	2.11	12.72	7.76	3.10	6.40	8.10	-3.84	2.40	
	14.38	7.11	-8.11	1.76	1.72	12.27	17.40	17.33	8.62	1.49	-7.20	-26.03	
	-0.32	12.93	-1.34	5.76	6.27	0.72	-9.24	7.53	20.02	-16.75	9.27	0.02	
	-5.42	7.21	-5.39	5.07	6.78	1.16	13.75	1.36	-9.48	5.41	1.49	6.13	
	-1.03	9.85	4.98	8.68	-4.76	2.99	11.66	0.52	-1.51	-7.31	10.59	9.87	
	10.34	-1.48	20.49	5.78	7.31	1.78	0.72	-5.18	-7.12	-2.69	10.06	14.60	
	4.09	7.35	28.77	7.98	15.64	-0.78	2.00	7.41	-5.70	-9.59	-5.28	-3.76	
	0.47	-9.48	8.23	-1.41	10.78	1.06	14.84	5.27	-4.57	8.00	-8.48	8.92	
	-2.87	-11.02	-11.56	-0.29	-2.32	2.45	-3.99	0.94	-2.77	4.49	-1.94	-11.41	
	3.98	-10.21	29.55	-1.01	-2.07	14.54	21.89	1.29	-1.91	-5.26	-2.96	-12.42	
	1.49	-1.98	-18.99	-7.94	-5.62	3.19	-5.48	1.49	-4.56	-5.82	2.67	23.27	
	-3.53	-9.97	4.82	-6.23	-3.14	38.86	-1.59	-0.77	-5.51	12.68	-5.10	26.46	
	-1.01	-0.71	-3.43	-0.66	2.98	10.60	-4.26	6.40	-1.05	-4.49	-0.18	-8.59	
	-5.60	0.31	-8.03	-3.78	0.30	-10.33	-2.91	-3.60	1.48	7.58	0.77	-6.68	
	3.57	-16.26	2.64	-3.28	-3.95	-1.45	9.83	-1.04	2.97	1.58	-3.01	-9.86	
	0.41	-25.44	-12.67	-4.73	-6.41	3.65	0.93	-0.13	3.40	-4.23	-4.54	-6.46	
	4.58	12.96	-14.63	2.40	-9.79	15.09	-1.21	0.04	-0.07	-5.20	5.65	3.69	
	-0.49	47.52	-19.86	-9.96	-7.29	-15.49	4.90	-6.05	2.21	0.11	-4.95	-11.60	
	1.11	14.85	-41.67	-7.67	-9.51	13.24	-2.04	-14.01	0.77	3.58	-7.65	-20.62	
	-5.30	-22.42	-19.93	-13.12	-12.17	14.05	-5.96	-8.02	-8.50	-1.81	-8.01	-33.75	
	-5.93	-23.21	-13.07	-11.04	-31.69	-5.44	-0.88	-8.49	-10.86	4.12	-27.52	-17.23	
	-3.69	-25.18	-46.23	-0.74	-3.56	1.24	13.37	2.13	-11.27	-14.97	1.83	39.93	
	-8.33	-33.38	-32.84	-16.74	-8.62	1.18	22.74	-16.85	6.87	-1.18	-9.23	32.62	
	-12.29	-46.10	-36.44	-13.46	-22.61	2.12	-2.78	-8.27	1.30	2.97	-14.73	-15.30	
	-5.18	-22.25	-43.23	-8.67	-45.90	-14.04	-14.99	-26.91	-32.31	9.61	-20.66	-34.67	
	-11.74	-14.03	-10.71	-7.86	-29.09	-19.11	-5.43	3.69	-28.81	-7.22	-17.26	-21.63	
	-2.93	-27.65	-20.21	-10.40	-22.84	-36.43	-16.99	-9.08	-21.65	-4.35	-17.06	-15.73	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-12.71	-18.50	8.72	-25.13	-29.03	-26.10	-5.84	0.38	-10.90	-8.82	-10.59	-24.99	
	-21.98	-13.23	-21.23	-9.67	-31.21	-42.22	9.32	-38.46	-17.14	24.14	-9.67	-67.86	
	-19.44	-5.19	-19.98	-11.95	-33.81	-57.69	2.63	-18.84	-12.26	23.93	-7.00	-31.22	
	-10.22	-6.29	-13.97	-4.19	-17.48	-30.71	-3.57	-33.55	-21.77	-0.97	-70.44	-46.98	
	-12.58	-1.09	-0.67	-22.57	-18.09	-18.81	-16.26	-11.21	-37.64	-10.37	-28.69	-12.66	
	-22.38	-16.93	-8.17	-17.45	-11.52	-10.52	-15.38	-10.03	-4.60	-17.00	-29.62	-11.25	
	-17.69	-10.67	0.94	-9.21	2.80	1.47	-11.10	-7.14	7.34	-12.06	-28.02	-3.31	
	-17.80	-3.16	1.82	-11.19	-2.41	-17.66	-41.32	-12.58	1.90	-26.47	-16.63	-13.13	
	-21.37	-0.67	-8.04	-21.14	1.98	-6.01	-21.79	-9.37	1.59	-36.52	-24.30	-3.49	
	7.46	-8.43	-2.92	-10.85	-10.81	-1.46	-27.84	-34.23	-12.88	-18.68	-0.55	16.25	
	-17.24	1.19	-6.90	0.94	-5.63	1.94	-5.72	-8.62	1.22	-19.35	-5.04	-2.40	
	-9.53	8.40	-13.69	10.08	0.78	-3.03	-12.11	-8.96	1.70	-13.99	-2.81	2.85	
	-15.44	10.50	6.43	-11.72	10.17	-10.20	-11.11	-13.94	-0.89	-20.40	-3.08	-3.54	
	-16.61	4.49	6.46	-0.95	13.45	1.27	-93.52	-23.68	-2.70	-31.68	-5.28	-10.11	
	-9.15	-4.26	12.10	-13.52	0.75	-9.97	-44.21	2.63	5.73	-22.14	-12.62	-15.02	
	-10.95	-6.16	-5.72	6.67	3.34	-15.48	-14.19	-8.32	-39.16	-32.93	-1.56	14.08	
	-32.68	-4.94	-7.16	16.32	3.43	-9.53	2.30	-25.55	-12.77	-19.87	6.53	-27.05	
	-10.54	7.18	12.49	0.25	-9.63	-22.48	-7.19	-12.40	-4.48	-9.01	14.43	12.71	
	-2.62	-5.97	-5.00	6.53	-29.79	-36.11	-8.18	-7.27	2.46	-6.03	8.66	-3.48	
	30.74	4.13	10.69	2.59	-31.77	-3.26	-14.13	1.96	-2.12	28.83	10.14	-39.22	
	19.83	-4.77	7.93	6.55	5.57	-21.89	-11.31	1.37	-33.88	14.61	34.89	-3.13	
	-24.09	-2.13	5.07	-2.03	-25.46	-6.52	-13.59	-11.30	1.64	7.84	-8.96	-3.33	
	1.46	4.56	0.95	0.58	-5.31	1.24	-12.45	9.90	-1.79	2.44	-0.20	13.67	
	-2.87	18.95	-1.85	6.99	-13.72	5.56	-5.29	-28.33	2.38	-0.11	6.77	-8.47	
	2.00	-23.47	34.69	8.67	1.78	9.12	2.10	4.37	-8.64	-4.91	6.34	5.23	
	0.45	0.69	-23.20	2.30	-3.01	12.35	4.11	3.41	-7.55	50.57	-23.40	-5.77	
	-5.20	18.36	-5.95	8.54	2.99	1.49	-12.02	-8.38	-3.18	43.69	-11.18	-2.67	
	-15.39	-3.37	10.71	7.56	-2.46	7.78	-5.60	-3.21	13.30	-10.13	17.51	6.89	
	-2.25	5.85	16.42	4.72	4.33	-2.05	-2.96	6.69	5.89	-13.98	0.72	-3.85	
	4.75	-17.35	-9.87	6.86	3.24	10.00	-4.62	8.71	-20.75	-11.11	0.87	15.27	
	7.39	7.10	7.81	25.55	3.51	1.78	-6.46	5.22	-17.71	-0.15	0.34	-2.77	
	34.23	4.34	9.22	-4.72	30.30	29.87	-7.84	89.01	28.37	-0.12	8.06	2.07	
	6.70	5.88	17.13	6.65	15.02	22.65	-5.15	56.23	20.02	2.67	0.44	12.70	
	-2.24	-27.30	12.48	0.82	4.97	-6.06	-1.34	11.25	6.12	1.80	1.20	5.56	
	-4.13	12.14	14.14	20.43	1.73	5.27	34.50	-12.79	-12.20	6.94	7.24	33.37	
	2.30	10.13	16.71	56.10	-14.93	1.83	3.95	-2.20	-12.59	37.37	3.60	-2.19	
	0.83	-0.17	11.37	10.20	10.55	1.99	-3.63	-1.77	12.99	-12.71	-5.22	8.92	
	-16.28	0.95	5.70	-33.02	1.76	9.77	9.23	1.93	-2.34	-23.87	12.02	5.35	
	-11.69	0.85	8.10	4.93	3.86	-7.45	0.30	0.47	-15.05	-0.15	7.46	15.33	
	1.78	-0.94	6.64	6.09	17.35	-44.56	-33.37	1.71	-7.29	8.20	8.07	10.88	
	9.37	-1.83	10.72	7.17	3.16	6.68	-3.32	-3.05	1.37	5.18	9.34	8.76	
	6.67	23.47	12.32	-1.51	-0.61	0.74	2.25	-2.79	-0.09	1.96	5.53	-9.45	
	2.42	0.16	3.63	3.90	16.02	27.35	-1.07	4.38	1.84	3.08	-2.27	2.16	
	-13.37	-6.12	-3.61	12.35	9.57	-6.49	-0.84	3.58	-0.68	-3.41	6.07	2.91	
	-2.73	-16.70	9.84	6.63	-2.44	-23.94	-3.68	-4.09	-2.77	-3.33	-0.86	-2.58	
	7.28	12.36	7.06	13.18	7.05	-2.83	-1.78	-2.36	-4.69	3.06	-0.26	10.36	
	10.20	9.79	1.13	9.60	1.96	6.96	-2.58	1.09	-9.67	2.80	-4.40	1.33	
	0.99	8.72	4.51	18.52	-8.28	8.53	6.52	-4.51	17.14	-3.02	-31.26	15.33	
	4.53	-8.60	-7.97	-1.45	-0.03	-1.67	11.11	1.01	1.27	3.00	47.94	-62.04	
	-4.49	-14.18	-3.64	9.54	-15.64	-1.45	-2.01	3.09	11.37	-5.75	24.17	-3.79	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	1.67	-7.56	-2.89	-8.96	-38.23	-8.36	-2.48	-7.96	17.32	-3.45	0.88	11.19	
	-1.69	0.93	-4.54	-3.76	-24.25	-0.75	3.19	-5.87	-11.85	1.51	13.11	-7.53	
	-1.27	2.14	-2.85	-6.11	-16.62	1.45	-23.85	-3.38	-24.75	-1.52	-1.99	-4.00	
	7.26	29.57	-4.03	1.60	-8.44	-4.97	-16.96	1.40	-1.99	-3.68	1.85	-15.74	
	-7.65	-27.60	-7.44	2.49	-10.60	1.60	10.53	-1.74	2.50	-6.67	18.18	-4.59	
	2.34	-9.04	-1.47	-6.52	-8.65	4.38	-2.86	-6.30	-4.06	-20.71	29.97	-14.82	
	-6.76	-11.75	-7.86	1.66	-5.44	-14.85	-16.37	15.41	-9.12	-16.29	23.62	-9.62	
	-18.96	-15.73	-11.66	-5.87	-1.80	-5.11	10.08	-36.64	-0.74	-0.79	-10.34	-12.63	
	-18.15	-28.65	-14.19	-5.42	-3.66	-11.43	0.74	15.50	7.47	5.17	9.87	-31.42	
	-18.16	-14.56	-17.78	-12.38	-2.36	0.04	4.41	-21.32	6.73	0.62	19.16	-27.34	
	-11.13	-33.34	-25.00	-2.29	-9.74	23.04	0.09	5.15	-0.34	-7.50	-32.48	-32.44	
	27.50	-57.61	-1.45	6.17	-14.09	55.62	10.79	-0.55	2.33	-0.30	59.97	-35.92	
	-1.52	-9.23	19.06	7.47	4.68	11.54	-3.89	1.95	3.51	5.84	-7.96	-9.64	
	16.71	4.99	-46.92	-11.73	6.39	-0.91	3.96	3.59	0.61	3.25	-64.65	-5.74	
	-17.82	-25.79	-21.02	-8.92	9.37	9.20	-1.03	-1.56	-4.45	9.15	-24.57	2.01	
	13.69	-26.79	-14.81	3.13	6.21	5.06	3.40	-7.33	4.68	12.89	0.79	5.73	
	2.53	-12.59	-11.23	0.18	12.26	5.13	-3.18	1.91	9.76	14.72	-0.97	0.42	
	-2.54	-18.87	12.56	14.64	8.53	-56.94	2.80	26.34	10.33	4.55	-7.62	-0.52	
	-0.81	7.63	15.85	21.61	4.09	-29.42	8.60	3.64	6.23	3.11	-7.47	-0.38	
	10.35	1.98	-21.66	-18.55	7.12	5.90	7.92	5.85	6.80	10.34	-20.34	0.84	
	-7.47	-18.36	-36.29	-18.20	10.26	8.48	7.33	0.05	10.19	1.82	-12.55	13.42	
	-60.33	6.54	-9.09	1.81	7.64	10.19	23.34	-1.41	16.78	-2.87	-9.30	18.01	
	15.49	2.50	1.63	5.63	5.67	-8.31	13.94	3.09	17.51	-3.22	-2.72	21.27	
	-4.49	5.10	-7.30	-6.20	1.75	7.43	9.44	-5.68	-1.25	-10.86	2.62	27.20	
	22.46	0.18	-5.14	-15.82	-1.37	-8.18	6.32	0.11	4.50	-8.21	1.89	12.50	
	-5.24	-1.56	-8.50	0.63	1.69	-1.58	19.80	1.10	-4.67	-3.86	-2.20	13.15	
	6.35	0.29	-53.13	-3.64	1.81	5.29	16.02	1.20	-8.83	8.01	2.27	0.76	
	27.12	10.59	-2.40	-8.00	3.74	17.66	-1.06	-0.47	-4.11	11.63	1.67	15.53	
	11.00	9.52	4.74	-3.12	3.67	-78.07	3.04	-0.73	-15.67	31.18	6.17	24.55	
	59.85	7.36	5.82	-8.58	-3.02	12.54	8.40	-0.72	-5.54	-13.39	-7.69	39.85	
	41.75	10.37	-2.01	-23.28	-9.02	-13.14	-3.50	4.77	-4.50	11.90	-39.98	21.15	
	10.33	5.11	-4.84	-9.41	-8.81	-9.51	-20.91	-15.18	-1.62	-0.60	2.30	9.63	
	12.06	6.55	4.07	2.03	1.49	-10.86	6.66	-11.60	3.06	9.01	7.50	12.39	
	7.30	10.78	2.03	-1.75	-4.09	-7.72	6.96	-18.37	2.23	14.11	9.31	7.53	
	14.07	-5.15	11.02	6.47	6.55	-7.31	-6.45	-6.28	9.19	1.13	1.38	6.41	
	16.42	8.60	21.07	10.78	17.58	-12.68	-20.38	-2.43	26.59	23.62	-37.32	-9.96	
	-17.60	24.83	20.77	2.56	22.03	3.10	-15.63	2.82	44.95	11.56	-28.06	4.69	
	-6.19	15.28	12.45	17.72	35.41	-8.69	-0.59	0.05	20.79	9.13	1.02	-2.44	
	12.40	6.29	7.31	4.95	73.95	-3.83	-3.02	6.17	13.77	24.36	16.05	7.48	
	18.54	3.57	2.94	2.83	7.69	10.16	7.48	23.06	12.51	1.09	3.31	19.19	
	4.44	14.53	14.57	21.14	6.66	28.20	-0.89	8.89	8.88	19.63	4.47	32.49	
	-3.24	22.66	7.69	8.33	-19.37	54.14	17.70	7.75	3.62	11.49	40.75	51.77	
	18.65	16.72	30.27	9.74	6.18	21.83	19.83	15.31	8.14	4.88	10.30	32.75	
	17.74	-15.79	14.67	16.42	19.10	34.14	12.45	32.90	12.77	9.71	3.69	11.65	
	-3.55	14.85	13.96	9.54	31.74	31.02	23.24	51.31	33.57	28.06	18.18	14.94	
	29.49	4.26	67.47	1.30	23.99	10.65	22.39	15.91	54.98	13.99	33.17	13.11	
	25.95	8.52	24.72	6.89	26.01	11.78	16.90	-3.84	5.11	-8.16	11.42	44.60	
	-7.20	8.17	-48.67	21.41	-3.39	0.29	35.89	18.30	13.38	-46.25	-1.64	5.98	
	-18.19	-10.88	-4.07	-2.80	-6.79	10.12	10.74	22.67	5.99	11.12	11.25	-7.62	
	23.19	15.61	25.34	12.16	18.93	12.15	28.50	10.83	13.28	31.43	19.86	2.40	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	23.90	12.77	15.46	12.12	7.70	43.83	29.08	14.25	30.45	13.79	35.19	14.81	
	19.95	20.43	6.25	22.64	26.74	18.77	8.35	12.43	27.05	5.17	9.81	26.62	
	14.48	35.10	16.80	16.22	15.31	27.34	17.91	25.51	-13.08	-8.89	33.21	0.53	
	11.70	3.33	4.80	-17.85	-5.69	-1.94	25.96	-15.86	-46.75	-28.89	36.99	36.11	
	-13.12	-46.54	-7.34	22.95	1.46	-4.40	16.81	6.27	-0.23	13.75	9.84	21.48	
	14.42	12.16	-9.44	7.24	-2.84	61.78	3.83	3.14	-17.10	-2.13	-1.50	4.56	
	9.34	18.66	11.63	7.59	13.09	11.27	6.05	39.21	-11.49	-7.35	35.19	-0.41	
	1.27	8.57	9.19	11.13	10.13	-32.27	2.17	-7.58	-0.80	6.87	28.39	20.63	
	4.04	19.18	1.11	7.29	13.78	47.68	0.45	5.54	17.83	11.54	7.60	10.62	
	0.76	-12.18	10.09	6.78	4.01	27.36	4.16	0.83	12.52	3.42	-1.50	15.22	
	4.39	12.87	19.57	-0.82	4.03	28.86	10.68	16.35	-1.95	2.98	-6.30	8.53	
	33.50	8.81	6.80	-0.64	13.83	10.01	10.72	-16.78	12.30	3.33	-2.00	7.86	
	-9.78	15.35	6.28	-0.17	9.32	-0.58	13.25	-6.83	7.36	-3.36	-15.37	2.71	
	-3.48	7.96	-1.64	1.07	3.62	-4.03	0.91	3.62	1.15	1.18	14.01	1.00	
	-1.25	1.72	-9.36	0.49	0.88	3.40	13.96	7.67	5.47	-0.41	14.87	0.81	
	2.10	0.42	-6.18	-3.49	1.82	-0.21	10.90	7.24	5.60	-10.00	23.28	-0.47	
	3.59	15.00	8.83	3.66	16.98	-14.98	3.82	10.40	3.84	-3.05	14.76	12.97	
	3.86	1.77	14.21	7.49	14.86	-5.34	0.59	1.23	4.64	0.92	-7.03	6.38	
	3.40	-9.06	3.34	-0.27	2.28	-39.26	0.18	1.05	14.57	-0.12	-15.43	2.53	
	3.88	2.29	4.11	0.89	-4.48	-33.15	-0.71	-1.27	12.51	7.66	2.18	0.43	
	-1.37	0.83	15.65	2.56	1.80	-6.91	6.65	13.49	9.08	1.56	18.29	-2.55	
	-1.09	-7.04	17.92	-0.75	-1.20	-45.38	-0.17	14.16	4.06	-9.74	30.81	-2.76	
	-0.65	9.31	-13.96	-5.00	3.58	-21.96	8.37	8.37	6.74	4.77	23.78	4.58	
	0.45	6.30	-10.90	12.49	1.86	-4.96	17.42	4.73	4.34	5.43	9.85	13.56	
	-0.87	-16.96	9.08	22.72	-5.13	-7.27	3.13	6.27	4.17	4.80	1.69	-2.65	
	1.37	0.91	-3.14	1.21	-2.63	2.39	0.59	18.96	9.44	8.79	2.58	3.40	
	1.43	-0.14	-1.09	-8.40	-9.23	3.76	9.43	-14.58	10.36	0.42	21.29	1.12	
	-6.78	-7.81	-5.28	3.30	0.76	1.36	-6.15	-5.82	-3.47	-0.22	-3.00	-1.54	
	-6.30	-9.95	-4.65	3.29	-6.12	-1.44	-3.98	-1.16	-9.84	10.22	28.44	-1.48	
	-2.12	-5.27	-1.46	-4.90	1.31	-12.19	-5.30	4.15	-5.28	-2.41	-7.18	-1.24	
	-7.79	-4.51	-4.35	-3.48	-0.79	-3.75	-6.88	4.61	-4.72	-3.62	12.33	-2.60	
	-8.47	18.79	-4.50	-0.64	-3.47	0.56	-2.78	2.31	-3.47	-0.82	-14.57	-2.46	
	-6.02	-27.23	-1.44	1.27	4.19	4.63	8.00	-4.16	0.43	-0.48	-9.20	-4.03	
	-16.22	-11.28	0.88	-13.08	-12.20	8.69	-0.01	11.89	-7.12	-2.70	-12.07	-2.30	
	-37.47	-19.65	-47.44	-31.70	-12.38	-50.14	6.49	10.67	-2.82	-9.34	-6.44	-1.84	
	7.01	-27.79	1.55	-6.29	-14.01	-3.84	14.96	-6.49	1.39	-4.55	1.13	-6.04	
	-3.42	-5.52	-8.72	-11.52	-9.30	0.67	3.27	6.16	-9.59	-6.63	-1.48	-8.49	
	-29.76	-26.79	-10.41	-16.20	-33.77	-13.63	4.98	21.98	-11.99	-2.36	1.70	-7.09	
	-9.96	-10.99	-37.19	-17.41	-14.94	-8.98	-16.27	17.46	-7.24	9.45	3.27	-5.94	
	-28.98	-21.63	-43.85	-6.69	-24.68	35.06	-7.48	1.76	6.38	2.47	2.39	-4.01	
	-42.93	-39.69	-27.30	-8.23	-17.72	7.18	1.56	-13.94	4.08	-20.34	-2.56	-7.10	
	-40.94	-14.68	-9.27	-8.07	-13.57	-15.86	-6.38	-8.18	3.85	-3.03	-2.56	-16.03	
	-22.73	-43.14	-28.87	-5.98	-31.31	-29.05	-7.83	-13.36	-1.61	-3.17	-0.68	-1.88	
	-22.66	-20.96	-50.63	-0.52	-27.35	-17.50	-5.29	-19.78	-5.07	-9.38	-4.58	-18.90	
	-33.42	-36.90	-7.97	-2.32	-15.11	-24.46	-21.28	-12.48	-1.14	-14.78	-11.54	-12.36	
	-19.17	-17.60	-28.71	-11.99	7.42	-42.52	-13.19	-2.87	-13.11	-11.27	-0.61	-21.75	
	-28.01	-25.64	-7.71	-13.72	-4.65	-30.50	-7.42	-7.49	-23.93	-4.54	0.14	-12.23	
	-20.98	-18.35	-14.99	-18.96	-10.12	16.26	-14.69	-19.71	-19.52	-4.93	-20.88	-30.71	
	-17.41	-22.53	12.41	-12.42	-14.00	-11.13	-17.51	-50.03	-1.59	-14.86	-21.51	-20.09	
	1.69	-9.12	-27.14	-11.81	-18.41	17.45	-8.76	-32.73	-0.89	-2.30	-15.72	-11.38	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-11.05	9.09	-32.67	-17.03	-5.28	-20.92	-28.05	-9.89	-3.05	-34.98	-16.49	-2.47	
	7.67	64.82	-5.65	-15.59	-3.20	10.33	-47.50	-7.99	-3.85	-16.63	-18.78	-13.32	
	-53.93	12.17	-3.99	-6.65	-24.66	20.87	-15.12	3.94	0.21	-22.76	-11.88	-9.41	
	-16.90	13.50	-11.40	9.64	23.00	5.39	-10.63	-20.18	-3.22	-20.21	-15.01	-20.99	
	69.15	19.34	2.97	51.04	-2.95	-7.61	-13.96	-21.49	-9.26	-16.05	-15.60	-28.21	
	1.90	-16.25	9.59	-8.04	-22.79	4.76	-12.02	4.79	-7.52	-21.32	13.96	-18.10	
	12.12	-17.56	7.69	-4.01	-7.91	-5.15	-20.45	8.36	-12.43	-28.55	0.30	-3.47	
	80.93	-63.24	6.55	-35.41	-0.79	-23.12	-28.34	-0.25	-4.56	-12.47	-10.88	19.36	
	23.84	-40.56	-5.46	-40.43	-17.49	-19.07	-13.88	5.72	-3.74	-3.36	-10.17	20.95	
	-1.58	-0.16	8.23	-13.41	14.53	-5.90	-20.03	-6.16	-5.70	-10.95	-9.09	-15.60	
	-0.52	-4.29	11.53	-1.91	35.25	-4.53	-21.66	-10.13	-0.92	-13.79	-2.16	5.55	
	9.75	18.72	7.27	-5.39	-32.21	-1.63	-18.86	-4.50	-1.17	-31.28	-9.32	0.74	
	0.89	-4.06	17.21	-5.66	-16.40	0.06	-20.47	-6.29	-3.33	-29.82	-1.83	0.41	
	18.12	4.65	2.92	-1.09	-2.59	8.12	-12.85	-6.87	0.26	-22.44	3.65	-7.96	
	11.34	11.45	4.97	-5.36	13.48	-3.11	-11.97	0.37	4.49	-9.15	-11.31	-3.06	
	1.85	5.34	4.53	2.56	12.00	-12.29	-7.08	-3.15	0.28	12.06	-4.65	1.64	
	-5.13	-0.47	6.41	2.54	-15.15	4.59	-5.02	9.01	6.42	-4.43	-1.88	-1.17	
	-3.92	-3.20	-2.26	15.38	-24.27	-2.01	26.34	4.46	2.52	-5.82	1.87	6.58	
	-6.35	8.57	5.94	1.21	-17.70	14.71	12.64	-1.47	0.67	1.06	2.18	9.34	
	-43.68	11.91	1.07	2.33	-13.99	-55.28	12.14	-31.42	-4.21	37.86	-10.43	-7.58	
	-10.76	13.47	-0.06	-1.83	-8.28	-5.69	7.73	-46.19	-4.36	9.38	-24.89	-7.64	
	3.37	-1.68	11.59	2.73	-14.46	18.39	-4.87	-2.02	-2.47	-14.48	-2.87	-4.63	
	4.68	0.96	10.00	7.23	-1.96	-27.94	-2.63	-5.68	1.57	-2.51	8.57	-0.61	
	3.00	6.25	-0.49	13.00	9.43	-6.47	5.26	5.27	15.39	6.51	-0.73	-21.79	
	3.67	11.43	-1.58	-14.80	3.25	3.84	-21.80	-4.05	-0.69	-0.61	-1.69	-12.72	
	-11.40	41.63	-4.32	-8.78	11.48	8.52	10.65	6.53	1.89	39.10	-11.03	0.11	
	0.91	46.68	-0.06	2.35	-9.28	10.91	15.77	7.71	4.24	42.28	-4.12	-7.09	
	2.97	16.67	16.24	10.67	3.33	7.54	6.14	-2.53	19.49	20.56	-3.31	2.54	
	5.11	30.88	8.01	12.65	3.15	-0.39	-1.56	-1.59	3.50	6.14	2.76	1.22	
	3.56	-6.12	7.25	15.59	0.61	8.29	-1.66	-5.88	-3.85	6.03	-7.62	2.91	
	8.05	6.76	2.84	4.57	5.38	10.92	27.42	14.57	-7.32	9.38	-5.05	0.98	
	0.58	-3.68	0.40	1.94	-1.14	-16.10	9.20	12.29	4.45	-13.07	-0.45	-6.45	
	1.75	-16.35	3.06	11.85	1.58	0.92	3.95	-11.40	5.03	-35.87	2.80	-6.50	
	1.43	11.09	1.29	9.05	9.79	8.48	0.59	-2.61	10.16	1.42	18.15	1.13	
	8.32	-7.90	11.60	7.49	-11.87	6.91	-5.25	0.52	17.66	-6.39	-5.01	-3.54	
	10.50	9.85	13.58	7.36	10.52	3.61	10.72	14.26	19.94	9.41	23.77	-2.52	
	3.72	20.32	5.14	15.10	67.36	5.07	3.40	-1.24	3.92	-2.97	13.85	6.05	
	-2.40	74.60	8.94	7.74	2.28	6.42	-5.93	-17.86	-10.68	-37.86	-9.48	7.21	
	1.43	26.48	3.03	4.88	-7.99	10.58	-15.61	1.05	-14.64	-13.13	8.97	11.07	
	0.70	2.36	-4.52	6.54	3.47	4.70	1.21	-2.42	-3.11	4.45	13.56	7.51	
	2.86	1.64	8.22	2.12	-38.43	8.26	7.35	-45.60	17.01	8.57	23.88	-0.45	
	2.30	2.96	-3.74	4.78	-2.87	13.07	2.74	0.38	-8.62	5.46	-0.79	-8.07	
	3.10	2.62	-2.68	17.72	0.92	3.42	1.84	76.82	8.56	3.57	-22.02	-12.34	
	25.99	-2.71	2.82	19.28	-0.65	9.19	-7.35	17.77	-6.54	1.61	-2.54	-20.82	
	23.46	19.64	-2.68	4.20	-10.70	30.15	-17.87	-22.28	-4.59	6.33	2.85	-19.73	
	12.33	-2.09	-2.01	-14.18	-6.60	4.17	-3.32	-55.10	-13.63	-4.48	4.46	16.79	
	-3.03	-32.84	-5.97	-2.10	17.32	-20.69	5.69	-14.39	2.93	-7.40	7.79	-19.49	
	-5.44	-11.72	-5.00	-3.28	52.52	11.07	-0.10	-8.71	5.59	-14.32	14.53	4.72	
	-14.36	-46.71	-3.62	8.12	-31.79	5.40	4.89	-11.71	1.28	-1.65	-23.28	-36.54	
	4.08	-19.28	0.09	5.41	-6.62	-15.92	-0.61	-7.68	-13.73	-15.28	11.22	-126.98	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-6.36	5.32	-12.10	3.13	8.40	-6.98	-5.48	-25.08	-7.52	1.33	8.28	-72.83	
	-26.07	16.90	-21.41	0.13	-27.98	-1.07	-4.73	-4.07	1.21	-1.81	5.23	-48.06	
	-18.23	-55.16	-4.51	-2.06	-24.12	-0.68	-19.97	-0.49	-12.43	8.10	-2.27	-29.17	
	-15.18	4.61	-0.10	-12.37	1.82	0.23	-5.47	-17.01	-26.42	-1.00	7.54	-11.01	
	-17.12	-7.53	-5.72	-16.90	-28.36	9.83	17.64	-10.08	10.36	3.80	-0.06	4.41	
	9.69	-30.31	-1.24	2.84	-21.68	-9.13	0.21	4.49	4.41	-4.53	49.99	143.49	
	-35.11	-13.95	-3.87	3.90	-22.77	-0.56	-9.08	-4.71	-4.01	-3.81	12.41	25.39	
	-39.38	7.67	-4.85	12.98	17.78	14.89	-13.44	1.17	-12.46	-2.94	-12.20	6.19	
	-0.21	-43.99	-15.47	13.51	3.63	1.14	-1.27	11.05	-0.28	-2.45	-18.08	6.51	
	-3.04	-0.17	3.49	4.57	-4.52	4.87	6.73	-2.41	-4.47	5.00	-19.76	6.49	
	17.19	-19.83	-13.22	0.86	8.23	7.92	7.45	0.72	1.88	-18.19	-16.56	5.69	
	21.66	8.32	-20.99	8.14	5.76	-0.67	2.42	5.28	1.67	12.70	-4.98	1.14	
	2.97	1.37	-16.95	12.95	-12.25	-1.78	-3.74	6.95	7.18	2.92	-0.65	17.42	
	1.79	63.65	-2.31	3.22	29.97	-9.67	28.24	1.95	21.97	-7.41	-4.29	16.06	
	17.15	8.88	0.70	5.11	24.13	4.18	25.48	6.62	9.53	5.27	4.58	5.20	
	9.80	16.02	-10.96	-11.65	-17.73	6.34	9.25	7.21	5.04	-6.40	-3.56	-1.03	
	-3.25	3.40	7.35	-10.48	-9.78	7.19	3.08	13.10	3.15	-7.39	-8.69	12.92	
	-18.49	4.10	15.54	-5.08	7.55	1.45	-17.35	-39.69	-27.28	-28.43	3.40	-11.95	
	-2.68	-13.93	-4.38	-7.04	-11.01	-4.65	-34.15	-23.21	-15.74	-16.65	14.00	0.77	
	0.09	-15.06	-0.77	-16.47	9.30	6.48	-18.82	-7.66	-3.82	-10.54	4.47	1.67	
	1.69	0.27	3.55	-17.64	4.12	-0.01	1.23	4.98	0.05	-11.75	39.06	14.06	
	14.89	13.00	-2.45	-5.71	12.34	1.19	0.53	20.88	-2.51	-23.77	14.93	30.19	
	12.27	2.22	3.03	-2.95	2.74	0.00	-6.32	-0.11	-39.34	-0.95	-24.42	5.27	
	2.95	0.66	15.71	-11.96	-4.26	-2.99	-1.84	-6.56	-10.13	17.00	-21.17	47.80	
	1.33	-4.96	15.99	-17.12	-4.42	0.53	7.17	-3.38	3.99	29.44	-22.46	6.33	
	11.82	4.25	-12.28	2.81	-10.60	-7.76	8.57	4.65	7.95	0.65	-4.28	3.46	
	14.23	0.24	1.23	8.65	5.11	-13.21	1.00	5.34	10.26	5.88	8.72	8.06	
	3.08	-16.23	27.86	-10.87	3.36	-20.35	-2.04	7.54	3.62	14.57	1.15	32.89	
	2.42	-1.90	47.05	-1.31	-3.40	-5.87	-5.38	5.04	-1.44	25.93	-7.59	-15.69	
	-44.82	44.47	64.36	-4.48	3.76	-28.86	-2.00	15.63	-25.41	42.07	26.24	8.66	
	6.92	64.00	22.93	12.89	12.51	-15.68	-4.70	6.70	-0.59	8.83	6.57	2.22	
	10.90	32.20	23.63	19.73	9.49	1.76	-21.02	17.01	-0.39	13.24	6.32	10.17	
	16.87	29.06	15.41	9.95	-8.12	4.58	-5.23	-10.95	3.05	14.21	5.98	5.60	
	24.44	-21.38	-27.14	14.97	0.40	-1.77	11.42	27.59	4.93	5.52	6.94	1.45	
	-7.03	15.44	28.61	30.24	-2.79	-6.12	0.57	-9.51	16.31	4.13	15.50	14.66	
	-50.40	-15.98	19.51	16.65	7.45	-45.36	-38.47	20.56	13.01	-13.88	-14.98	13.87	
	-6.38	-8.57	11.56	3.36	53.95	-30.00	15.83	19.03	9.73	-2.27	19.18	-1.16	
	32.10	11.42	28.99	15.45	29.59	-17.74	17.70	20.75	-0.99	7.92	11.85	15.99	
	18.88	2.17	22.41	17.79	12.09	4.04	10.24	16.17	1.10	19.35	6.08	9.42	
	23.46	12.13	16.30	15.10	17.78	9.58	43.24	34.43	11.90	16.31	12.12	25.55	
	7.99	15.91	16.01	15.83	25.68	21.81	13.49	9.86	10.68	20.04	8.22	19.57	
	6.98	-27.40	11.49	25.84	5.69	17.37	28.86	3.66	1.12	24.76	11.01	-18.45	
	-14.72	-49.24	2.80	34.76	0.06	-2.20	22.12	1.26	6.70	18.51	10.96	-14.42	
	12.07	1.55	12.69	21.14	9.69	13.54	5.48	8.62	-9.20	-3.78	12.43	17.28	
	31.02	25.06	17.41	16.03	34.00	37.69	22.09	25.58	-2.65	10.79	46.22	29.55	
	11.50	-0.43	28.78	11.95	17.89	17.30	24.82	42.71	0.73	15.58	17.33	17.30	
	15.15	-1.78	18.73	10.84	13.26	24.95	20.77	1.39	5.85	17.83	0.40	-8.78	
	13.26	-7.74	-6.95	16.17	-6.13	40.46	13.24	8.95	1.94	19.12	-1.34	-12.28	
	0.57	-9.23	-12.59	6.89	7.03	14.83	24.09	5.92	-2.25	18.60	4.07	6.86	
	8.35	-2.25	4.69	4.91	20.55	11.31	8.74	17.45	1.92	5.29	15.45	7.33	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	9.99	14.63	13.36	2.07	10.94	15.34	15.54	9.03	2.61	13.54	15.17	-4.58	
	3.58	26.40	28.29	4.04	6.65	9.41	11.99	7.74	-7.26	12.33	8.03	-11.19	
	-5.23	20.77	8.94	25.67	23.17	19.91	10.71	6.95	15.06	1.87	19.52	-6.79	
	3.10	7.10	-4.37	12.82	-2.50	1.98	7.25	3.14	23.26	-2.92	9.65	3.25	
	10.88	5.41	31.36	3.09	7.10	-33.53	-7.66	1.40	37.57	10.03	1.86	24.31	
	5.59	0.16	19.85	2.72	36.29	-1.14	-2.10	-1.05	21.61	3.24	-11.77	13.32	
	-8.09	15.45	6.62	0.87	18.56	12.33	4.48	1.21	0.02	7.57	54.48	-3.55	
	-0.04	8.44	4.78	5.82	6.03	30.36	7.05	-10.49	0.34	-1.71	18.36	5.97	
	8.80	-1.90	12.10	1.63	9.01	26.66	4.58	-4.31	-0.87	3.69	-10.73	25.44	
	3.80	44.98	10.29	0.25	3.81	45.29	5.44	11.31	1.50	12.53	12.87	9.00	
	1.70	1.54	13.58	2.14	-0.03	14.70	9.26	6.88	-2.00	-4.71	30.07	-20.47	
	-6.03	-28.12	-29.05	4.51	1.98	8.73	3.89	6.65	1.11	-4.74	16.03	14.92	
	11.67	-15.73	-9.40	9.46	2.96	18.60	4.12	6.53	-1.40	3.65	3.15	10.71	
	6.45	25.63	6.06	6.62	-10.26	0.75	5.65	-6.05	4.24	1.82	-4.90	-3.68	
	17.73	-10.71	15.27	-1.07	-12.57	5.34	-4.03	1.73	-0.44	3.77	-10.57	7.17	
	19.28	12.96	-1.66	9.37	-2.79	3.35	-1.07	0.38	-3.36	7.81	-26.87	8.19	
	-8.53	-26.83	1.81	1.93	0.14	11.13	4.41	9.20	2.07	-7.32	-27.94	-18.21	
	2.18	2.27	-1.00	-4.74	-0.71	9.64	10.78	-3.24	-3.44	-5.17	8.35	-16.86	
	7.61	-8.82	1.71	4.69	11.24	3.52	11.07	1.29	0.94	-6.17	0.65	9.49	
	-22.30	-14.41	1.74	-2.55	-8.91	-2.82	1.64	-2.62	-2.76	-6.40	6.77	0.73	
	-3.13	11.40	-1.29	-0.61	-7.12	-3.80	1.73	-2.65	-5.14	4.32	-1.16	1.36	
	-3.89	51.66	0.47	-5.12	-5.95	-5.08	-6.94	-0.46	-19.95	0.74	-6.31	-13.06	
	-3.97	11.81	1.66	-19.37	-3.52	0.05	0.36	-0.10	1.27	-5.66	-4.45	4.39	
	-4.69	-0.87	-0.56	-12.77	-3.90	-0.13	2.30	-3.09	-13.20	-3.52	-8.90	0.90	
	-2.94	2.26	-0.09	-0.53	-4.65	4.96	2.17	-4.49	-6.28	-1.55	-10.16	-3.23	
	-2.53	-3.56	-3.99	2.11	-3.11	17.92	-12.77	1.83	-0.88	-10.06	2.47	-0.31	
	-6.75	-23.92	0.48	-12.18	-3.88	3.29	1.93	11.37	-7.28	-7.01	17.21	-10.32	
	-8.69	-32.70	-10.71	-17.08	-6.33	-1.40	-6.75	-0.15	-4.94	-5.71	4.32	1.84	
	-22.60	-24.60	-4.04	-16.38	-8.05	2.98	8.30	13.18	-15.66	-12.56	0.17	-4.97	
	-8.62	-25.66	-3.86	-7.00	-14.07	14.33	25.24	-36.04	-6.88	-19.92	-3.59	-32.09	
	-25.51	-16.81	-15.80	-24.65	-14.64	0.05	-23.47	-4.49	-9.27	-22.17	14.85	-19.86	
	-21.94	-5.06	-21.28	-0.30	-32.66	-3.55	-0.79	-1.26	2.14	-15.47	8.08	-4.02	
	-6.73	-20.04	-31.68	-26.90	-16.20	-2.82	-16.64	-1.05	-32.84	-12.10	0.88	-26.04	
	40.33	-28.86	-26.95	-41.10	3.96	-0.59	-18.30	-5.03	-41.24	-6.80	23.57	-20.72	
	-11.12	-42.72	-23.43	-29.73	-11.45	-10.77	-30.40	-11.78	-9.48	-25.50	7.42	-14.91	
	-16.14	-54.18	-33.70	-31.94	-22.17	-16.09	-27.79	-6.07	13.74	-20.24	-2.14	-5.50	
	-25.85	-15.71	-22.22	-27.41	-34.46	-48.50	-5.75	-13.43	21.89	-15.06	-1.02	-1.09	
	-34.91	-38.15	-17.11	-3.95	-9.16	-12.21	-22.83	-18.33	10.45	-17.50	-6.13	-4.99	
	-26.38	-44.60	-21.81	-31.41	-21.48	-25.28	-14.74	-17.57	1.78	-43.84	-2.52	-7.87	
	-38.09	-45.94	-17.99	-34.45	-20.99	-14.88	-28.33	9.73	-5.20	-25.44	-6.27	-1.96	
	-6.68	5.04	-28.53	-27.07	-17.37	-20.08	-15.57	-15.30	28.17	-18.92	-14.15	-15.68	
	-18.81	-23.89	-21.24	-7.09	-15.65	-26.29	-11.86	-17.42	-10.30	-34.68	-5.43	-5.95	
	6.70	-21.19	-18.09	-16.27	-10.96	-9.30	-53.19	-18.32	-5.65	-21.44	-11.66	-12.80	
	-9.95	-3.20	-1.67	-17.93	7.48	2.25	-8.28	-19.44	-7.76	-14.52	-2.40	-13.58	
	-5.02	14.55	-7.36	-5.30	-6.42	0.25	-15.40	-10.25	-8.41	-2.23	-12.32	-2.50	
	-5.38	34.29	-6.99	13.47	-33.20	-21.85	-20.30	-1.79	-0.57	-10.35	-14.54	25.63	
	-10.00	5.13	-3.59	-14.33	-19.80	-10.25	-12.96	-1.69	11.09	-7.28	-14.23	8.94	
	-4.87	3.59	3.33	-18.19	-4.27	-30.52	-20.91	-1.40	-5.08	-1.77	-15.54	-27.31	
	-7.00	7.85	0.80	-12.39	21.92	-5.68	-19.75	-4.85	-13.40	-1.44	-11.60	-14.46	
	-18.00	3.57	-2.12	2.81	13.85	-17.95	-13.94	-12.82	-8.33	-1.71	-7.58	-14.46	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-7.93	2.79	-8.68	-3.55	-5.09	-17.83	-20.14	-13.00	-1.92	24.53	3.06	-16.79	
	52.45	10.74	-1.51	1.22	-10.08	0.53	-2.87	-11.74	-2.97	-44.46	26.19	-5.85	
	24.06	4.43	4.02	1.60	-17.60	4.19	-5.67	-8.92	-4.54	-20.13	14.74	-22.82	
	-2.32	19.42	13.12	-2.14	-9.58	11.39	-10.66	-0.60	-7.95	-3.01	-30.87	-6.58	
	-0.21	11.49	25.12	0.88	-6.82	1.61	-10.04	-13.87	3.94	-2.15	-6.74	-26.28	
	2.35	19.83	25.56	1.40	30.13	23.13	-4.75	-5.11	4.53	1.18	-14.56	1.88	
	-0.40	-11.16	-12.98	0.42	-8.36	44.20	-1.21	-4.56	0.04	3.60	-5.54	9.88	
	-46.52	-38.52	7.61	3.59	-24.50	51.16	-5.42	-16.31	-25.83	7.89	-11.10	-0.50	
	-10.58	0.30	27.98	21.77	-8.26	13.15	-11.26	-9.27	-5.56	11.07	-19.95	-18.24	
	0.62	37.13	17.06	10.90	0.68	1.22	-6.39	-11.07	-5.40	-0.37	-11.41	-18.74	
	-1.74	6.52	-3.08	-8.50	-8.60	0.74	1.09	-3.87	-2.61	4.64	-10.35	9.71	
	-0.76	18.56	24.35	9.48	-4.75	-27.12	-30.25	3.41	0.05	-6.95	-10.11	-16.02	
	1.60	7.74	-16.72	4.75	0.50	-11.77	-19.67	-0.72	-2.60	17.49	-3.60	-0.25	
	18.86	-26.76	-8.18	8.46	2.00	-1.80	-10.25	0.10	11.18	78.25	-7.94	-26.82	
	12.17	-5.18	8.98	-1.28	-1.99	-7.07	-3.80	-20.04	47.55	32.80	-7.92	-31.40	
	15.16	-0.56	5.81	-3.08	2.73	-4.40	1.65	2.28	12.32	-9.14	-4.93	-14.35	
	33.63	-0.29	1.57	2.21	-5.39	-0.47	8.70	-10.52	-2.67	-0.20	-18.19	7.95	
	-1.45	2.90	4.56	4.18	8.95	-3.89	4.99	-8.03	0.11	-4.91	-17.00	0.54	
	-0.10	6.14	1.26	11.38	40.99	-2.32	-9.17	1.63	1.13	-0.53	7.55	17.21	
	-6.88	68.10	-5.35	-0.36	7.83	-9.94	16.40	14.99	-6.38	7.87	-9.01	5.35	
	4.35	16.17	11.05	-2.89	-7.81	-3.70	-27.06	10.41	1.26	9.68	1.83	-1.14	
	8.66	11.12	20.98	2.63	-1.10	8.72	-3.88	-0.73	0.29	-6.22	-12.25	-0.33	
	4.32	14.01	-17.96	13.75	13.26	0.51	36.63	3.87	1.12	5.29	13.16	4.64	
	5.40	3.42	0.59	-1.30	-2.05	8.88	26.10	-11.75	2.59	5.44	-5.34	-3.21	
	6.04	-5.17	1.50	-0.61	-12.61	6.12	-2.06	26.09	-1.00	-1.84	-10.42	-3.46	
	-24.68	-18.82	-3.57	-6.20	39.20	0.23	0.46	-1.19	-0.18	-6.15	-35.45	5.35	
	-12.86	-2.53	2.33	3.84	27.22	3.50	0.23	2.71	-2.79	5.68	-13.06	6.00	
	3.35	-1.26	4.94	7.19	2.25	4.29	-0.32	-1.56	-6.27	1.12	3.91	15.54	
	0.91	5.10	-4.25	9.88	-4.54	3.74	-2.71	-0.43	-0.87	30.06	-10.72	9.73	
	4.16	4.87	6.53	11.45	1.14	36.14	5.93	2.82	12.79	-2.23	-4.45	-2.58	
	6.57	-3.96	11.07	28.03	20.88	12.29	-1.13	2.15	-2.68	-6.62	14.45	3.43	
	-7.31	-18.89	0.30	18.54	4.96	-23.48	-9.39	3.63	3.34	-4.95	20.59	13.34	
	-1.95	1.29	0.31	-31.29	16.18	-9.85	0.77	0.62	-3.73	-2.95	25.87	-15.01	
	-6.56	5.05	3.94	-0.18	15.98	8.52	-10.53	7.23	1.63	10.56	3.05	-5.91	
	8.21	29.71	1.69	11.70	-21.30	-0.28	6.46	47.66	1.06	-3.72	-9.86	9.18	
	-5.87	-58.34	0.08	-10.20	-12.04	2.64	9.83	3.41	8.49	-2.63	1.97	6.92	
	6.72	23.37	-17.53	1.23	-8.41	-21.28	6.01	-2.66	0.72	4.54	21.12	-12.44	
	18.02	-7.49	-24.21	-1.08	28.34	-28.13	0.68	0.78	2.18	2.01	5.08	3.77	
	4.90	-24.86	1.20	-9.07	9.06	-11.31	-6.55	-0.84	1.56	-11.85	14.09	29.87	
	-2.81	-0.46	-1.42	-5.04	-11.10	-12.05	-5.09	0.04	2.89	8.37	5.09	-19.72	
	-13.20	-7.12	-26.41	-10.08	-12.29	-13.36	1.58	1.76	-1.46	-3.40	-3.15	-21.91	
	-8.57	-24.61	21.88	-1.16	0.59	-2.09	-13.18	5.04	0.68	-12.54	2.02	-0.68	
	-0.43	-12.67	22.57	2.96	-21.84	-2.97	5.83	-10.86	-4.68	-5.12	-1.87	-5.41	
	80.30	-17.01	-7.58	-13.13	-68.14	-15.47	4.71	-17.18	-3.84	-1.81	14.37	6.62	
	16.05	-33.76	-1.34	-10.69	-32.99	-11.31	-5.50	-24.02	-3.43	-5.87	4.18	-14.53	
	-24.97	-6.22	2.69	-8.46	-16.32	-2.55	-10.56	-26.81	-5.56	-17.77	6.37	-41.52	
	-39.95	-4.03	-3.45	-0.24	2.12	-6.86	-7.13	-6.95	-4.77	-25.68	4.41	-39.43	
	-61.34	2.11	-4.77	-12.68	14.55	-10.22	-2.84	2.73	-9.73	-2.58	-1.06	-43.60	
	-15.24	-14.88	0.93	-8.28	-4.26	3.14	-1.42	-15.32	-9.45	-11.24	1.25	-46.43	
	-25.47	51.35	-9.94	2.42	-14.10	-4.09	4.08	-13.50	-4.44	1.47	12.56	-32.19	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-24.44	3.97	-24.93	-2.31	-0.38	2.56	2.68	-16.54	-3.86	3.69	-4.33	-40.48	
	-20.11	-18.98	-1.58	-9.54	8.13	-6.27	-3.39	7.71	-2.23	2.36	-4.30	-14.10	
	-14.41	-7.67	-4.17	-2.50	-15.02	-8.94	15.29	-6.34	6.79	-3.84	-23.65	-5.65	
	1.02	-11.33	-1.62	1.48	-9.81	-21.62	1.24	-20.75	8.40	-1.06	-23.93	-1.12	
	13.10	-7.79	-5.69	12.07	6.30	12.65	7.20	-3.46	3.93	-18.87	6.80	-23.58	
	67.06	44.76	-7.63	8.97	11.23	-13.42	14.97	0.37	5.17	-110.08	-9.09	-46.59	
	9.60	20.14	2.23	8.86	-0.29	-17.59	6.17	-4.57	4.90	-34.99	-2.22	4.52	
	11.19	-0.90	-10.69	5.56	-7.07	4.88	4.54	7.74	3.35	-3.18	-10.67	6.77	
	5.35	1.79	-5.20	6.66	0.62	5.15	1.19	11.97	4.98	-13.03	-0.79	7.38	
	2.38	3.21	-4.94	5.72	7.82	6.26	9.90	0.69	13.90	-11.77	2.59	3.73	
	0.73	6.65	6.83	6.20	-1.05	-0.77	12.69	5.00	9.79	-4.71	9.52	20.45	
	-6.53	17.46	8.35	6.56	11.82	2.06	6.47	9.65	4.38	75.96	14.33	56.23	
	-5.82	2.67	-4.32	2.83	12.52	12.47	16.07	6.02	5.12	25.23	21.01	0.82	
	1.07	14.94	6.68	-14.58	4.50	1.32	3.61	2.24	-1.44	-13.97	0.40	-10.93	
	2.02	-9.11	5.86	-1.60	-2.16	26.89	10.17	0.76	-6.25	-4.92	9.68	-0.96	
	-0.10	36.29	8.18	-12.88	-11.54	-18.04	6.07	2.14	-2.23	0.59	2.66	-4.04	
	5.35	-4.66	19.24	0.91	0.83	-1.31	5.40	4.42	-5.17	11.31	-3.54	3.16	
	-38.87	-32.00	11.61	2.70	7.35	-3.01	-10.25	0.74	-25.10	10.92	14.20	-0.91	
	-47.29	-20.77	9.85	-0.93	-7.55	-3.84	15.00	-4.06	-6.43	-17.41	8.47	3.05	
	-2.54	-4.24	10.52	15.96	-21.58	2.47	6.39	-6.00	-0.46	13.48	2.53	-0.20	
	14.96	-0.04	1.60	11.82	-27.16	-1.18	5.75	-13.06	3.33	10.27	-3.30	-19.60	
	-4.04	7.89	1.91	4.13	-7.64	-3.87	6.76	-10.62	8.01	3.12	1.24	1.38	
	-3.27	5.24	21.23	-9.81	-3.44	4.50	7.46	-0.05	4.36	5.85	4.50	14.71	
	-34.61	-24.64	19.08	2.87	2.37	12.99	4.94	16.98	16.87	-8.98	-10.15	-4.30	
	14.98	-3.01	12.74	32.52	-1.94	3.20	4.74	30.93	19.34	21.83	-21.34	22.25	
	19.49	6.48	25.18	-0.96	5.74	-9.68	7.05	19.89	4.25	2.30	-5.52	14.25	
	9.54	13.97	42.67	10.47	32.67	-5.46	-0.15	27.91	16.29	14.31	11.14	10.39	
	19.65	10.33	15.45	26.45	42.70	-2.65	3.75	12.47	5.18	23.57	6.51	9.11	
	1.14	-0.20	3.23	7.17	2.81	5.36	4.98	17.86	26.88	9.63	8.86	22.01	
	-33.25	-33.65	-1.39	-4.54	-1.40	23.07	19.12	8.26	7.30	33.14	24.95	33.94	
	-7.32	-2.70	6.66	19.94	49.85	7.45	21.88	-6.18	-4.37	16.49	42.82	46.41	
	10.48	15.53	23.86	30.60	61.06	3.65	19.59	22.41	16.55	9.13	22.13	12.23	
	24.33	8.88	9.33	21.54	8.07	23.23	21.39	3.19	34.81	30.48	3.78	23.21	
	12.88	25.10	28.70	15.08	14.78	21.47	9.65	14.24	29.23	25.67	3.57	12.94	
	12.39	18.68	25.08	22.67	29.94	2.81	14.69	-10.21	-4.12	18.40	-3.84	42.40	
	-21.72	-15.80	6.28	13.95	-2.52	12.31	27.81	-13.33	-10.06	-82.26	-62.17	20.75	
	-14.32	-18.32	-3.70	17.65	-4.37	19.60	17.41	-0.58	-0.70	-5.06	-50.62	52.85	
	9.14	11.66	6.06	39.37	-0.74	19.69	12.42	20.51	13.49	28.64	2.81	37.68	
	16.72	33.02	22.48	31.56	-9.41	9.34	9.56	26.34	13.53	12.65	9.96	11.22	
	13.96	17.43	15.84	20.08	15.19	13.58	28.25	2.12	20.93	21.50	17.46	26.83	
	11.11	-1.76	19.34	20.13	23.97	6.33	21.78	19.34	-2.87	18.11	7.45	38.16	
	22.92	17.91	-0.54	0.50	4.31	18.35	18.35	-53.47	-17.86	4.80	8.57	15.38	
	27.23	3.01	-1.10	-10.28	-5.55	1.70	20.97	-13.70	-1.57	5.23	8.61	8.24	
	-0.81	-4.39	17.09	12.20	11.32	9.98	23.41	15.47	12.28	-2.45	5.18	5.16	
	18.21	3.25	8.85	12.22	5.07	7.98	13.13	11.69	7.97	14.78	17.30	20.58	
	1.27	6.56	-8.76	9.62	18.23	8.52	14.03	3.35	6.47	7.44	30.33	24.12	
	12.03	8.49	17.51	-2.04	-3.33	9.85	18.64	15.67	-8.29	-3.91	3.04	16.46	
	2.61	8.49	18.73	-0.40	-1.63	2.52	5.15	20.26	-5.44	-0.67	7.75	-1.15	
	1.90	6.63	-5.13	9.15	13.32	8.07	-1.94	14.31	-7.22	0.44	32.15	2.65	
	-26.10	-2.42	16.21	13.13	49.04	-0.16	14.14	12.35	10.70	7.45	11.57	13.05	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	3.44	0.17	17.34	12.16	-0.22	9.65	5.10	9.67	0.95	-5.12	-11.38	23.39	
	4.44	1.16	-1.94	8.50	7.05	11.56	-4.43	25.68	3.11	-5.17	4.21	11.18	
	2.34	2.17	-9.27	14.11	2.99	18.78	10.18	3.75	0.89	6.89	-0.85	-2.70	
	13.78	39.54	7.55	5.58	-5.21	15.30	2.31	72.92	-8.58	2.58	-3.20	-11.10	
	1.13	22.65	9.95	-5.21	0.83	15.50	3.01	43.58	-0.25	5.59	0.72	16.63	
	0.52	6.20	21.12	0.83	-11.03	3.38	4.86	-5.83	-0.82	-0.44	7.58	30.86	
	4.57	3.38	25.91	-1.06	-11.75	3.76	1.06	0.43	1.88	-2.15	2.83	0.93	
	0.06	8.49	-19.33	0.69	8.54	9.04	8.05	4.02	-0.87	-1.05	6.49	-3.73	
	-3.25	-9.40	3.28	-0.56	-2.89	0.99	5.75	-2.05	1.37	-3.99	5.28	-0.59	
	2.60	23.37	-7.01	1.36	-3.74	2.08	-7.17	-1.01	0.23	-0.56	-3.60	-3.44	
	5.62	-14.65	-0.88	-10.16	14.60	-1.00	-10.25	9.73	1.73	-1.01	-8.34	-4.70	
	-0.26	2.75	2.55	-1.91	20.21	-2.06	-4.34	16.94	-0.20	-3.44	-0.79	-0.77	
	29.33	35.00	7.95	10.49	-31.13	4.15	0.80	-1.94	-8.04	-1.92	6.03	4.17	
	15.80	-12.52	-7.16	5.23	30.07	2.86	5.43	-3.78	-2.82	-2.50	5.90	-2.89	
	3.61	-13.64	1.28	-1.20	17.01	4.16	4.28	2.72	-2.96	-3.21	-1.37	-2.59	
	-5.56	-0.11	-15.72	-1.50	-3.06	1.39	-0.68	0.11	-15.05	-11.55	-10.02	-5.85	
	-5.61	0.93	6.99	-3.52	-2.22	0.04	-1.37	-5.31	-3.42	-10.97	-12.23	-7.96	
	-2.19	4.49	2.14	-5.60	7.41	-3.47	-2.65	-1.04	7.37	-12.56	7.28	4.24	
	13.17	-16.74	-6.57	-3.59	-2.68	0.49	-5.83	-9.17	4.73	-7.69	6.00	4.23	
	-11.35	-13.60	-5.17	-2.23	4.09	0.94	-3.52	-34.12	5.87	-4.91	0.64	2.95	
	-36.82	1.04	0.97	-14.94	-6.31	-3.99	-1.57	-7.07	1.08	-1.29	-3.31	-18.24	
	-15.38	24.99	0.78	-13.54	-10.42	-2.82	0.21	-7.18	-0.94	21.61	-4.42	-24.03	
	-8.20	-2.38	1.45	-4.71	-2.16	3.41	27.57	-11.50	-4.57	31.69	-11.15	-6.62	
	-3.33	-16.27	-8.49	0.01	-0.97	6.05	22.12	-4.23	-11.91	-14.61	2.66	-9.91	
	-12.36	6.81	-11.32	-12.35	-16.32	8.62	-8.69	-0.31	-13.22	-9.93	-7.81	-6.62	
	-28.22	-4.47	-12.15	-17.85	-14.44	3.28	-17.11	-5.12	-7.62	-21.25	-15.57	-10.15	
	2.17	-2.14	-10.99	-24.11	-9.81	-11.03	0.45	-21.99	-8.43	4.52	-21.28	-40.27	
	-0.67	19.04	-8.17	-65.01	-15.27	-38.13	-12.67	-15.22	3.82	30.98	-11.71	-50.82	
	-10.05	-27.61	-22.39	-35.85	-31.60	-19.52	-26.50	-13.66	-0.94	23.41	6.13	-36.05	
	-70.47	4.59	-0.87	9.49	-31.31	-2.97	8.26	-6.58	-19.17	-32.70	0.89	-18.26	
	-14.13	0.72	-16.63	-14.36	-42.41	-10.96	-12.76	-9.34	-26.84	-21.63	0.45	1.12	
	-12.31	4.32	16.59	-14.61	-29.09	-4.19	-14.63	-13.69	-20.05	-41.10	-3.99	-32.60	
	6.49	12.08	-3.28	-28.69	-33.40	16.17	-11.46	-17.90	-17.72	-20.63	-32.80	-17.32	
	3.38	-81.91	-30.92	-42.30	-26.66	23.61	-28.78	-13.13	-9.60	-22.31	-19.84	-26.28	
	-13.26	-23.25	-11.16	-21.15	-31.94	14.63	-22.40	-3.11	-4.34	-47.18	4.21	-7.97	
	-23.20	19.32	-16.40	-10.26	-39.66	-5.63	-54.98	-1.22	-20.27	-1.83	-6.61	-11.32	
	4.90	-48.48	-8.89	-16.30	-15.49	-14.71	-24.88	-38.02	-26.16	-11.42	-11.61	-15.28	
	-14.70	-6.71	-15.11	-19.38	-4.63	-19.32	-20.15	-16.56	-20.42	-13.03	-18.21	-20.46	
	-4.38	-20.58	-31.61	-9.34	-10.72	-11.88	-15.68	-8.17	-4.23	0.53	-9.67	-1.34	
	31.00	-12.36	-1.98	-9.80	-3.80	-8.13	-20.99	31.55	45.20	30.11	-10.11	5.85	
	6.28	-23.99	-26.94	-13.74	-7.80	-30.74	-28.98	1.38	-7.65	12.46	-23.50	18.75	
	4.41	-11.51	-13.17	-11.41	-28.42	-30.21	-41.13	2.96	-13.80	9.12	-43.30	-1.12	
	5.24	-39.59	-12.50	10.29	-2.27	-22.05	-21.16	1.23	-6.69	9.49	-13.70	21.40	
	3.20	4.78	-8.70	6.67	2.26	-16.17	9.60	-6.94	-0.85	6.22	-6.60	6.69	
	9.35	27.13	-13.01	6.80	6.14	-6.12	13.67	-8.12	-7.26	16.36	-32.19	7.66	
	9.74	76.25	-0.98	29.31	2.30	-0.09	3.71	3.38	-8.10	4.37	-23.74	-10.53	
	28.05	6.55	-2.12	7.24	24.19	-6.53	-2.05	5.08	31.76	3.66	-10.17	-23.40	
	8.39	8.87	-14.93	-4.18	-26.45	-18.77	-2.94	-4.36	8.24	-1.77	-27.41	-13.09	
	7.12	4.87	-27.53	6.97	-32.37	-25.09	-3.21	-10.65	-7.09	-0.18	-22.77	12.40	
	7.78	-9.09	-2.54	5.14	-16.21	-2.02	-9.90	-7.65	0.95	7.84	-12.79	6.33	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	3.19	31.02	-10.55	11.06	40.08	-0.36	-8.88	-3.96	7.85	2.87	-1.94	13.77	
	1.93	-30.57	-22.44	13.02	33.82	-1.96	-9.71	-10.78	17.95	9.34	-18.78	25.12	
	3.41	3.38	16.99	-8.16	19.66	-15.03	0.95	-11.65	8.42	3.93	-2.40	18.38	
	-3.87	0.91	-2.85	0.87	0.65	-21.47	-0.58	-4.65	2.05	6.44	0.80	16.89	
	-4.71	18.77	-0.63	-2.25	8.93	-5.19	-3.29	-8.27	1.95	2.68	-19.85	-1.55	
	11.57	7.63	10.20	2.27	2.85	-2.17	-3.88	-8.12	-1.20	6.64	-6.68	12.21	
	8.31	6.20	-15.37	24.31	-5.97	2.53	5.65	-2.78	-11.18	4.03	-0.83	5.32	
	21.97	-82.66	-10.74	49.87	23.35	-41.45	-1.07	-6.12	-60.61	-36.58	-1.08	-1.19	
	-6.16	-18.41	-11.74	28.31	-6.02	-18.16	-8.04	-15.28	-34.14	-10.68	-3.98	5.29	
	-23.48	9.04	-2.71	0.75	4.80	0.25	-30.53	-4.69	-6.90	2.17	4.74	10.40	
	-13.44	7.29	1.70	1.12	15.93	-4.65	2.88	-0.70	-1.76	3.15	-0.73	10.68	
	8.04	9.09	6.32	-0.79	-6.80	4.91	13.22	-0.28	-10.59	-3.94	-5.53	-3.93	
	-5.20	15.14	21.66	10.30	0.28	-1.63	-2.31	-4.81	9.54	-1.18	18.30	3.97	
	-14.17	37.25	10.02	6.67	11.14	-0.09	-25.92	4.55	4.78	-23.02	42.71	20.56	
	2.11	24.16	17.40	-7.14	22.72	-4.85	4.15	-5.72	11.13	-11.45	16.52	12.21	
	0.35	3.47	9.01	6.34	5.71	1.83	9.04	-0.65	-1.42	1.70	19.39	6.02	
	0.79	-5.41	3.53	10.84	-3.88	0.52	10.02	26.25	4.83	3.61	-5.41	11.46	
	12.45	-12.44	9.65	6.67	4.64	4.85	34.61	14.13	0.13	1.55	6.42	5.00	
	-5.99	-2.95	6.52	-9.92	6.68	10.72	-2.71	0.72	-4.87	-1.33	-35.56	28.79	
	-13.15	-23.04	8.55	-44.10	-8.10	-3.49	-45.59	-16.85	-21.68	13.53	17.85	-50.55	
	-11.19	26.75	0.51	-9.54	-17.51	1.53	-26.00	-5.57	-30.84	10.76	11.00	-3.99	
	-2.53	7.01	2.49	1.46	-7.05	-1.53	-13.68	2.53	-5.68	5.53	21.58	4.97	
	3.36	15.04	-15.63	-10.34	-1.25	5.61	-24.13	3.89	-0.56	-5.42	22.15	6.44	
	7.81	20.93	17.39	16.20	0.50	2.04	0.98	2.36	9.56	7.21	11.12	15.11	
	6.04	1.97	5.24	16.73	17.63	8.89	-8.67	1.92	2.32	-0.68	14.58	5.05	
	-18.67	12.77	1.42	49.11	45.03	-2.78	-3.36	8.33	8.23	9.96	-26.06	5.97	
	-16.91	-12.45	13.24	45.70	34.94	-5.91	4.42	13.24	-0.42	2.79	-47.18	5.59	
	1.43	-11.48	23.83	-56.38	-7.67	3.07	-3.42	-3.63	-14.75	8.04	5.75	3.03	
	5.33	-7.81	22.75	-28.90	-0.52	9.68	-5.11	9.79	0.68	-3.30	18.42	0.50	
	12.27	-3.92	12.61	16.98	-6.03	3.38	-11.70	0.87	-2.21	-2.27	2.39	5.76	
	5.89	-4.63	-1.69	2.50	-6.63	5.93	-8.59	5.46	3.11	-1.88	0.57	-2.59	
	35.67	5.03	1.06	16.93	0.89	-7.35	23.48	11.17	10.80	2.10	-3.67	-5.17	
	20.43	-5.36	-3.01	0.15	-9.31	1.09	2.65	0.72	3.37	-2.64	-1.10	-6.91	
	3.08	11.69	-3.99	-3.44	-11.44	-2.30	0.25	4.86	-10.71	-9.28	-0.05	-4.01	
	-19.76	-5.77	-9.45	-9.83	-9.17	0.24	-15.17	5.14	-1.27	-4.49	25.92	-4.46	
	-16.66	-5.14	-4.96	-1.48	-6.37	-4.28	-7.70	-6.87	-4.78	-2.91	-7.56	-14.09	
	-11.78	0.57	-1.55	-14.77	-1.34	-7.17	-3.64	-4.64	-3.31	-3.46	19.66	-11.55	
	0.71	25.65	0.77	-0.27	-12.83	-13.66	20.55	6.28	-7.24	-28.06	-7.45	-12.23	
	24.77	-8.87	7.76	3.66	-22.45	-12.72	4.74	-9.34	-10.85	-23.43	-16.45	-9.06	
	-19.39	-11.85	-0.03	-4.91	-22.20	-21.85	-5.73	0.26	-17.72	-9.86	-19.23	-19.69	
	-3.64	-10.59	-7.41	-7.16	-19.21	-12.93	-5.66	4.09	4.07	-14.08	-15.08	-23.11	
	-7.12	-16.15	-14.73	-1.50	-12.29	3.73	-14.51	-3.36	7.65	-15.73	-23.71	-51.96	
	-31.07	-6.28	-20.43	-7.36	-20.31	-9.68	-3.12	-3.16	-23.08	-4.52	-14.24	-44.31	
	24.03	1.14	4.04	-32.67	-21.98	-15.16	-11.18	1.54	-9.67	-0.43	12.04	-54.44	
	-21.82	-25.19	-7.24	-11.50	-8.19	-21.79	-0.55	-1.68	2.76	-6.77	-26.90	-27.19	
	14.11	-12.91	-4.50	-17.53	2.66	-3.04	0.36	1.66	3.46	-7.08	-52.62	-42.16	
	-1.37	-6.14	-12.18	5.26	1.69	8.06	9.85	1.66	-0.74	0.68	-14.29	-8.71	
	0.56	-11.03	-13.36	7.38	3.86	35.60	-1.75	-2.30	-16.37	2.50	-17.74	12.14	
	-9.09	-4.47	2.59	7.62	1.32	-10.75	12.58	1.59	-0.77	-0.74	-47.89	23.55	
	3.30	-18.92	-2.89	6.34	15.60	-19.80	8.01	-19.49	27.24	-5.75	-30.65	-3.33	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	46.58	-4.02	-2.33	9.52	10.19	-3.28	-19.00	2.77	27.48	2.15	-16.21	-1.42	
	-1.38	16.42	-16.91	9.25	-0.01	6.95	-15.87	6.97	25.11	-2.51	-11.71	1.57	
	21.52	7.48	-23.27	-9.88	5.96	3.48	41.93	-18.24	9.25	-13.94	-18.50	6.90	
	23.34	-2.85	-8.47	0.60	12.04	4.40	-2.19	-6.43	8.45	-11.02	19.60	5.94	
	0.36	-7.32	-1.35	5.57	-7.90	32.10	-3.76	11.16	5.33	-17.77	-16.95	0.03	
	-37.27	-76.44	-0.06	-0.01	-7.38	15.45	1.57	29.26	3.06	-32.32	4.68	2.80	
	4.72	-11.05	-17.96	-13.97	4.25	-5.16	-4.68	-5.16	-9.89	-14.43	-1.72	14.84	
	16.78	17.98	-1.03	-1.86	7.31	-9.47	-4.13	-9.25	-10.83	-3.92	1.56	4.67	
	13.47	13.91	1.38	-7.52	-1.44	0.21	1.19	10.60	-12.18	-2.60	11.37	-0.76	
	6.38	4.75	3.51	-9.24	-30.12	7.00	-1.07	9.47	-25.36	-8.14	2.26	0.35	
	11.47	31.95	0.70	-16.23	-32.82	-2.20	2.10	-0.50	-3.82	11.69	6.47	0.42	
	1.49	62.19	-8.36	-23.04	-9.71	-23.57	-8.11	27.96	8.75	14.79	14.17	15.01	
	13.03	11.89	-0.07	-30.13	-4.71	-6.32	-0.46	16.37	-5.43	2.99	2.71	12.76	
	-6.12	7.87	6.78	-29.69	-2.09	-0.55	8.61	15.05	-5.24	1.13	4.29	-0.04	
	-7.02	-1.69	18.11	-6.60	-7.73	-7.96	2.20	2.88	-0.70	9.12	2.76	-6.47	
	1.29	8.44	15.36	-9.36	-3.73	6.26	0.58	-14.46	8.46	5.23	5.93	0.27	
	-9.02	15.99	9.22	-2.51	-12.76	-7.24	-1.92	-11.82	0.77	16.57	11.40	-13.42	
	-68.94	-16.43	2.42	10.24	-10.40	13.28	-15.67	-6.64	15.28	-28.02	11.44	-84.76	
	-23.99	-3.94	12.70	13.29	16.31	-3.96	-5.38	-3.16	22.07	12.62	37.83	-20.56	
	3.69	12.67	15.42	1.53	9.49	-1.77	-19.09	11.72	7.56	19.34	14.90	5.82	
	16.84	21.91	9.10	8.47	7.00	-5.04	4.76	10.14	16.39	33.51	2.24	10.36	
	36.32	20.02	5.74	13.42	20.99	-1.16	4.35	5.52	20.63	23.96	-4.58	13.84	
	23.64	10.61	7.59	7.50	22.28	19.14	6.37	11.03	9.24	11.34	-8.19	26.21	
	14.27	-16.57	6.98	11.76	50.89	84.01	27.57	27.76	3.09	13.35	-2.72	15.87	
	15.77	0.05	12.40	5.16	21.45	34.07	11.40	58.72	11.35	27.11	9.33	22.41	
	8.53	10.90	5.01	11.03	22.62	29.26	18.41	-3.96	7.75	26.62	1.79	29.79	
	23.32	4.85	2.97	3.79	16.95	13.85	14.17	-14.83	17.18	29.11	17.48	16.04	
	13.83	16.91	18.25	23.95	33.61	20.14	16.58	-6.91	12.76	11.73	30.80	19.95	
	-2.45	23.34	14.80	-5.73	10.99	21.05	17.67	0.96	14.81	24.89	13.07	26.73	
	5.85	3.15	14.24	-11.69	-4.05	-6.53	13.46	-24.35	-4.89	-18.23	2.51	29.78	
	6.97	18.26	0.71	-35.40	-1.30	20.84	9.98	-0.59	4.22	1.24	7.22	12.28	
	10.09	5.65	4.18	-7.42	11.25	5.76	15.13	13.98	15.62	-0.17	5.48	19.18	
	6.24	21.55	24.20	16.10	23.94	24.43	36.67	12.98	17.53	13.52	18.03	13.36	
	17.59	27.06	0.99	16.52	43.46	10.45	13.16	13.86	13.65	18.69	9.57	9.20	
	24.71	15.61	14.93	64.67	12.31	16.68	20.40	3.79	-5.50	14.82	7.70	25.98	
	19.21	29.36	7.01	7.14	-33.20	16.33	13.83	-15.46	-17.31	2.13	9.57	24.31	
	-34.99	7.77	11.76	2.58	-13.38	10.66	21.27	-0.30	-5.03	5.93	18.73	8.86	
	14.40	19.93	15.62	-2.16	7.96	1.35	12.72	11.34	5.59	13.89	45.76	11.11	
	17.65	25.13	0.92	16.97	5.62	15.60	5.00	10.87	3.65	13.94	18.25	5.26	
	17.84	7.49	-4.96	-1.85	14.42	13.40	2.23	9.00	2.89	10.62	-3.16	2.91	
	-4.71	-21.22	-6.00	0.82	13.87	20.02	5.97	7.75	4.08	5.98	4.86	7.14	
	15.51	2.10	11.94	-0.38	-35.04	18.91	9.64	-5.32	0.41	5.59	3.11	9.10	
	6.30	17.42	8.91	1.65	-10.54	36.39	16.60	-5.92	3.42	1.78	16.33	11.09	
	14.26	14.67	-3.76	-33.31	10.32	2.86	14.58	19.63	5.71	1.76	21.72	11.46	
	1.50	16.81	-1.39	-15.05	1.33	-3.06	2.52	15.13	8.01	2.78	6.20	5.53	
	2.14	4.85	12.54	2.74	10.36	1.90	11.98	28.81	-7.77	5.88	-2.94	6.62	
	-4.67	5.63	-5.17	3.01	8.35	4.95	4.84	5.70	8.27	6.40	16.75	4.82	
	2.77	1.71	16.64	-9.21	22.86	3.62	-6.55	-6.95	-19.20	18.41	14.96	3.10	
	15.61	10.78	16.26	-13.16	17.55	5.20	-0.26	-7.12	-19.24	5.40	1.94	8.67	
	20.55	1.93	-8.20	-3.35	-1.98	6.83	-2.60	8.14	4.66	-3.96	-0.73	12.96	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-3.18	-5.04	-6.13	2.12	6.19	4.71	-11.51	-7.82	10.83	1.75	9.76	-0.22	
	2.39	-7.94	-4.52	5.19	-1.70	0.61	9.75	-8.60	0.94	1.69	4.77	11.06	
	19.15	13.82	-8.80	6.21	4.53	6.49	-1.47	-17.93	-13.11	0.47	2.73	12.14	
	29.74	11.00	-18.98	4.82	6.49	4.14	13.86	7.77	-2.79	-20.92	2.70	-3.55	
	25.74	6.91	0.64	3.38	-4.79	-0.78	47.95	-15.70	4.12	-4.63	-7.34	-1.76	
	0.72	2.60	1.38	-5.76	3.69	10.53	13.07	2.34	-0.90	-2.77	-1.03	4.24	
	6.67	-12.11	2.31	34.34	-1.54	5.03	-3.97	-4.23	-6.43	-3.98	-2.33	1.44	
	-3.38	5.72	-4.98	23.28	6.50	-1.71	-12.93	-3.48	2.08	-4.36	-2.98	15.50	
	-5.66	-1.11	-0.58	1.71	-5.93	-2.40	4.79	-1.03	-0.76	-4.25	-3.41	6.31	
	3.06	-29.70	-7.07	-12.32	27.33	-1.75	8.98	-1.77	-0.61	-1.54	-9.41	5.97	
	-13.22	-31.54	-1.66	-18.60	-2.20	10.42	-17.98	-0.46	2.83	-4.43	-13.91	2.93	
	3.86	-3.39	-0.28	-4.96	-1.41	5.21	-10.60	-8.84	-3.46	-7.06	3.28	0.62	
	-10.51	4.42	1.93	-13.41	-6.11	1.52	-9.61	-4.32	-5.87	-8.68	6.56	-6.97	
	-2.37	-2.85	3.76	-11.45	-2.44	-1.07	-2.42	24.21	-5.38	-6.37	7.21	-9.99	
	-10.90	-6.79	8.22	-12.94	-12.91	-14.02	2.21	21.76	1.87	-1.90	0.88	5.63	
	-26.54	-3.10	-6.72	-14.74	-3.92	-65.28	-8.62	19.58	8.51	-0.92	-3.15	-8.25	
	-20.38	-4.25	-12.54	-19.36	-14.67	-18.25	-7.56	-7.22	5.20	-3.88	-1.20	-26.98	
	-11.96	-19.71	-21.23	-8.57	-13.04	-2.92	-3.06	-9.26	0.39	-1.81	-4.86	-27.27	
	-18.01	0.12	2.46	-38.15	-32.92	-4.61	-17.96	5.13	-6.81	-18.40	-12.26	-8.15	
	-9.83	-3.76	-2.72	-17.44	-12.42	-5.05	-20.55	2.26	-14.55	-6.68	-6.21	-4.03	
	-9.11	17.62	-3.12	-9.64	-14.89	2.80	-6.95	1.15	-9.53	-2.64	-9.12	-13.99	
	-31.29	-16.14	-5.87	-23.20	-19.78	16.69	-7.09	7.90	8.50	2.26	-1.58	-43.04	
	-49.11	-6.93	-16.84	-50.76	-24.94	-10.15	-9.78	3.40	3.26	-4.37	-0.46	-8.14	
	-20.60	-7.12	-5.29	-27.78	-27.72	-10.27	-10.46	10.26	-33.46	-19.50	-0.17	-21.70	
	-27.30	-5.63	-10.07	-19.93	-28.18	-37.58	-18.05	-1.51	-43.03	-21.62	0.06	-52.97	
	-17.32	-7.10	-13.52	15.00	-20.25	-40.70	-19.01	-3.14	-17.86	-14.01	-0.01	-35.85	
	-26.99	3.41	-5.94	-3.24	-13.56	-42.54	-31.34	-12.76	-32.53	-13.11	0.49	-42.20	
	-16.59	17.12	-23.89	-1.93	-11.61	-13.38	-15.27	-35.35	-33.74	-29.70	-9.27	-51.72	
	-19.74	-36.79	-19.79	-17.92	-42.27	-9.26	-21.40	-23.38	-48.19	-36.19	-15.66	-43.39	
	-31.44	-35.88	-4.23	-23.23	-10.10	-17.53	-18.92	-33.45	-27.91	-16.79	-8.61	-57.16	
	-13.90	-16.14	-9.71	-18.93	-3.49	-9.10	-25.83	-19.45	-20.45	-4.40	-10.65	-9.97	
	-1.32	-12.72	-11.43	0.08	4.09	-16.47	-6.64	-31.10	-5.77	-5.26	-10.22	-7.00	
	-6.40	-24.11	-9.67	7.13	6.74	-1.26	-7.32	-9.25	-14.32	-23.59	-9.00	-10.86	
	-2.12	-20.70	-3.36	-12.54	-0.99	-12.32	-32.22	13.13	-19.91	-14.84	-11.08	-13.47	
	-4.25	-10.99	-16.64	-9.09	0.23	-22.76	-14.30	8.76	12.01	-2.61	-5.64	5.39	
	0.47	-8.62	-6.04	-69.45	3.49	-28.16	-16.14	-19.12	7.59	0.96	-13.91	-2.62	
	-4.58	-8.51	-8.05	24.84	-13.79	-35.81	-20.84	-22.62	1.32	3.22	-15.42	4.56	
	1.21	-4.10	-4.51	13.48	-15.27	-13.82	-3.15	-14.32	-3.30	3.46	-12.40	8.13	
	-0.79	22.28	-6.61	23.42	3.12	-1.74	0.11	-15.58	-1.42	21.77	-33.12	13.38	
	-6.79	11.71	-13.30	3.35	-0.32	0.72	19.63	-0.82	-0.19	-36.28	-20.95	39.98	
	0.85	4.60	-9.11	0.91	2.34	-22.15	8.87	-27.82	-5.08	-13.75	-5.15	11.53	
	8.62	8.02	-1.84	40.11	3.94	-23.99	-8.50	-25.35	-15.43	-0.40	-2.83	5.18	
	-2.91	-16.30	-13.61	14.74	3.80	-0.61	-7.83	-6.63	-58.76	-2.11	-8.83	1.15	
	-3.14	-13.74	16.06	4.38	-6.30	-1.63	-2.02	-10.78	-54.33	-4.90	-8.22	5.32	
	3.89	-5.58	8.98	4.95	-8.47	-6.99	3.82	-14.02	-9.88	-8.40	-6.73	0.41	
	-4.42	15.00	-7.72	-30.35	2.90	-0.44	-3.13	-47.26	-1.21	-31.07	-3.69	-22.11	
	2.07	2.68	-2.39	-3.32	36.32	-6.68	-8.04	-22.57	11.70	-11.60	-33.81	-5.81	
	-0.81	0.72	6.80	9.45	-35.83	-4.29	-13.24	-11.84	-7.99	-6.81	-12.36	3.84	
	-11.44	-4.90	-1.81	8.11	10.72	-3.17	0.55	-12.65	-1.45	2.96	-0.51	11.56	
	0.63	-0.53	4.01	0.11	5.55	-15.54	-9.10	0.04	-2.08	6.96	4.79	11.85	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	0.52	-4.53	1.71	-17.22	7.63	-28.52	-35.58	-12.41	6.49	12.49	-6.20	2.87	
	-2.84	-68.64	-3.75	-19.44	1.06	-29.51	-13.37	-47.46	-4.79	-0.76	0.42	13.17	
	1.33	-5.18	5.82	2.10	10.25	-9.21	-16.77	-19.62	-1.91	-3.63	1.77	10.03	
	4.14	10.05	4.64	-3.30	25.90	1.54	6.99	1.04	-4.57	-3.37	-4.64	3.36	
	1.20	-9.56	-1.18	3.53	15.58	-42.56	-13.20	4.01	-4.95	6.42	6.81	14.81	
	-2.05	-43.11	6.17	5.11	2.65	-8.00	7.66	15.83	-1.48	0.01	8.66	0.14	
	-0.93	11.44	-0.31	10.59	3.29	7.99	29.10	6.41	2.96	-3.12	-6.58	7.93	
	-2.20	42.92	-4.98	37.19	6.50	-11.76	-3.08	-5.08	-2.52	-18.74	0.41	0.57	
	-3.84	12.61	-4.35	-1.41	7.62	6.49	13.06	2.87	11.49	-8.13	7.27	-0.08	
	2.70	16.51	2.11	11.15	18.87	68.49	4.27	9.18	3.75	10.17	6.23	48.71	
	13.44	2.63	6.82	7.72	6.06	38.50	2.85	1.93	3.65	-3.17	-1.11	-2.03	
	6.73	7.38	6.27	14.57	0.22	16.01	11.28	-1.58	-0.77	1.40	4.18	-1.58	
	2.76	-0.14	-0.02	13.96	0.73	14.88	12.62	11.17	-2.90	9.94	-2.46	-5.01	
	14.39	-10.44	0.69	2.55	-3.75	2.25	35.56	42.89	-4.68	0.76	1.20	1.97	
	13.50	5.70	9.50	3.72	9.39	-8.47	35.34	8.48	-0.50	6.69	9.51	4.65	
	4.82	14.17	8.89	4.16	-2.44	-29.09	9.67	10.26	0.81	3.27	2.02	5.13	
	1.23	6.35	10.14	3.36	4.35	-0.76	4.61	6.79	4.36	-2.51	1.60	12.38	
	0.67	14.53	-1.09	-34.54	-2.29	-15.72	-0.34	-0.41	0.66	1.70	-2.36	11.35	
	7.86	7.83	11.41	-13.11	-1.07	-9.91	-2.37	-1.31	0.99	2.98	4.21	9.88	
	-1.33	17.35	1.49	6.28	-6.00	1.49	2.49	-0.90	4.56	5.66	27.47	4.90	
	11.38	18.26	-9.15	-4.69	1.80	-0.26	16.74	16.81	4.15	-10.55	10.50	-1.77	
	10.69	18.68	-4.45	5.97	1.44	-2.18	14.28	19.67	3.66	10.10	-3.60	-4.02	
	7.53	15.68	-2.49	-4.24	28.49	-1.58	-3.75	7.06	4.28	-1.31	0.62	-2.52	
	4.80	26.07	-1.84	6.48	1.00	4.43	-1.46	6.87	3.29	-2.87	9.59	-1.75	
	15.42	1.51	-5.52	20.78	1.37	-9.88	1.68	48.03	6.13	4.61	7.85	-1.43	
	47.97	0.26	-19.54	22.89	-2.40	-73.99	-4.58	12.70	44.34	1.90	-1.46	-3.95	
	19.21	-4.02	-25.60	-0.71	-3.30	-18.01	-10.17	5.32	11.43	-4.08	4.24	2.39	
	-11.22	-8.06	-11.95	13.62	-0.52	-12.92	-5.75	9.72	-3.77	4.22	21.71	-2.67	
	8.16	-6.06	-23.19	-13.25	-1.39	6.72	-26.19	-8.61	-0.93	-1.51	11.46	-0.63	
	-5.41	-10.04	-21.62	-18.75	5.78	-11.95	-6.51	-2.76	-10.17	-4.64	-9.29	-9.47	
	-9.55	0.24	-3.73	-11.83	-3.50	4.72	4.96	-1.19	3.08	-8.32	-0.65	-4.20	
	-7.07	-12.89	0.14	-31.52	-4.36	28.19	14.76	2.50	-4.09	26.54	6.93	-15.91	
	-12.69	-24.71	2.04	-17.87	7.17	5.18	9.68	-8.54	-8.91	18.74	18.23	-31.77	
	-25.83	-25.75	-3.29	-16.34	-0.54	-14.00	-10.81	-4.23	-0.89	-6.55	-0.53	-36.24	
	-19.63	-14.15	-0.46	-3.00	-18.47	-13.02	5.28	-2.27	7.09	-3.83	-15.93	-18.34	
	-9.17	-36.18	0.25	-3.60	-27.59	-7.52	4.34	-2.24	3.55	-15.68	-16.57	-17.52	
	-17.55	-17.56	-3.00	2.55	-22.37	22.17	0.07	-5.94	-0.98	2.52	-11.28	-38.42	
	22.45	2.53	-1.98	-8.15	27.12	111.38	-5.70	-2.99	0.62	0.47	-19.60	-35.78	
	-4.04	-31.93	-8.38	-1.95	8.82	-0.48	20.37	-6.17	8.00	-8.23	-13.59	-14.91	
	-19.70	14.66	-6.79	-20.16	-3.09	-8.47	21.18	0.01	5.32	-26.73	-16.52	-5.09	
	-1.99	-6.05	-17.77	-2.40	-8.54	9.99	2.81	-3.15	-2.38	-1.15	-42.84	-16.72	
	-10.14	23.63	-9.70	13.63	-5.02	35.09	11.01	-4.89	1.03	-4.00	-24.11	-2.40	
	1.91	-13.27	-5.27	-2.87	1.86	11.55	0.06	7.96	3.40	-0.72	-25.29	29.22	
	14.88	33.88	-5.04	11.42	-22.46	39.44	-1.47	52.59	9.82	-17.16	-33.23	5.20	
	12.27	7.27	-11.91	49.47	-11.89	12.79	7.00	17.48	18.85	-7.76	-32.53	11.52	
	15.41	-3.29	-15.22	31.34	33.40	20.08	17.34	-0.59	16.03	-0.10	-5.74	16.24	
	-11.50	15.72	-2.43	3.68	14.25	-7.73	37.87	1.31	11.61	-10.65	17.72	13.46	
	14.23	4.55	1.35	0.74	-1.20	-20.43	1.44	13.65	6.97	-16.40	13.67	-2.55	
	10.10	-6.39	6.52	-1.58	-4.72	-19.24	0.38	-1.05	1.51	-1.39	16.57	0.01	
	-44.31	-85.78	24.94	8.30	3.65	-23.17	-11.13	-5.91	-1.06	4.56	14.81	29.89	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-16.67	-28.26	7.22	-14.19	-10.43	13.03	-34.43	1.47	0.11	-5.82	16.76	-9.24	
	1.80	-9.04	8.44	0.76	-16.57	24.46	-52.29	2.10	-12.86	-3.03	29.92	7.03	
	2.47	0.00	9.54	14.27	-4.53	11.98	35.37	2.31	-6.46	2.24	8.08	0.95	
	6.44	9.11	11.32	6.56	2.79	7.59	8.82	4.39	-11.65	11.61	5.53	2.87	
	-1.88	8.20	5.14	-12.19	-12.43	1.75	-7.23	1.92	-27.08	8.25	12.42	-2.07	
	5.36	4.43	8.96	-18.50	-8.08	-13.04	-26.96	-4.06	-39.74	19.68	28.89	-12.78	
	12.58	1.80	12.58	-13.51	-22.22	-19.32	-27.67	1.52	-17.74	8.11	14.53	0.40	
	6.26	-14.63	31.63	-3.24	3.94	-13.93	-14.99	-5.46	6.03	1.29	-13.70	5.99	
	22.40	12.93	29.02	5.10	-24.33	-8.61	-11.28	-2.29	13.01	13.67	9.10	15.02	
	-6.08	0.73	11.37	4.86	-29.12	-2.44	3.51	-4.77	12.50	10.35	13.89	9.58	
	5.98	-19.05	12.58	-21.58	24.62	6.49	-8.03	-12.38	6.53	9.06	8.29	16.02	
	-41.07	-21.09	24.13	-31.19	32.56	-0.85	-7.21	-10.94	7.80	17.96	7.40	22.03	
	-12.16	-4.26	17.00	13.07	22.00	2.72	-8.19	-7.31	40.58	30.05	6.89	-8.95	
	16.72	6.93	18.26	22.13	9.18	4.77	8.76	-6.24	11.27	11.04	3.26	21.40	
	25.94	35.80	12.57	16.57	-3.09	15.81	-0.80	29.59	22.47	9.32	2.31	16.48	
	35.58	-32.06	30.03	22.14	32.66	1.60	46.10	5.10	24.24	7.09	4.55	17.77	
	-5.18	-7.53	17.22	10.37	40.12	-8.96	18.78	2.22	28.93	16.29	13.82	15.47	
	7.55	14.02	24.29	37.04	25.74	-37.72	39.67	-3.14	7.75	13.62	13.34	-5.48	
	19.01	9.01	50.98	14.18	31.17	1.42	18.31	7.51	19.95	42.50	4.69	2.63	
	7.08	10.37	5.29	23.71	-6.63	8.97	6.56	46.86	24.38	15.80	3.70	30.80	
	33.04	16.70	2.94	61.63	37.01	30.22	25.13	13.49	28.97	29.61	17.73	27.03	
	12.41	11.80	4.65	29.87	8.93	14.44	26.49	-12.25	16.63	13.59	15.63	10.81	
	1.07	26.72	16.69	17.97	8.43	7.17	15.73	-2.85	27.68	2.18	22.36	29.12	
	0.26	5.73	7.36	13.55	-7.73	-7.24	-2.82	0.28	23.71	2.08	3.99	-31.01	
	20.52	-10.55	11.29	4.48	-5.91	10.97	0.86	-6.21	53.06	15.67	0.70	-16.18	
	11.29	19.03	6.14	14.09	7.82	15.17	22.82	10.81	11.17	11.12	16.96	16.41	
	28.08	18.44	14.53	21.57	12.27	10.30	42.19	-0.31	16.89	18.95	26.18	13.62	
	-9.48	7.93	-0.29	19.45	10.66	24.60	34.42	16.99	13.70	10.79	25.91	11.29	
	17.97	15.86	-3.37	9.29	6.51	8.00	23.06	13.73	14.94	25.59	14.50	22.45	
	1.86	14.42	-10.94	8.97	-31.20	19.84	-13.34	14.30	22.92	19.22	9.43	23.50	
	-7.34	8.22	16.49	3.36	-12.40	15.28	15.77	8.64	16.24	9.38	13.52	-5.86	
	12.74	16.81	20.00	-12.91	15.12	5.30	-13.35	30.84	12.45	1.82	23.22	2.98	
	19.92	10.21	2.45	15.81	8.45	4.69	13.73	12.67	5.90	18.44	7.31	8.69	
	7.06	10.43	6.99	13.39	10.65	21.14	15.34	3.26	8.67	29.09	2.93	10.81	
	2.99	41.20	7.44	3.33	7.61	19.40	10.08	18.18	4.29	4.81	-1.90	20.30	
	-10.88	25.78	-0.86	1.19	-7.69	39.89	1.04	2.64	-7.83	3.10	8.31	23.23	
	6.91	-2.26	5.29	-26.14	-1.39	18.43	1.67	4.10	-5.88	0.34	5.96	15.03	
	2.95	3.66	-0.18	-9.65	4.92	7.72	7.08	8.63	-2.23	3.00	25.89	33.86	
	-3.90	3.94	1.95	8.51	11.95	17.94	2.96	5.80	-0.93	-2.93	42.99	27.28	
	5.24	12.76	-0.74	11.74	19.19	-1.21	-0.48	8.97	16.46	2.79	37.94	7.01	
	0.08	1.48	-4.15	16.90	43.90	4.02	8.40	3.63	6.35	1.48	20.12	13.55	
	6.38	0.71	5.01	23.60	21.25	-0.35	4.34	-2.65	13.58	3.83	-1.92	5.31	
	2.39	5.44	-2.94	12.70	14.43	9.88	-5.06	4.32	2.82	-2.62	5.03	4.15	
	1.53	5.74	-5.36	4.13	20.56	9.90	7.59	9.99	-0.93	9.35	-0.11	2.62	
	-3.22	-6.54	-11.27	0.12	2.48	0.35	11.70	10.74	4.74	9.50	-0.29	41.13	
	3.52	-7.40	-3.21	-2.42	5.93	2.98	4.58	5.00	0.49	5.21	1.18	8.95	
	-4.06	-5.37	-5.40	5.47	6.91	-1.63	0.33	1.94	0.22	-1.56	-5.23	-12.99	
	4.87	20.20	-6.85	10.99	4.85	-3.68	-3.34	2.93	-3.11	5.42	-15.02	5.39	
	-0.62	11.60	-9.30	12.32	0.99	-2.84	-7.50	1.59	-5.23	-4.01	-14.05	-11.52	
	4.75	2.65	-1.29	17.78	-1.20	15.36	1.95	3.88	2.13	5.38	5.83	-13.27	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-11.88	0.89	-12.47	12.11	0.37	10.33	29.51	5.39	2.79	4.03	12.27	3.15	
	9.40	-4.02	-16.12	21.31	-3.26	13.44	31.14	4.96	1.22	3.21	9.39	-11.12	
	-4.36	-1.90	-12.19	-6.50	3.38	6.38	-6.59	4.02	0.42	2.22	-2.10	-8.19	
	1.36	-11.44	-3.55	-3.57	-1.29	4.56	6.69	1.32	1.48	-2.51	1.39	-3.08	
	-2.75	-5.27	-11.55	-0.54	-19.76	-2.53	-5.15	1.57	-3.62	-4.88	2.39	3.21	
	0.19	0.32	-25.19	-6.81	-39.32	-5.87	-8.44	0.28	-2.02	2.98	-1.10	0.04	
	-6.33	-7.02	-1.83	-2.03	-0.12	-3.78	0.42	2.44	-6.82	5.42	0.65	1.63	
	-12.13	-5.00	-16.90	-2.27	10.21	4.74	-8.81	-2.24	8.53	-5.39	0.35	-4.28	
	2.28	-14.73	-23.44	0.30	-9.97	-1.57	-2.85	-2.11	2.41	-1.13	0.52	-5.54	
	-22.57	-13.87	-37.86	-7.36	-11.96	6.46	8.32	1.38	-1.99	-1.15	-5.61	-10.98	
	-4.70	-13.95	-36.42	-13.24	-6.23	-3.59	12.40	-2.94	-8.21	2.62	6.63	-13.97	
	-5.87	0.42	-12.53	-4.41	3.32	4.99	-3.35	-2.38	-6.09	3.07	1.92	-16.93	
	-25.79	-34.52	-20.44	-4.53	-1.86	-5.51	-24.91	0.48	-4.65	-7.15	1.59	-27.30	
	-17.49	-18.92	-24.72	-5.75	2.45	-2.90	-27.93	-0.01	-10.32	-11.71	1.06	-23.34	
	-21.31	-12.23	-44.01	-30.30	0.13	-8.34	-39.22	0.74	-13.13	-12.02	-2.29	-26.68	
	-41.86	-17.52	-19.71	-30.06	-10.39	0.05	-25.58	4.86	-16.41	-51.20	0.32	-41.94	
	-17.08	-16.31	-33.98	-15.53	-5.67	0.22	-16.55	3.70	-21.07	-16.88	-1.22	-48.24	
	-36.95	-11.41	-21.39	-14.64	4.80	-6.73	1.81	2.79	-35.80	-17.05	0.57	-28.42	
	-35.00	-32.95	-3.76	-33.64	-11.06	-25.73	-20.27	0.06	-13.04	-45.05	-0.22	-17.67	
	-34.75	-34.35	-21.66	-29.20	-19.61	-34.65	-19.75	8.37	-37.06	-17.27	2.85	-21.99	
	-24.03	-21.29	-10.49	-16.84	-18.51	-11.63	-13.22	-3.12	-28.18	-14.78	-5.36	-64.68	
	-21.44	20.68	-11.35	10.27	-9.12	6.77	-16.96	-0.85	-2.07	-25.39	-12.19	-38.70	
	-24.60	9.36	-17.98	-26.71	-47.86	-17.22	-16.41	0.64	1.20	-33.58	-13.20	-19.27	
	-31.30	-14.69	-8.35	-13.41	-9.26	-18.67	15.09	-20.93	-8.24	-47.26	-15.84	-34.21	
	-12.53	-18.09	-13.01	-14.77	-11.55	-26.18	18.17	-26.54	-13.58	-17.92	-28.01	-33.88	
	-7.17	-14.41	-18.26	25.87	-34.53	-14.59	-1.43	-16.69	-18.98	-13.64	-40.42	-10.06	
	10.66	-11.19	-9.54	-12.27	-16.75	-4.70	2.13	-12.10	-26.56	11.46	-26.72	-21.16	
	8.23	-2.52	-7.20	-12.34	-12.61	-18.33	-4.04	-15.42	-40.59	19.78	-47.97	-15.63	
	-48.58	4.58	2.40	-9.28	-15.29	-18.22	-12.62	-29.05	-25.55	3.97	-27.86	-1.16	
	-5.34	11.85	-13.13	-2.09	-13.95	-7.97	-12.90	-30.37	-2.16	10.53	-1.14	-3.44	
	7.90	12.67	-28.89	-36.88	-4.79	-3.89	-15.52	-14.25	1.92	-31.25	-8.98	-1.48	
	6.14	9.17	7.14	-29.44	-33.43	0.95	-10.66	-12.14	0.62	14.23	-16.67	6.77	
	7.85	-26.99	12.18	-7.23	-21.44	-0.27	-4.55	-14.75	-3.31	2.86	-16.32	2.44	
	73.24	-2.02	2.98	3.21	-8.60	-17.44	-21.90	-33.12	-1.53	-9.08	-6.61	-3.56	
	12.50	9.06	8.69	-2.87	-8.67	-3.38	3.55	-12.83	3.07	0.57	-7.34	-2.00	
	9.23	3.81	-0.67	-0.82	-2.25	-1.57	3.77	-11.53	23.36	-0.80	-5.25	-2.91	
	6.93	4.26	-3.94	5.57	-5.93	-2.44	-9.16	-11.61	7.98	-1.18	-9.89	-7.93	
	-7.56	0.89	0.64	3.27	-15.36	6.82	-6.29	-17.96	3.55	1.91	-0.27	2.99	
	10.83	5.01	2.35	-22.19	-4.14	-13.13	2.23	-14.79	-6.33	-0.79	11.81	3.80	
	2.85	-4.94	-7.83	-24.94	-0.76	-58.35	6.43	-13.36	-5.14	-9.35	-2.74	66.50	
	14.64	-3.84	-6.36	-0.16	-5.28	-16.38	3.57	-3.04	33.82	-7.35	4.31	26.21	
	-7.22	9.38	-2.64	-0.30	2.65	-17.53	-12.97	-27.38	6.89	3.43	7.02	12.20	
	7.74	2.46	0.49	0.06	-11.31	-7.76	-14.19	4.36	-8.03	-9.87	5.16	0.87	
	2.96	-3.39	-10.96	1.32	-2.81	14.91	4.76	1.22	1.63	-5.54	2.52	8.60	
	-0.74	1.70	4.52	-2.63	3.39	20.95	-1.67	-16.49	-1.60	0.78	0.12	16.65	
	-4.43	1.93	-16.87	0.44	-40.88	50.07	-31.70	-4.43	4.07	-14.94	-5.53	51.80	
	-2.22	11.48	-8.07	1.66	-3.10	28.28	-8.46	-1.32	-8.74	-15.99	3.18	14.93	
	2.34	24.97	19.97	4.37	-10.05	-1.33	-8.67	-0.16	-4.67	-2.79	5.22	12.30	
	-4.95	18.89	4.35	5.09	-4.32	2.37	1.23	-2.26	-3.03	-5.07	5.98	10.20	
	-0.55	-4.25	-0.42	40.53	-6.55	12.86	-0.31	2.98	2.04	-4.20	19.05	8.88	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-5.97	-17.03	1.12	5.04	0.42	9.58	6.14	-0.29	-3.30	1.67	-6.48	1.58	
	-38.20	-22.40	-3.21	-4.09	8.13	0.46	-6.11	-7.61	-27.04	4.81	-1.29	6.22	
	-13.12	-13.51	-0.59	4.02	34.83	-3.93	0.45	6.75	1.38	0.37	-14.99	-7.28	
	8.75	14.68	4.36	3.45	18.37	-3.44	13.05	-9.07	8.31	-2.44	4.45	2.70	
	3.23	13.60	4.93	13.78	3.66	-15.52	7.01	-0.24	-6.61	-7.11	-6.76	0.85	
	4.38	18.36	8.74	1.84	10.13	-35.59	-4.04	10.93	4.53	-0.79	-3.82	-1.55	
	3.80	-3.70	-3.99	-9.22	9.33	-5.14	-6.21	4.41	19.28	3.08	0.77	2.28	
	-26.25	40.98	4.73	-5.14	49.15	27.43	7.03	0.74	63.82	-9.30	1.73	14.03	
	-13.07	21.39	9.86	1.94	27.23	-24.70	18.45	-0.03	-1.04	-7.03	2.90	-2.69	
	8.41	6.78	2.94	7.65	8.11	8.00	-8.99	5.55	2.82	0.18	5.25	-11.49	
	3.36	5.62	5.21	10.06	8.43	1.51	-2.44	22.79	-6.15	-1.26	4.21	2.35	
	4.10	6.46	5.70	1.53	-16.45	-7.64	-4.87	3.72	-2.77	-1.25	2.79	10.97	
	5.77	8.80	-12.06	13.66	-14.04	4.00	-26.62	7.34	-8.73	6.38	1.00	-4.42	
	-3.64	3.24	9.24	7.86	3.32	-1.37	-13.03	-1.99	-9.02	45.94	16.11	-5.62	
	-0.30	7.07	4.35	1.89	3.37	-2.51	0.29	-7.56	1.67	8.76	13.07	-0.13	
	-2.35	0.64	5.60	-7.91	1.03	7.35	-6.10	3.76	-8.24	0.90	-4.85	-0.52	
	-2.79	-3.24	1.52	-19.90	-3.18	-0.89	0.94	6.99	-2.92	-3.96	-0.49	8.24	
	3.03	-40.17	-7.47	-1.15	11.08	2.99	16.23	5.30	-3.57	3.82	4.28	-26.85	
	-2.14	10.72	-9.52	-2.43	8.51	-7.75	27.33	8.85	-11.17	5.09	2.21	-2.30	
	-2.89	-1.07	-13.25	7.02	-0.77	-4.59	6.86	10.51	-6.43	2.97	1.13	-9.31	
	-7.59	4.84	-7.38	11.68	-7.19	-6.53	-27.69	-2.38	0.67	-11.59	11.13	-5.15	
	-42.84	-2.62	-5.76	-16.81	-2.16	-10.88	-30.75	-14.50	-7.36	-3.94	11.33	-0.82	
	-8.56	1.97	-2.32	-7.87	-2.20	-12.98	-5.95	-3.16	-13.66	-2.70	-4.24	-0.38	
	-6.22	5.59	-6.13	-2.71	-1.30	-4.37	24.45	-1.67	-9.00	-6.55	-2.07	-24.08	
	-9.82	-26.54	-2.84	-2.26	-3.29	5.38	2.82	-7.97	-10.86	-9.29	3.80	-51.33	
	19.82	-30.47	5.92	4.32	-0.52	-27.29	-3.90	-5.81	-12.49	-2.91	5.23	-59.45	
	9.08	-4.77	-9.15	-38.60	0.08	-26.32	-9.66	-0.60	-9.64	13.82	-2.85	-35.08	
	-15.54	19.75	-20.85	-1.94	0.19	22.12	-5.55	-1.30	-4.39	5.16	-22.59	-39.43	
	-5.35	2.92	-8.67	-8.48	-9.47	2.07	-1.87	-11.83	-0.19	-13.50	-5.63	-30.60	
	-4.32	-13.68	0.69	-1.30	-5.86	7.38	-5.14	-12.24	1.58	-12.05	-1.54	-45.66	
	-11.64	-6.17	-0.21	-11.49	-8.81	-7.04	0.03	-21.88	4.73	-7.11	-6.10	-27.96	
	66.15	-3.98	-1.12	-11.77	-4.66	-30.82	-7.55	1.77	1.23	3.47	-16.58	-9.73	
	0.54	-4.53	3.30	-5.73	20.23	-26.45	-3.33	5.36	-0.86	-0.22	-12.96	-15.48	
	-18.39	-9.58	3.74	-0.44	8.91	3.40	9.76	1.67	-5.41	-18.44	-15.88	-13.95	
	-8.64	-9.45	4.68	0.58	5.10	-0.96	5.45	3.72	-8.29	-0.59	-16.69	8.72	
	0.51	-20.55	-14.46	3.70	1.68	3.33	-4.07	-3.26	-4.28	0.84	-27.35	28.02	
	5.93	-0.82	-1.78	13.64	2.14	-9.27	11.61	9.20	11.87	7.54	-47.34	28.89	
	13.08	2.90	-5.71	6.41	-3.61	-26.59	-35.99	-1.43	17.19	1.03	-4.05	33.28	
	9.25	-8.12	-19.02	7.01	0.85	-3.51	-5.13	-1.10	16.00	3.95	-5.60	-10.97	
	19.24	0.03	-15.47	13.90	7.53	2.71	14.17	-1.98	10.29	6.28	-13.31	-1.30	
	3.39	4.12	-8.06	29.50	0.04	-1.25	1.98	-2.28	5.10	-9.49	-7.95	-3.40	
	5.65	6.56	-8.67	-0.03	7.83	-2.14	-2.53	-12.99	2.60	6.06	-4.44	-1.42	
	2.31	5.14	-11.32	-19.43	-3.19	5.00	14.56	-13.34	6.14	6.85	2.10	9.66	
	9.17	-3.42	2.30	29.32	1.60	13.21	10.49	-16.95	1.34	9.30	9.28	7.99	
	5.86	0.07	-6.47	-10.33	-1.31	-6.50	-15.94	13.99	2.61	-11.83	13.59	0.48	
	10.48	2.49	2.45	12.38	3.58	-2.75	-7.20	-4.11	8.74	2.16	32.42	6.59	
	10.71	3.18	8.43	17.27	2.87	-1.38	8.65	-2.91	-1.72	9.68	2.46	3.06	
	11.21	8.88	-4.94	-10.48	-0.87	6.44	-4.12	8.28	-16.08	10.61	16.29	14.35	
	4.39	13.47	11.28	-16.37	-3.84	4.16	-4.45	-10.28	-26.92	8.84	-12.46	-2.67	
	11.92	12.47	3.35	-18.98	-7.00	1.65	5.94	-0.23	-76.00	-0.86	16.88	52.06	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	4.90	-0.43	14.94	-15.03	-8.98	-7.32	-8.08	-5.20	-17.36	6.91	4.32	3.36	
	-0.94	10.65	10.77	-19.90	-6.52	2.76	-5.27	-5.15	4.23	5.40	6.16	2.69	
	7.44	12.97	12.50	-22.97	-12.76	-0.83	11.05	-18.10	13.45	-2.42	3.37	8.18	
	20.05	11.67	4.72	-26.22	14.83	-5.31	23.88	-16.23	9.65	28.39	-5.09	11.96	
	1.24	28.47	9.51	-9.23	-26.08	-3.95	-26.56	-49.98	10.88	17.58	16.86	3.50	
	-54.62	17.88	30.94	-31.49	-8.67	-81.02	-15.32	-5.75	28.69	-37.30	9.87	13.13	
	-14.68	14.44	15.71	-16.58	-33.57	-18.66	-1.83	8.91	4.94	-6.20	1.93	30.01	
	16.41	43.49	3.64	8.09	6.07	13.04	3.12	6.41	5.58	16.93	14.97	10.29	
	7.19	-12.14	15.33	13.75	19.15	8.89	7.06	4.21	13.13	20.63	8.91	17.62	
	-7.91	3.55	10.10	11.29	10.58	9.40	-9.43	14.11	9.96	4.86	17.12	4.95	
	9.26	10.87	12.84	68.02	16.09	30.55	-4.17	30.59	12.33	8.12	0.30	-0.89	
	-15.51	-19.66	12.22	-5.30	-11.99	69.97	18.98	43.90	31.31	11.65	8.15	-24.45	
	-5.17	13.23	-1.88	9.37	-6.74	34.82	12.97	16.74	13.67	36.71	17.63	22.33	
	2.69	11.71	19.26	8.49	6.97	25.01	2.86	-0.37	12.07	28.36	15.21	28.44	
	34.27	5.43	18.11	34.41	22.03	13.68	36.07	30.09	15.73	6.42	1.57	32.72	
	7.14	7.81	16.73	33.43	20.50	11.82	10.61	16.24	46.67	8.62	5.25	6.51	
	3.87	7.44	7.19	21.84	-1.49	28.09	9.66	13.51	19.85	12.76	19.33	20.47	
	1.59	-6.42	-1.12	15.75	18.71	26.20	7.54	-8.95	-0.95	58.84	23.49	-62.47	
	-7.21	-45.39	-12.16	5.34	18.05	19.12	11.50	-5.73	4.50	21.01	7.79	-10.32	
	8.78	9.42	5.27	20.35	10.60	14.20	22.23	12.26	16.07	-24.14	8.47	27.34	
	22.79	26.11	4.48	28.87	11.70	10.69	10.83	18.30	18.50	1.04	6.26	21.80	
	4.34	6.65	9.68	25.14	13.09	26.46	9.66	10.29	9.17	10.15	16.42	11.60	
	4.36	-8.00	10.25	27.23	7.67	12.38	4.06	9.30	20.86	51.59	10.06	5.18	
	-9.17	5.24	0.66	23.13	42.63	-37.27	46.00	17.40	-1.24	3.56	-5.40	-18.91	
	0.19	-7.84	3.43	0.72	4.79	-15.99	11.92	37.17	10.00	11.11	-11.65	-7.60	
	20.94	-2.00	8.41	-1.49	11.46	10.01	6.22	-12.27	13.75	32.70	20.87	10.33	
	6.05	6.83	21.35	15.67	21.09	28.00	-4.93	-0.43	10.37	33.24	19.24	11.06	
	-14.50	0.64	4.48	8.54	6.10	-0.10	-1.84	18.42	3.25	3.63	5.09	17.35	
	7.95	-11.30	-8.88	13.53	7.40	4.77	2.87	-1.31	8.63	6.59	0.74	7.35	
	9.87	1.10	6.63	24.22	0.75	47.95	22.56	2.16	-5.94	6.68	-14.69	-0.43	
	4.85	30.37	1.31	19.90	5.55	17.31	10.08	10.64	-15.85	3.90	0.36	5.68	
	5.51	36.63	5.87	8.26	7.31	7.26	-1.85	-3.21	8.46	8.90	1.90	12.07	
	9.86	-12.82	-5.27	7.49	5.76	13.02	5.85	-0.30	-0.20	6.24	-0.66	-4.55	
	6.37	5.25	7.18	-2.95	7.59	14.59	14.22	7.04	6.29	2.43	3.93	20.10	
	8.05	25.60	-2.23	-0.79	3.34	-25.81	12.40	3.06	3.04	6.00	3.03	4.50	
	9.53	-11.65	1.38	4.26	3.70	-27.87	9.70	16.61	4.47	4.29	-12.68	42.72	
	7.30	4.30	-1.60	12.22	-0.16	-4.39	19.17	0.75	-6.97	6.11	-9.70	28.55	
	2.36	0.90	-0.31	3.99	0.92	10.34	39.35	-3.41	-2.84	4.94	-1.40	1.58	
	-1.84	4.91	0.22	-0.34	3.46	3.94	7.90	3.78	-0.40	14.03	-0.48	4.51	
	0.31	-1.22	-5.73	0.15	-2.76	-0.61	5.29	7.48	1.75	6.78	5.61	11.82	
	0.35	5.47	-5.72	8.06	18.37	-8.42	-5.63	1.04	4.74	31.09	11.72	-1.89	
	4.65	28.50	-3.67	7.45	3.88	-2.29	-3.75	1.02	0.38	-1.24	7.53	14.40	
	1.08	30.35	-8.89	0.37	-0.35	3.78	-0.59	-1.26	3.36	6.42	3.92	10.81	
	4.12	9.07	-2.42	-8.36	6.44	3.01	3.25	2.74	-0.22	2.45	7.74	-0.23	
	2.97	-1.64	-2.68	-8.25	3.61	5.28	-1.55	-0.68	-1.03	-1.04	17.95	2.20	
	-0.26	-5.26	-7.19	-4.39	16.87	8.97	7.44	-10.77	-0.74	-0.91	10.36	13.76	
	-3.00	-1.26	-7.50	-11.77	16.54	-2.49	-2.91	4.51	-3.64	2.01	3.51	9.13	
	-1.94	9.03	-8.67	-3.69	-0.16	-1.89	-1.67	-2.86	-4.72	-0.36	4.61	11.70	
	4.34	6.33	-6.76	-13.07	-8.01	0.83	-3.59	-3.48	2.70	0.39	-11.66	23.08	
	-0.40	11.21	-26.66	-8.46	-3.85	-5.97	3.02	-0.42	-1.30	0.44	6.62	-3.79	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-1.06	-0.57	-17.17	-2.42	0.89	-4.06	0.12	0.29	-0.68	3.38	4.92	-2.58	
	-0.41	5.45	-16.54	-9.71	5.69	-5.90	5.13	0.71	-3.09	-4.21	3.83	-3.91	
	2.31	-3.02	-16.50	1.58	-1.91	-0.44	-3.54	3.42	-4.61	-0.14	1.38	-25.16	
	12.32	-6.87	-43.50	-0.53	-20.52	-3.54	-9.71	1.15	-3.37	-0.17	1.37	-15.33	
	2.75	-9.11	-22.96	-5.51	-47.56	-1.03	-4.45	-0.24	-7.90	0.88	-2.88	-28.19	
	-2.52	-7.22	-14.52	-36.50	-6.10	-5.62	-14.49	-7.68	-12.29	-3.13	-0.01	-19.06	
	-2.89	-0.55	-31.39	-48.74	6.54	-8.63	-4.69	-7.23	-22.19	0.40	-2.77	-14.39	
	-6.12	-0.73	-27.63	-20.08	26.14	-17.61	-3.84	-11.09	-2.04	-0.97	-5.15	-10.77	
	-3.87	-4.46	-37.46	-10.95	20.91	-25.64	-14.82	-2.50	-5.50	-2.90	0.07	-14.02	
	6.69	-24.71	-19.47	-12.90	-38.10	-6.64	-28.92	4.09	-14.54	-5.70	14.67	-25.85	
	-1.74	-33.60	-1.00	-42.90	12.09	-18.28	-18.96	-11.18	-62.97	-11.57	6.11	-48.91	
	-9.13	-53.61	-22.58	6.74	-17.36	-23.99	-25.58	-6.60	-42.24	-7.77	-14.25	-26.23	
	-15.09	-52.96	-17.76	-31.06	-4.83	-13.82	-10.35	-12.91	-7.82	-0.88	-6.34	-27.67	
	-5.93	-30.16	-7.45	-14.68	-13.43	-44.27	-7.78	-27.21	-16.14	-15.19	3.78	-10.30	
	-2.07	-22.84	-3.39	-24.49	-10.15	-12.78	-12.22	-34.13	-25.55	-6.99	-10.98	-15.46	
	14.46	-23.69	-10.90	-27.76	-15.45	-7.62	-42.06	-4.76	-22.38	-16.46	0.14	25.20	
	-10.63	-17.19	-4.25	-21.03	-6.68	-18.43	-16.90	-12.52	-38.83	-13.99	-3.33	12.70	
	3.48	-18.35	8.19	-15.97	-22.91	-25.90	-27.51	-17.06	-51.65	-5.49	-18.65	-12.39	
	-35.25	-4.20	3.33	-17.16	-14.70	-23.14	-12.39	-6.93	0.86	-20.17	-21.93	-20.30	
	-17.83	-11.21	9.12	-16.49	-11.30	-16.85	-17.91	-0.98	-7.48	-12.05	-47.18	-8.54	
	-49.47	-2.56	5.70	-13.30	-13.34	-4.37	1.01	-0.34	-10.61	-13.08	-10.26	-17.87	
	-19.02	-13.05	2.78	-5.46	38.48	-8.11	-20.54	4.50	-8.28	-26.64	-22.05	-15.82	
	-43.51	-5.59	12.65	-14.85	0.18	-9.09	-13.57	-0.64	-27.11	-15.87	-31.75	3.73	
	-42.40	-1.93	4.04	-13.90	-12.69	-32.00	-12.98	-6.28	-10.60	-10.53	-22.93	12.38	
	-17.96	-2.83	7.22	0.28	-25.26	39.20	-11.37	-34.76	-4.21	-1.98	-32.15	15.22	
	-19.86	-4.42	10.54	-3.98	14.67	-0.02	-3.16	-7.94	-7.51	-5.11	-18.03	-11.48	
	2.24	-2.43	18.19	9.06	-10.86	1.92	2.53	-1.97	-0.27	-22.61	9.12	3.23	
	4.22	-35.78	7.64	-4.66	-17.33	-4.14	-11.56	-2.79	61.07	-40.43	11.02	-5.44	
	-7.12	-18.09	6.63	-1.53	-19.93	-3.80	18.18	-11.33	28.67	-8.28	0.12	4.50	
	-8.73	-6.85	3.95	15.57	-11.94	-5.36	7.04	-7.75	-5.38	-18.26	3.94	7.43	
	7.54	8.07	12.69	-2.14	-20.94	-8.46	-3.93	-9.25	-7.56	-17.40	-0.25	4.06	
	-4.72	-1.19	0.91	-6.63	-16.31	-0.22	5.15	-7.96	-1.83	-7.99	-1.76	17.76	
	0.43	0.20	1.60	5.64	-2.51	-12.10	-2.82	-19.24	-1.67	-7.02	-21.66	1.51	
	7.15	10.14	6.55	-3.13	-14.74	-44.70	-14.19	-24.86	17.55	25.94	-12.62	-22.63	
	3.09	9.93	4.26	-3.08	-16.31	-9.66	-19.43	-23.05	52.95	5.66	6.25	-33.07	
	8.05	9.48	1.27	-8.81	-1.72	3.15	-9.55	0.14	21.70	-2.60	7.09	9.08	
	4.88	7.49	9.49	4.13	0.05	-4.73	-13.70	-8.18	-12.68	-5.34	-0.24	17.14	
	-2.01	-5.10	8.79	-13.06	-0.42	3.21	-14.32	1.59	-10.24	-10.50	10.70	19.37	
	-3.15	5.91	0.51	9.82	-8.81	-3.70	-0.47	-9.55	-15.14	18.29	-1.26	10.37	
	-26.80	32.75	-2.17	0.88	-55.45	25.93	-2.43	-63.93	41.72	1.01	11.34	-43.99	
	-2.93	12.29	1.24	-4.57	-30.35	24.41	-1.62	-19.78	34.08	3.16	0.51	-11.95	
	-5.64	-4.85	9.77	8.28	-0.94	-6.08	3.11	-0.01	-1.21	1.68	-7.27	11.66	
	-2.14	5.78	-0.26	2.67	9.55	-2.76	-13.63	18.34	-8.67	0.04	0.85	9.36	
	-0.75	16.71	12.55	5.00	-3.42	1.91	5.46	11.30	0.91	23.20	-3.03	8.50	
	3.28	-8.81	19.67	-12.82	29.49	-1.04	-6.28	2.27	0.56	6.92	-9.51	2.37	
	-16.39	-5.16	-5.45	-6.36	32.19	0.66	-0.62	-30.93	-11.14	-0.65	2.58	2.87	
	9.51	0.17	17.14	2.90	16.12	34.85	2.51	-16.97	-22.98	0.57	-1.79	0.79	
	4.09	2.91	9.21	9.44	-2.10	-10.67	12.50	3.76	19.75	-2.63	5.50	15.63	
	0.56	-3.39	13.11	3.28	-1.56	-19.07	-10.43	2.75	-0.89	14.46	5.99	13.65	
	5.44	1.97	8.13	-7.50	2.30	17.49	7.19	-2.30	6.73	3.79	2.11	2.63	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	5.02	-0.02	15.83	7.03	0.58	-43.78	0.51	8.39	5.57	3.82	-3.82	10.03	
	1.27	-0.56	4.44	7.15	12.94	0.76	-20.15	46.06	7.49	-11.17	0.65	36.94	
	3.30	7.12	22.23	-2.31	3.40	43.52	1.74	5.09	18.48	-2.48	15.05	29.12	
	4.70	14.69	14.97	-0.33	6.74	12.38	1.23	-6.70	44.71	11.08	-1.90	27.82	
	-7.40	-28.23	-12.21	1.26	8.09	0.97	17.95	4.08	17.77	0.76	1.40	22.81	
	8.93	-3.74	13.54	-3.81	15.43	2.64	2.51	-6.18	-0.34	9.96	3.37	1.81	
	2.54	7.08	4.09	-2.21	8.45	12.21	4.83	2.78	1.68	1.09	3.20	0.01	
	-2.58	6.31	2.13	3.30	-8.65	-2.79	-8.63	3.90	7.82	-6.88	-3.96	12.03	
	14.19	7.41	-5.52	5.22	-8.05	39.38	12.13	-4.96	-0.97	-0.49	-11.90	9.27	
	1.27	4.96	4.40	13.44	-1.91	-8.06	30.20	-2.38	-3.39	-8.06	10.48	-10.77	
	7.15	-2.26	-1.13	-9.01	-0.05	-28.21	1.98	0.64	-4.52	-3.26	8.64	-1.78	
	1.80	-5.32	0.18	1.71	2.66	-18.62	4.81	-1.94	-29.45	24.18	14.85	-0.55	
	9.32	-0.32	4.36	5.53	2.10	5.45	6.73	13.64	-12.79	-3.15	2.22	-0.30	
	43.69	2.21	-0.43	-10.61	3.31	-3.62	-1.28	35.92	-3.58	1.89	-4.78	-26.50	
	-3.56	-0.18	5.62	-2.37	-7.16	-5.43	-5.36	78.81	-19.85	10.76	-6.20	-2.83	
	0.86	-3.88	-1.93	-0.87	-7.22	-7.93	-0.69	-72.23	-25.42	6.37	-5.49	-29.35	
	-10.28	-11.55	-0.78	4.39	-2.33	0.36	-21.24	-3.19	-3.21	-9.53	0.13	-19.50	
	-4.60	-14.73	-0.95	7.86	-4.65	3.41	1.33	-9.00	-1.50	3.23	3.96	-22.61	
	-10.62	-21.29	5.55	-7.14	0.55	8.34	2.91	2.36	-15.92	2.44	-9.43	5.67	
	-13.54	-24.68	-6.96	-4.19	0.50	60.64	1.63	3.50	-2.12	-17.10	-2.83	4.80	
	-18.12	-11.84	3.02	-14.79	-10.94	23.10	-4.78	-10.18	-3.76	-5.15	-9.88	-10.84	
	-22.85	-10.61	5.34	3.72	-13.73	-29.77	0.55	-3.40	-1.48	-9.84	-6.14	-21.32	
	-20.12	-12.16	2.63	3.87	-10.38	4.85	0.44	-0.42	-15.88	-18.16	-4.13	-21.34	
	-3.48	12.66	5.65	-4.52	-8.00	-8.72	-2.66	-3.49	-15.94	-4.09	-2.42	-24.35	
	-49.85	-58.03	6.39	-3.92	-32.40	-6.14	2.23	-5.52	2.63	-5.85	-20.84	-26.90	
	-37.94	19.25	5.95	6.16	-25.45	-25.63	1.91	13.76	-4.25	-4.90	-13.43	-45.97	
	-26.52	-9.13	3.63	3.13	-4.61	2.74	-3.28	1.53	0.68	-7.05	-32.12	-17.90	
	-11.38	-10.02	7.80	-0.19	0.69	3.60	1.27	-21.05	-1.57	-9.88	-37.95	-4.33	
	-4.30	10.73	-7.27	3.36	8.22	-0.05	32.37	31.65	-0.21	-8.37	-31.05	4.85	
	1.68	-37.44	-2.45	0.47	-11.94	-3.55	4.31	27.85	3.46	4.74	-24.81	3.44	
	38.71	-22.65	3.58	-1.91	-0.71	-4.76	-16.61	-17.85	4.53	-1.93	-20.81	15.46	
	19.60	11.73	-2.68	3.55	23.78	15.78	0.66	-26.10	6.85	-3.94	-25.31	-23.18	
	12.91	-1.66	-34.80	0.13	4.74	22.86	5.31	-7.38	42.98	7.78	-21.47	-4.61	
	-13.28	-7.37	-27.03	2.46	7.51	-14.74	8.17	5.29	17.11	-5.24	20.97	0.50	
	10.61	-2.11	-29.90	-6.50	-1.64	-6.46	7.88	4.77	1.97	-4.79	-1.69	9.59	
	10.92	1.93	-10.41	-0.02	-10.19	-3.47	-3.94	13.99	7.30	-1.28	-7.97	2.54	
	7.20	-3.31	-3.02	3.25	-0.68	-0.77	5.55	9.16	3.36	-19.28	-11.09	12.12	
	44.66	-33.47	10.62	-4.00	38.43	-16.55	8.95	7.68	-37.24	-14.44	5.40	68.61	
	9.87	-21.64	9.46	-10.55	15.42	-11.68	-5.20	17.73	-19.47	-7.75	16.92	25.91	
	-1.75	-0.58	16.31	-18.58	0.57	1.16	-3.47	0.15	-19.99	-9.20	6.89	0.54	
	9.96	0.76	13.79	-14.39	3.85	-1.13	-0.39	0.79	-21.07	-11.27	10.99	16.33	
	7.82	3.02	9.42	-16.57	5.68	4.98	2.45	11.92	-14.37	4.39	5.25	-1.73	
	4.08	16.76	6.41	-4.13	-2.50	3.81	7.67	-0.02	9.46	8.36	-2.08	2.73	
	-48.02	-1.40	10.90	-10.77	-2.82	-36.70	8.28	-1.59	-15.58	-11.18	4.81	-0.10	
	-7.66	5.47	5.35	-28.79	0.86	-11.63	8.24	-11.08	-13.86	10.11	2.36	4.19	
	6.17	8.95	9.66	20.26	-22.51	-1.46	-1.54	-14.20	-7.79	1.71	-9.16	6.27	
	3.58	-16.04	9.25	17.92	-30.50	-1.05	-8.78	-6.89	-5.22	16.97	0.27	6.87	
	12.26	7.23	19.25	-46.17	-0.62	14.11	-4.93	48.00	2.19	7.67	33.71	10.64	
	25.17	12.33	24.80	-27.72	-2.08	-1.16	4.33	-2.04	4.98	8.16	2.47	14.50	
	13.20	14.40	11.09	4.25	7.04	-1.29	1.05	-4.58	24.71	-23.08	11.94	-30.69	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	12.82	9.40	17.68	-2.24	20.94	9.77	17.98	9.97	17.47	3.65	3.79	-23.88	
	5.27	25.57	13.21	2.86	9.68	12.46	27.68	20.94	27.87	13.18	-5.97	20.24	
	10.05	21.75	29.57	26.05	17.05	8.52	3.15	-2.35	22.47	17.03	11.07	29.35	
	10.04	9.58	25.61	28.13	27.48	5.08	8.38	39.36	9.03	6.88	20.49	32.51	
	7.43	20.80	8.55	16.23	20.91	8.68	13.28	20.31	8.53	15.31	22.22	6.12	
	-32.44	8.72	11.90	6.09	-11.30	1.19	-5.34	77.91	-4.36	34.55	13.78	6.23	
	-3.61	19.26	-0.81	4.06	-1.27	10.42	6.70	73.85	3.93	14.60	20.91	42.98	
	35.32	9.67	3.39	7.89	42.25	22.54	12.16	21.05	22.26	3.01	1.86	20.03	
	17.79	33.10	22.09	7.75	31.33	22.60	16.22	53.00	14.57	33.88	5.40	27.61	
	8.09	5.61	19.34	20.48	3.68	23.50	16.66	16.88	8.81	13.86	12.12	20.94	
	11.52	4.82	31.47	14.32	29.65	15.93	8.13	21.99	8.17	12.03	10.74	21.76	
	21.59	-28.50	-4.24	-8.74	26.57	5.14	11.79	7.70	-46.52	1.94	18.88	15.84	
	13.85	-6.98	-13.85	4.79	-11.84	3.63	22.97	9.90	-15.11	-5.57	14.05	3.82	
	9.99	4.65	-8.81	3.24	22.87	24.51	7.82	13.83	16.13	9.83	26.69	9.96	
	13.86	27.03	5.64	12.92	13.42	32.94	10.52	-18.58	10.80	2.01	24.33	28.55	
	1.08	-0.46	7.15	5.93	34.95	12.05	18.28	1.61	-11.48	9.82	4.82	32.68	
	19.50	10.84	11.75	4.12	4.89	17.79	11.64	5.72	16.54	5.97	6.08	6.74	
	53.34	27.82	11.27	-7.76	-6.47	10.28	11.69	-5.76	-3.31	6.71	15.85	-24.54	
	2.68	-9.49	5.54	-0.64	19.20	-4.26	8.49	-9.55	0.38	12.79	25.70	-28.87	
	0.92	0.73	4.92	3.51	18.95	7.15	18.39	11.65	14.08	47.70	20.23	3.26	
	17.23	2.73	11.78	6.18	12.42	12.41	26.70	14.27	13.24	2.32	1.68	25.48	
	4.75	7.73	1.75	-14.44	4.29	27.27	12.73	1.90	20.32	0.63	12.33	11.25	
	7.31	10.98	6.76	8.98	-1.47	-0.47	10.19	3.79	21.43	2.99	39.44	8.16	
	28.55	-4.27	18.13	12.63	-6.12	6.76	2.62	14.08	2.93	1.43	13.86	12.46	
	-30.78	-2.96	4.78	6.03	8.41	-2.44	3.91	1.53	1.80	10.08	-11.75	14.21	
	3.87	-0.41	1.14	6.56	15.67	3.83	0.19	-17.79	2.61	4.02	1.25	0.35	
	7.43	4.20	-5.96	3.77	-5.27	1.65	15.45	-17.91	5.35	1.37	14.89	14.64	
	-6.28	0.84	7.54	-2.72	5.35	7.76	10.99	-11.85	2.54	0.94	3.02	14.69	
	7.24	4.22	3.19	-0.76	1.58	12.13	-3.34	16.68	8.81	13.86	-23.40	4.01	
	0.78	-3.74	-3.60	10.38	-10.95	3.95	8.59	18.41	0.27	-12.35	-25.14	12.86	
	-6.34	5.49	10.13	7.12	-1.24	2.67	2.90	-8.27	15.36	-7.13	-6.13	6.99	
	18.49	3.24	0.57	-6.75	7.26	4.71	3.22	8.77	3.50	15.20	6.87	6.86	
	10.99	-0.31	-0.14	1.64	2.61	2.01	3.66	1.35	2.52	2.53	1.92	10.62	
	14.37	1.76	2.63	-4.10	-7.15	4.69	7.02	-3.04	6.20	3.77	-4.26	7.47	
	-0.43	0.71	1.64	-1.30	-1.54	15.40	8.32	-3.47	11.28	1.97	-0.19	10.49	
	4.59	44.19	-6.64	7.53	-0.58	-16.25	2.91	2.23	5.26	0.75	5.41	4.76	
	12.98	8.98	-7.87	14.93	4.44	-23.61	-6.15	2.36	7.36	-6.87	1.85	-1.24	
	12.08	-5.78	-10.31	-4.95	8.22	-4.58	0.10	-21.72	8.30	-1.96	0.91	5.71	
	-8.36	6.71	-13.18	-4.59	8.58	3.37	0.54	44.85	9.04	-3.99	5.06	2.69	
	5.17	5.58	-9.48	1.12	-10.89	3.45	2.46	21.67	4.52	2.75	10.44	2.86	
	-1.03	0.92	-2.54	0.20	8.08	-2.35	-0.28	-15.24	3.95	-0.52	14.07	-1.82	
	-3.49	-7.60	39.93	-7.84	-6.67	2.05	-2.92	-31.18	9.19	0.12	6.48	-1.65	
	-4.87	-8.40	2.63	-11.10	-13.49	1.84	-2.36	-28.52	15.69	10.79	16.92	1.36	
	-0.58	-4.48	-6.69	4.86	18.16	0.51	-4.84	-12.82	3.19	3.39	-0.57	12.79	
	38.87	3.98	-8.06	15.07	-6.46	-7.14	0.95	6.02	0.61	-0.33	-11.02	0.17	
	5.60	20.63	-26.16	-3.05	-2.31	-3.99	0.51	10.54	3.61	-2.87	5.12	-0.69	
	-45.11	-19.31	-15.65	0.02	-4.84	-4.82	-0.53	-1.41	18.94	-3.70	0.59	21.85	
	-12.48	-45.43	-39.40	-3.09	-8.20	-10.66	-6.72	-11.47	32.05	-0.45	-42.22	36.89	
	10.85	-24.04	-26.04	-13.27	-4.06	-1.57	-0.66	-11.56	20.46	-7.06	-1.99	-4.62	
	7.46	-27.40	-26.48	-4.85	-12.34	-5.10	-2.01	3.16	3.82	-4.21	-9.52	-10.06	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-12.32	-24.53	-11.26	-20.44	-9.05	-9.16	2.21	-7.49	-9.87	1.79	-7.78	-21.97	
	-2.80	-14.98	-21.71	-21.80	-6.82	-24.45	-11.30	-8.21	-7.51	24.26	16.84	-24.45	
	-9.62	-25.66	-45.10	0.55	-21.21	-6.10	-0.12	-10.18	-8.47	-27.37	27.67	-19.43	
	-8.48	-28.47	-20.95	-9.02	-28.34	-32.08	-1.45	-20.74	-15.87	4.41	18.04	-27.37	
	-19.82	-64.82	-10.11	-21.47	-25.88	-26.85	-1.50	-54.47	-10.87	0.35	6.75	-52.65	
	9.82	-9.77	-26.95	-7.40	-3.55	-17.45	-3.42	-42.97	-22.45	-7.86	-19.79	-40.91	
	-4.62	-5.26	-20.80	-3.45	-18.12	-25.62	-7.66	-24.68	-41.48	0.22	-35.07	-24.80	
	-3.20	-22.58	-12.81	-10.52	-47.66	-27.50	-10.56	-16.94	-19.82	0.03	-36.26	-27.51	
	-13.13	-19.01	0.40	-12.46	-19.12	-27.47	-12.94	-16.43	-7.00	-13.08	-33.90	-17.11	
	29.17	30.05	4.32	-12.03	-20.87	-22.47	-8.89	-23.24	-9.24	-15.98	-49.36	-22.22	
	17.58	21.25	-2.20	-19.95	-22.95	-10.27	-37.68	-22.14	-0.50	-18.59	-49.74	-24.08	
	-11.69	-11.08	-4.12	-21.46	-35.99	-16.74	-1.71	-40.71	-6.85	-9.01	-32.64	-29.04	
	-3.19	-8.65	-5.83	-11.78	-4.90	-16.81	-3.65	-28.75	-14.41	-12.58	-34.97	-39.74	
	-9.27	-4.86	2.01	-12.97	-41.44	-17.85	-8.80	-4.17	-15.03	0.33	-21.51	-21.83	
	-16.19	-2.77	30.27	-13.72	-22.69	-4.64	-9.94	-1.92	-7.50	-13.30	-27.45	-0.80	
	37.89	-20.87	2.03	-16.38	-11.95	28.87	-32.14	9.59	-4.34	-11.83	-48.06	-2.52	
	4.08	-0.96	12.60	-12.75	-10.12	-1.70	-44.34	17.42	16.53	-27.56	-12.40	-1.04	
	-14.94	16.03	-8.77	-11.42	-1.94	-11.29	-5.32	-16.98	-9.57	-37.80	-27.12	1.31	
	-9.58	17.97	52.12	0.15	-1.64	1.45	-9.90	-13.48	15.32	-10.33	-36.28	2.19	
	-2.48	1.70	15.83	-0.03	-15.37	13.11	-19.09	-8.73	17.66	-13.54	-12.50	-8.94	
	-2.00	0.25	13.71	-11.15	-1.11	-7.51	-19.33	-16.45	-17.74	-3.89	-0.33	-8.71	
	3.10	-22.42	2.49	-2.15	1.39	-2.00	-18.95	-26.93	-0.83	-13.60	-7.44	3.05	
	-8.42	-10.21	1.35	5.54	-7.76	-3.31	-7.87	-13.84	4.01	-13.10	-4.43	2.85	
	-26.15	-4.29	16.55	8.11	-6.06	-0.29	-4.21	-18.93	12.32	-0.94	5.08	1.16	
	-11.89	3.52	19.58	43.94	-7.94	2.47	-10.37	-2.09	-3.67	-6.93	6.40	7.87	
	4.33	5.37	4.43	24.84	4.45	-0.65	-23.50	-3.35	5.90	-8.85	4.50	-6.12	
	-13.13	7.06	12.91	6.52	-0.03	6.08	-9.57	-0.56	-6.64	3.23	-0.54	6.30	
	36.80	18.54	5.32	-7.76	0.61	-3.02	4.23	15.17	0.94	46.84	6.12	39.94	
	2.32	3.88	12.55	-48.29	-5.37	-7.39	-1.93	17.65	1.72	10.22	8.74	29.17	
	0.46	10.55	4.62	-34.05	-9.05	-4.49	-2.40	-2.19	15.66	-1.11	11.60	14.06	
	3.64	-0.22	-0.51	-9.38	-11.59	6.82	-6.56	-19.31	16.52	0.53	16.45	1.28	
	-3.58	2.68	8.40	-1.08	-4.55	2.74	-0.35	-15.66	-4.87	-5.32	10.09	-9.58	
	8.52	0.02	12.96	-6.08	3.75	22.77	-2.95	-11.22	-60.35	2.49	1.87	-1.58	
	2.94	6.43	-1.21	-16.96	-0.09	63.64	-8.73	0.68	21.98	0.87	9.18	16.60	
	-2.38	22.11	-1.91	-5.31	1.39	8.15	-7.61	-7.45	-4.18	8.86	7.57	-1.38	
	-0.76	24.43	-26.40	1.41	6.01	1.57	-23.45	-0.77	11.98	-5.77	6.83	39.17	
	-0.94	0.15	2.85	7.08	3.36	7.64	-19.10	6.40	1.85	-1.93	11.23	-22.77	
	-0.94	-2.94	29.87	0.90	8.18	2.66	11.64	-0.82	4.98	0.54	12.75	18.70	
	-2.90	7.23	0.07	4.98	10.02	-0.21	4.72	10.10	-8.99	-3.47	3.46	-1.02	
	-7.38	0.26	-4.56	54.29	-12.46	-0.64	0.97	59.32	0.20	-29.98	2.11	8.40	
	1.45	-9.30	-7.71	27.76	-20.25	-15.04	0.61	24.60	-0.85	0.16	6.93	0.38	
	6.89	10.17	0.68	14.14	1.99	17.15	9.13	4.58	-0.37	-10.61	12.81	-0.86	
	2.67	8.51	0.43	9.49	-0.20	5.18	-2.26	-1.74	-2.84	5.60	10.50	11.65	
	14.97	9.91	15.50	20.86	2.43	15.01	-1.76	0.51	-6.14	-1.02	-0.45	-4.97	
	29.00	-4.84	15.09	30.04	3.59	1.44	-4.86	-8.18	-1.96	-9.59	5.66	-5.19	
	30.28	-4.77	-0.97	34.34	-7.91	-45.93	-3.74	-79.08	-0.97	-11.26	12.41	11.84	
	20.25	0.79	6.59	15.42	-2.89	-23.71	7.69	-14.97	-3.78	0.70	6.96	2.66	
	6.85	-8.21	6.34	8.92	7.37	-2.37	12.51	10.06	-1.11	3.48	10.49	1.72	
	7.98	2.93	8.13	8.63	1.38	20.50	-3.17	14.43	-9.70	-3.71	4.14	2.27	
	2.22	38.90	6.85	-1.04	-0.28	1.41	2.22	-8.10	-7.90	-5.32	1.27	-3.29	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-6.46	-3.22	5.81	10.01	10.55	18.21	0.38	5.28	-2.54	-1.78	-3.50	2.68	
	0.39	-0.75	0.13	-5.77	-10.81	39.85	2.62	78.65	2.31	-6.17	0.48	0.89	
	-1.62	-0.38	5.51	-31.78	-10.59	24.73	-8.31	40.45	1.50	-3.39	-5.16	4.60	
	12.72	-1.86	1.04	-17.52	-9.19	13.60	5.33	14.86	-0.47	-24.13	-3.61	0.06	
	18.03	9.68	-14.36	-36.70	5.04	14.65	5.09	-10.96	1.04	-4.24	0.41	7.14	
	-5.04	4.51	-1.42	4.70	6.16	24.08	1.50	-4.01	4.97	-12.27	-2.18	-5.50	
	-12.15	1.72	-2.55	9.50	0.31	14.10	7.33	-8.76	-1.66	-4.55	6.46	-5.26	
	-31.39	-0.38	-6.73	41.20	-0.10	18.40	8.90	-16.49	5.72	3.20	-0.26	-7.41	
	9.44	1.67	-2.46	-1.72	-0.35	-3.90	-6.70	-15.17	-3.59	-9.76	2.27	-5.67	
	-3.26	-3.34	-8.96	-2.64	2.95	-5.72	0.22	-2.86	-3.71	5.81	10.48	-4.26	
	-8.79	0.88	-14.25	0.71	1.14	-7.60	-7.56	-3.54	-12.27	-2.49	-0.46	11.87	
	-10.79	-6.90	-4.89	-6.12	-0.75	-5.13	-7.65	12.90	-15.24	-17.08	-19.80	9.19	
	-23.79	-7.90	2.41	-3.64	-8.29	4.60	1.54	39.05	-6.93	-1.86	-10.65	-13.20	
	-36.37	0.20	-15.58	7.65	-3.74	16.27	7.37	25.39	7.50	42.13	-1.16	-17.42	
	-20.79	-6.14	-3.51	12.53	2.56	-8.14	-10.51	2.73	3.32	10.82	-3.18	25.65	
	-23.08	-21.48	5.94	20.72	-6.13	-5.61	-7.21	1.46	5.40	-16.82	-9.59	-30.56	
	-70.08	-9.94	-2.98	-2.08	-10.99	-3.59	-0.04	41.68	20.22	-21.37	-16.78	-19.50	
	-49.02	-5.39	-9.85	0.19	-5.41	-13.79	-5.55	45.42	-18.21	-11.05	-12.05	-30.03	
	-38.00	-32.67	-6.30	-1.46	24.53	-2.13	0.59	-40.96	-10.96	-4.13	-0.91	-36.13	
	-45.34	2.12	10.91	-17.03	-16.60	-13.79	-1.34	-153.94	8.31	8.99	-11.81	-17.29	
	-18.76	-17.88	3.85	-2.65	0.12	5.30	-5.43	-37.64	13.40	-5.21	-0.79	-5.45	
	-6.56	-9.97	2.90	-27.81	-7.77	10.30	-4.87	-7.39	14.42	-13.06	-16.51	-4.12	
	1.53	-10.86	5.03	29.38	3.43	-12.13	-5.04	6.89	-9.40	-2.83	-5.38	-11.71	
	9.68	-22.44	-12.55	31.54	3.32	-3.34	5.47	6.84	-6.01	-8.27	-23.04	-4.46	
	4.02	-24.25	1.91	-23.21	17.41	-49.83	-4.71	21.28	-2.45	-1.79	-28.20	10.56	
	15.76	3.48	-5.45	-9.63	-1.70	-59.55	5.05	70.93	-1.87	-10.69	-15.66	2.98	
	9.97	-5.52	27.25	6.23	21.39	-22.08	8.42	36.85	7.25	-10.40	-9.08	21.64	
	0.79	2.73	-14.83	-7.78	-4.45	-1.25	-3.68	6.76	5.06	1.95	-5.09	4.82	
	4.11	-5.26	-19.37	-10.11	3.14	-0.46	-3.75	15.66	1.16	-8.77	5.61	-5.34	
	-3.29	2.00	-17.54	0.19	1.16	-9.38	1.81	14.10	1.83	-17.10	-3.50	2.07	
	11.40	-4.29	-6.85	-11.66	17.50	-2.55	10.10	7.46	23.86	-17.69	-18.83	7.47	
	4.47	-0.69	-21.86	-0.85	2.15	-23.80	-5.47	19.77	19.09	-9.47	14.81	-36.67	
	-4.80	-15.59	-9.97	0.37	-4.14	-8.87	-6.04	21.45	18.59	-1.71	9.96	-9.80	
	6.44	-8.23	-29.10	11.17	8.73	-1.94	-8.05	-4.35	-1.61	14.09	-1.54	-1.01	
	21.04	-14.65	-28.80	10.95	6.86	7.47	1.97	-2.31	-25.18	-8.46	4.58	11.28	
	1.64	-3.44	4.97	3.39	-11.03	-5.07	7.27	-1.29	-22.35	-9.90	-0.59	6.26	
	6.22	50.07	6.65	-3.49	-7.17	2.31	10.76	-3.83	-3.31	5.26	12.19	-0.31	
	-0.51	17.43	53.52	11.21	11.61	19.52	3.45	-5.33	-14.65	6.70	7.71	-34.34	
	-2.02	3.41	37.90	-25.22	-8.13	6.84	-18.24	-10.14	-12.20	-0.80	8.07	-2.09	
	16.28	12.79	21.97	-9.18	2.88	9.58	-22.29	-6.46	-3.46	7.62	15.95	0.32	
	15.18	40.57	14.45	0.55	-14.26	0.88	-3.64	-18.08	16.12	2.44	-0.77	4.86	
	26.88	13.04	27.29	26.11	2.28	-10.07	-5.49	-14.42	7.08	17.44	2.37	1.89	
	-4.01	7.71	26.27	48.71	0.38	-1.87	7.51	-18.72	-3.61	17.42	3.90	5.09	
	33.01	-24.04	40.47	32.05	7.97	-2.17	-5.67	-9.49	-18.93	-20.42	16.17	4.40	
	23.26	0.70	-2.55	7.21	11.71	-8.03	-20.82	-26.62	4.95	13.44	14.24	4.12	
	3.11	28.63	-2.22	7.17	15.24	-0.64	-16.93	-6.02	7.00	7.67	13.98	-1.07	
	27.72	14.22	14.13	15.30	55.56	7.48	1.20	25.74	20.98	26.52	19.16	10.84	
	19.73	5.81	19.96	9.45	4.94	6.97	5.22	10.78	20.52	9.94	24.07	30.44	
	4.88	1.62	19.74	26.27	33.00	0.33	6.81	7.88	13.98	6.65	16.35	1.64	
	-58.03	14.85	17.68	2.25	35.07	-12.21	9.97	2.88	15.26	7.56	21.67	3.63	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-5.72	7.01	3.87	21.08	18.85	-5.80	19.12	12.39	27.10	22.05	16.78	4.20	
	20.76	52.68	27.32	16.18	24.04	17.65	14.50	22.43	15.33	15.25	13.37	14.62	
	17.14	31.71	20.48	18.90	6.85	20.04	1.00	13.65	14.28	7.89	20.06	14.34	
	16.65	20.02	-8.58	19.59	28.35	16.44	13.37	20.93	14.27	31.02	10.74	22.60	
	17.07	15.03	1.61	29.61	33.24	-3.01	14.23	19.47	17.93	23.34	7.24	19.73	
	-29.32	0.55	-21.39	12.49	0.70	3.46	49.01	11.33	4.11	7.33	31.12	26.62	
	-2.05	15.96	-14.09	0.53	-8.76	9.38	12.48	4.23	2.30	5.93	5.36	-3.17	
	8.89	25.01	4.08	13.30	34.16	-0.50	12.77	7.06	19.12	5.27	19.33	-5.16	
	3.82	14.01	21.36	8.70	21.45	8.51	15.64	20.76	4.00	14.76	11.18	4.89	
	17.14	17.43	10.34	8.34	11.03	11.42	5.63	11.69	8.75	17.80	0.93	3.67	
	19.85	8.44	10.81	13.81	13.14	22.48	0.33	13.38	3.64	12.18	-4.80	2.27	
	-20.95	5.12	9.02	23.90	2.12	32.98	6.12	2.99	18.15	3.81	-12.86	24.44	
	-8.11	-0.53	4.28	-5.30	6.27	22.83	16.98	-11.30	9.08	9.61	-13.51	2.89	
	-3.66	-2.12	-1.86	2.16	13.99	25.66	20.36	-1.35	18.17	3.49	19.73	-1.30	
	3.25	-13.22	7.57	-1.69	0.79	3.18	16.54	5.20	12.24	15.46	20.65	59.49	
	14.23	12.45	13.70	8.38	9.21	5.14	13.08	9.68	10.00	8.08	11.42	-61.14	
	-5.49	30.06	-1.14	10.18	68.96	2.66	13.00	6.33	10.08	10.58	16.35	-1.50	
	-8.76	4.30	-3.37	12.48	16.52	5.72	-2.48	12.80	7.26	1.34	8.11	-42.11	
	-15.57	-1.21	21.04	13.88	-47.85	1.39	15.99	21.88	36.98	-1.00	-6.99	-10.36	
	39.31	-1.56	14.99	12.88	0.65	1.52	-14.57	17.22	-4.16	13.54	-6.05	-11.71	
	-6.95	13.04	-7.52	2.51	8.62	6.86	-1.26	12.84	-31.76	14.63	19.84	-8.54	
	-6.64	6.57	-12.52	12.78	7.02	19.93	6.37	6.74	-9.83	11.42	21.27	15.58	
	-24.00	5.12	-36.74	13.75	15.41	6.45	-2.75	8.29	7.66	10.88	2.02	2.23	
	4.70	7.62	-8.45	-34.51	1.21	0.04	4.41	-4.04	-5.58	3.06	-17.98	40.95	
	-15.91	9.21	12.39	-22.22	10.80	0.55	-11.22	-0.12	-21.39	6.15	-19.05	35.09	
	13.81	7.44	10.69	-3.40	6.34	2.03	25.60	2.38	-9.44	1.50	22.54	6.98	
	-14.44	8.98	8.77	2.82	-2.86	-1.75	-25.06	-4.33	10.38	-1.15	9.09	-16.67	
	-8.94	2.02	-11.67	-6.77	-6.23	-0.76	12.87	-4.40	4.38	-3.77	-9.64	6.35	
	0.62	3.66	-5.35	7.39	1.43	-0.55	-8.91	2.42	1.96	2.66	4.08	-4.65	
	9.37	1.06	-13.31	6.15	0.64	-1.58	-0.90	18.44	-2.28	-1.32	7.06	-5.74	
	5.86	1.22	-24.46	0.15	-5.85	1.05	13.25	18.65	0.13	3.27	0.93	-0.45	
	5.50	5.49	-11.87	2.07	-2.93	1.58	3.63	3.15	-2.28	-4.28	2.17	-2.28	
	-4.31	-1.63	-1.56	-1.10	0.15	6.19	-1.99	2.50	-1.23	4.81	2.11	-1.90	
	-1.22	-1.29	-3.14	0.06	-0.27	-0.06	-3.49	1.15	10.39	4.11	-1.10	2.93	
	4.88	-1.46	-0.73	-4.67	-2.00	-6.58	1.49	-1.78	-10.85	-10.21	-2.89	7.27	
	13.25	-4.64	-9.93	-5.99	0.00	13.17	1.33	-4.67	-2.11	1.06	-8.69	-8.51	
	5.58	-4.17	-3.19	3.98	-2.79	10.98	4.85	-17.99	-16.15	1.60	-9.90	-4.58	
	2.87	3.56	-24.76	-10.85	-5.90	7.62	8.15	-0.21	-8.85	-7.41	-7.43	-7.08	
	0.49	-0.44	-10.86	-5.29	-4.51	6.72	15.36	-0.42	2.43	-16.62	6.08	-8.51	
	-1.51	1.38	-22.67	-15.42	-15.69	-4.95	-14.14	-13.72	12.12	-18.36	3.44	-3.88	
	-9.06	-1.86	-26.94	15.62	-26.07	5.04	-16.98	-15.58	9.70	-15.18	-7.60	-4.76	
	-22.87	-1.40	-1.63	12.28	-11.68	13.68	9.60	-17.04	13.62	-8.52	6.27	-7.70	
	-14.63	-9.94	-35.72	-0.55	-6.10	8.55	4.17	-30.11	20.46	-6.80	6.84	-24.60	
	-12.42	-3.38	-18.19	-17.77	-4.56	13.65	-4.24	-5.93	-2.26	-5.80	-20.27	0.80	
	-33.02	-18.62	-19.72	7.67	-43.44	-14.67	-5.60	-6.58	-12.96	-10.22	-20.44	-2.48	
	-3.29	-20.16	-18.28	0.94	-0.40	-9.43	3.13	-24.99	-9.67	-9.53	-3.64	7.72	
	-36.48	-15.62	-19.57	-7.40	9.87	-12.05	14.14	-3.59	-12.56	-9.78	2.33	-24.20	
	-48.48	-34.59	-13.49	-4.36	-17.39	-33.00	-6.14	-12.58	-7.38	-13.75	15.81	-15.64	
	-42.76	-47.60	-28.14	-8.37	-33.08	-42.89	-2.59	-26.38	-16.76	-26.99	9.10	-16.80	
	-43.07	-13.86	-21.20	3.94	-38.00	-33.23	-1.22	-0.82	5.78	-28.58	-9.05	-18.00	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-27.64	-21.79	-7.50	1.19	-32.56	-30.73	-1.65	1.61	-16.89	-24.94	-22.21	-39.86	
	-43.22	-23.75	-2.72	-2.06	-31.03	-18.45	-1.54	-8.09	11.71	-23.42	-25.33	-8.88	
	-28.78	-25.00	-14.02	-1.23	-21.49	-29.73	3.92	-8.13	-12.17	-28.58	-14.83	-11.59	
	-28.58	-15.64	-4.78	-17.32	35.84	-12.62	-0.71	-9.79	-11.30	7.93	-11.79	-16.27	
	-36.50	-46.22	-15.94	-8.11	-7.65	-66.58	-11.67	-11.76	-25.39	-17.33	-31.81	-25.84	
	-19.60	3.76	-9.98	-1.01	-1.43	-27.05	-23.05	-23.67	-23.30	-15.34	-5.09	-17.34	
	-32.94	-23.46	5.79	-21.06	15.85	-7.01	-8.59	-31.21	-5.85	6.57	-47.38	-35.33	
	-12.06	-3.20	-3.82	-18.46	-11.60	-0.58	-9.40	-25.09	-13.36	-11.86	-31.11	-16.64	
	13.06	-13.44	-10.90	-9.48	-21.71	-32.80	19.93	-9.08	-0.58	-9.71	-21.43	14.58	
	49.39	-5.75	5.40	-18.99	9.27	-3.76	-25.60	7.39	-44.63	-24.37	-12.43	-63.27	
	0.39	-1.21	0.72	-5.71	25.42	-1.43	-15.68	-1.08	-51.91	-18.34	-23.56	-26.84	
	5.47	-3.04	-2.06	-7.31	-8.54	-0.76	-17.96	-16.12	-2.26	-5.98	-10.88	-11.48	
	7.54	-8.79	-4.26	-20.76	16.10	-4.40	-3.62	-11.40	3.91	9.23	-16.67	-14.05	
	18.14	6.30	-1.53	-16.58	0.76	-1.57	-16.87	-54.69	-4.43	2.91	-15.97	-24.99	
	6.96	3.26	6.89	-18.38	-24.18	8.14	-18.76	-12.08	0.40	-13.94	-6.46	-19.59	
	56.41	1.02	-9.04	-26.47	-1.26	-6.89	-16.22	2.78	38.40	-6.72	11.04	-12.98	
	18.21	14.61	5.57	-21.31	4.21	1.85	-16.54	-5.89	4.07	5.92	11.02	-5.60	
	9.23	13.21	-6.06	-10.68	5.78	-3.44	-15.07	-5.52	10.78	2.85	3.30	-7.63	
	6.89	10.14	4.79	-13.70	-9.89	1.52	-12.90	-0.81	-25.84	1.90	1.44	2.41	
	-0.81	13.83	3.03	0.74	-45.17	-1.21	-14.85	-1.15	-17.95	3.32	10.40	18.57	
	14.77	11.62	-3.83	-9.84	-3.06	10.18	-11.28	-4.12	-5.88	3.27	32.16	4.77	
	-13.42	0.62	-2.84	-14.92	-66.45	39.69	-9.69	33.83	45.22	3.68	-23.39	-1.09	
	10.70	6.53	0.94	-6.37	-14.92	-37.32	-10.56	16.61	6.80	18.69	26.71	-0.58	
	2.43	11.29	-1.58	-3.77	30.40	-24.72	6.74	-0.31	3.15	3.15	8.58	-10.21	
	7.01	2.16	1.48	-3.44	-3.75	-16.92	-16.83	0.74	-3.19	-7.21	-24.98	-5.17	
	-5.35	12.11	7.10	11.10	-29.13	-34.35	-11.03	-6.69	-1.42	0.73	-8.26	4.98	
	3.51	2.39	-16.84	-9.15	-7.12	-21.34	14.01	-3.52	-4.60	3.39	2.48	9.00	
	-38.10	32.96	-5.01	6.90	0.93	-40.11	-43.01	8.93	0.95	-18.37	-2.51	40.62	
	-12.71	-6.90	11.60	12.74	1.38	-14.95	-8.37	4.16	3.36	-10.29	-3.18	1.88	
	3.27	-4.53	9.95	-3.21	1.69	-1.01	1.08	-3.28	-0.01	9.26	11.95	3.41	
	5.69	-9.40	7.92	-1.72	0.85	5.32	-0.21	-7.67	2.28	5.39	15.33	-1.58	
	-2.11	1.12	1.51	-6.96	-1.35	-3.20	-2.23	-7.88	-4.33	-17.78	2.54	4.51	
	8.11	15.08	-0.23	2.84	5.46	20.00	-4.24	-13.22	1.96	16.35	5.69	15.66	
	61.99	2.59	1.81	5.34	35.21	34.03	7.31	14.45	6.13	-1.78	7.03	44.66	
	17.62	-1.95	0.05	-5.03	6.65	14.23	0.05	23.14	8.39	0.61	13.64	29.80	
	15.41	5.31	5.08	-8.34	10.45	4.89	-1.49	3.09	6.32	3.81	3.05	15.56	
	6.89	48.35	0.51	-2.63	2.61	-6.33	-0.14	6.14	0.67	-7.83	5.55	5.03	
	2.71	9.39	6.00	3.16	4.05	15.51	11.00	12.61	8.89	0.30	4.25	-1.01	
	12.54	7.83	6.36	3.89	9.99	3.82	13.04	-14.04	0.09	2.02	8.89	22.16	
	-10.92	7.94	5.12	-7.43	0.20	4.14	-1.13	-18.57	7.66	-30.72	4.41	15.62	
	-3.36	-9.00	17.29	1.76	-2.07	0.25	7.16	-2.13	0.03	-17.68	-3.51	10.53	
	-4.33	0.90	2.37	9.85	0.85	3.81	8.15	9.34	6.56	9.71	-0.12	1.88	
	7.68	5.41	0.17	4.72	2.28	0.02	3.98	10.16	23.37	4.99	2.11	7.63	
	20.14	5.64	0.11	2.28	5.89	1.22	6.31	-3.22	2.73	-3.72	-7.19	2.94	
	7.53	13.80	-3.72	13.39	5.77	-9.23	13.24	-2.81	7.83	-2.52	3.37	10.06	
	1.11	4.37	19.13	0.68	7.71	-18.40	-4.09	-1.20	9.43	-0.94	2.41	-2.37	
	-1.61	-5.84	5.68	26.24	5.84	-15.65	5.34	-6.95	-17.46	4.68	6.90	-0.58	
	6.77	27.93	-2.03	2.92	12.09	2.90	-0.17	4.79	2.66	2.21	10.44	2.50	
	5.79	5.45	5.88	13.92	2.84	0.02	2.01	-3.69	-1.08	7.14	1.32	2.68	
	2.67	5.97	1.64	-3.95	-2.80	10.75	0.17	-2.85	1.95	5.88	-11.90	-1.12	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	7.15	7.54	-3.12	5.58	-25.97	11.75	-2.27	10.60	4.05	-9.48	-7.27	-1.30	
	41.41	-0.22	0.54	0.90	-6.47	56.03	18.04	13.13	-1.08	-4.02	-0.02	-0.49	
	6.16	-1.64	3.75	-2.95	5.79	15.43	13.34	-60.64	-9.66	-14.35	-11.67	6.51	
	2.21	-6.80	18.64	2.78	-3.87	10.81	-15.22	16.12	0.50	9.52	-19.20	-2.51	
	-15.87	4.82	5.51	7.12	0.81	11.49	10.94	-8.21	-5.41	5.56	-5.03	-9.98	
	-10.25	-1.31	-3.15	4.16	-5.42	-22.71	-13.04	7.24	-5.84	-7.44	4.52	-12.40	
	7.39	-3.15	-0.48	1.83	-6.86	-6.82	12.78	5.65	-1.17	-1.43	-4.29	-12.64	
	-5.66	-1.59	-3.01	-4.06	5.53	1.07	-11.10	17.88	8.89	-5.97	-12.62	-20.57	
	-15.60	-13.64	5.74	-6.24	-12.80	-6.84	-6.31	5.36	6.95	-8.42	-13.90	-11.34	
	-47.27	-15.06	-14.76	-8.25	-9.09	11.80	-3.49	0.93	-8.76	-3.28	-7.62	-19.90	
	-5.70	-2.50	0.88	13.72	-11.20	-0.70	-5.16	3.48	-9.74	-10.47	0.90	-51.66	
	-14.41	-8.17	-0.44	-16.65	-15.08	2.94	-5.81	-0.77	-8.78	-5.50	-12.49	-45.54	
	-21.51	-16.17	-16.12	-18.62	-15.28	-4.88	5.76	-3.38	-3.38	-6.79	-27.31	-23.30	
	-76.74	-17.52	1.76	-19.38	-5.94	-10.54	4.84	-10.00	0.93	0.44	-4.31	18.60	
	-36.20	-5.72	-0.05	-7.26	-5.11	-10.93	15.85	2.15	-13.86	1.43	-17.57	1.48	
	-35.38	-15.62	-12.18	3.22	-2.91	4.73	11.70	-9.19	-4.25	7.91	-34.69	-1.12	
	-36.10	-27.51	-3.75	20.44	0.47	2.28	-1.21	-5.29	-2.76	3.32	-12.89	-14.73	
	-1.96	-3.44	0.06	2.32	1.13	2.41	-6.04	-1.10	-0.38	-3.36	-26.37	-2.57	
	12.33	-16.64	-4.50	7.15	-6.84	0.93	3.39	2.90	-2.50	5.99	-25.62	0.57	
	62.91	16.51	1.82	14.85	-12.83	9.76	13.95	8.96	0.21	9.99	-20.49	-32.62	
	0.95	1.85	-21.81	17.18	8.28	11.33	-0.46	17.19	2.23	9.30	-2.96	1.83	
	11.67	-46.18	-29.12	33.96	1.34	7.90	1.43	10.80	-0.44	-9.93	2.44	9.07	
	5.44	-9.29	-22.03	-18.65	2.65	0.73	-3.46	12.42	2.56	-13.04	-3.24	3.29	
	0.54	-8.31	-24.29	9.62	9.97	-10.37	9.23	14.70	2.42	-19.96	4.52	4.94	
	11.31	18.40	-8.66	7.22	13.07	2.92	-9.31	8.99	-4.55	-19.46	12.88	9.51	
	3.80	-29.69	12.28	18.84	2.67	-12.79	-18.56	35.32	-1.24	-11.47	7.64	-8.44	
	1.22	7.29	0.44	-1.88	-1.84	-0.40	-26.07	-2.60	-11.12	12.96	9.35	-17.83	
	5.90	24.93	3.90	-0.13	0.50	-2.46	-16.26	-6.46	-18.49	6.82	-3.11	5.41	
	-6.45	14.13	-0.39	-2.33	4.52	12.78	15.37	-2.10	-15.49	-5.27	4.10	7.81	
	6.36	35.68	12.70	3.55	22.16	3.51	8.47	-6.47	-21.50	-1.83	6.17	2.14	
	11.09	3.54	6.86	-3.16	25.12	-4.07	-4.93	-15.63	-13.16	6.16	3.54	28.83	
	-5.25	9.59	19.12	-2.05	3.36	3.53	1.98	-27.57	-6.17	-7.93	17.14	-17.31	
	-18.90	5.33	15.60	-15.24	-10.98	0.11	21.70	-15.96	-3.32	-8.41	16.77	-0.73	
	-18.48	1.26	9.06	-12.33	-7.06	-0.65	-17.85	0.32	3.79	3.66	0.03	3.60	
	5.93	-3.54	16.25	2.24	-1.77	1.29	-8.12	-8.42	-2.19	-1.71	-5.25	8.92	
	6.92	10.86	24.03	-1.56	-7.78	3.98	-0.12	-25.11	6.43	-2.19	1.66	7.13	
	7.81	17.38	24.12	4.69	-4.37	-0.23	-11.03	-15.92	5.69	8.98	8.56	17.11	
	7.03	10.06	15.66	4.58	-1.35	-9.85	-8.56	-2.95	-18.79	10.79	17.32	-34.37	
	1.72	12.30	32.88	-3.66	3.80	-12.35	-4.73	-11.70	2.81	29.82	8.71	-5.49	
	25.71	14.16	2.87	-13.97	-6.12	-1.24	3.59	-0.78	8.23	19.91	16.59	5.88	
	12.39	2.04	20.78	9.76	3.73	13.53	7.87	43.51	7.29	12.62	7.45	11.23	
	11.99	12.45	12.46	15.87	8.62	14.19	11.76	39.63	12.43	4.10	5.06	9.58	
	19.76	13.64	7.60	13.52	-0.10	7.17	11.22	24.79	4.61	14.61	19.03	12.70	
	-31.74	14.85	11.14	20.90	25.63	13.66	4.62	5.93	-26.15	24.88	13.15	2.38	
	21.45	20.18	-4.81	12.07	25.58	51.43	16.87	25.96	4.62	19.47	25.08	43.03	
	31.87	15.02	16.51	25.02	22.49	46.34	17.77	24.18	11.04	11.62	18.59	6.04	
	26.50	13.67	15.53	36.67	26.63	9.33	37.92	30.99	6.11	38.20	-0.84	17.47	
	16.45	24.98	14.06	5.23	1.57	22.35	7.80	23.13	-2.77	18.46	19.68	36.59	
	17.77	8.91	4.03	24.50	12.05	12.15	10.90	11.39	7.42	6.60	21.79	10.46	
	-43.31	3.36	17.13	14.36	-6.26	-12.02	12.22	-31.92	-21.39	14.87	27.40	11.67	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-25.40	-10.55	-14.80	32.96	-10.67	7.11	14.53	-10.24	-3.88	21.10	19.20	16.01	
	11.15	0.78	1.52	16.24	11.57	7.37	34.35	-6.69	13.36	-0.29	12.24	29.04	
	30.71	19.10	17.47	26.34	13.65	36.64	17.32	30.42	11.71	-2.41	20.47	19.48	
	19.12	23.59	2.90	4.53	34.47	2.62	13.47	16.28	5.15	15.15	12.09	6.37	
	10.12	16.19	-1.78	12.83	22.30	15.43	8.00	18.80	6.27	21.28	11.21	23.00	
	-55.98	-2.16	4.68	13.56	0.30	2.54	8.15	-16.09	19.95	9.14	29.98	14.91	
	-30.93	-3.98	16.25	-20.33	9.44	3.98	26.43	-15.54	24.43	-0.77	21.53	38.59	
	-5.48	6.28	10.41	-0.93	25.61	14.67	17.44	19.53	0.47	4.40	-11.74	-2.48	
	18.16	11.86	-3.53	3.92	9.96	6.18	16.45	39.88	2.27	16.00	12.94	5.73	
	15.25	-2.58	-13.61	0.43	5.32	22.27	18.51	-3.57	0.32	17.13	20.27	14.90	
	3.59	2.38	14.61	-3.02	2.74	3.27	13.95	19.51	-0.35	2.59	17.90	29.17	
	34.12	-1.14	7.81	3.66	38.44	12.57	4.84	34.36	-0.03	3.93	24.87	-6.20	
	11.46	-3.96	20.77	-0.23	39.36	10.18	2.83	26.10	-0.25	5.72	-0.49	0.45	
	8.99	1.82	20.85	1.06	33.56	1.78	3.17	12.48	0.64	1.43	0.95	14.06	
	5.77	-3.92	5.34	-4.33	10.44	3.27	4.28	2.94	-2.11	8.08	30.95	4.13	
	2.61	-0.67	18.73	-10.16	7.60	9.67	23.54	4.70	-2.26	4.48	20.03	10.33	
	7.98	1.28	28.30	0.02	5.64	5.19	2.83	5.87	4.78	9.96	-4.49	16.13	
	37.79	3.20	14.39	-8.27	1.71	26.97	-5.41	64.39	-0.86	-1.01	-15.73	20.81	
	26.70	-2.78	25.78	7.08	2.03	4.24	4.70	3.22	-10.22	13.36	-29.05	-6.08	
	12.79	-7.59	20.85	22.47	-21.86	-0.96	-1.46	0.97	-6.65	3.74	3.74	-7.09	
	-4.63	-20.57	37.01	-6.64	-9.36	32.32	-2.48	1.96	3.83	6.17	5.10	2.20	
	-0.65	2.86	5.35	1.41	10.18	14.13	-0.76	6.76	2.62	1.62	-3.82	-2.08	
	-2.16	1.95	-4.08	7.51	5.52	3.41	8.34	4.22	-0.68	7.90	-2.61	2.62	
	0.76	-1.50	9.37	7.37	0.66	7.67	11.39	8.82	0.49	-1.39	3.72	28.59	
	2.89	-1.54	-0.50	5.06	-1.20	-5.73	16.20	3.79	-0.63	-1.51	-5.35	4.95	
	0.45	0.19	-1.05	-19.84	-0.12	-2.82	0.06	2.92	0.58	10.73	8.04	-0.47	
	-2.14	1.94	-2.66	-9.32	-8.77	8.16	3.86	1.17	0.62	0.70	17.03	-7.79	
	-0.96	5.21	-7.87	-5.61	-4.86	0.62	1.92	-0.69	5.69	1.04	5.37	-5.57	
	-3.22	-4.30	-7.32	-5.79	-1.01	-13.29	-6.18	0.37	4.86	0.18	-1.89	8.63	
	2.40	-7.21	-14.94	-1.47	-0.62	-7.82	-4.11	-2.32	26.13	0.79	-7.03	-8.09	
	-5.14	-14.92	-11.83	-3.16	-6.05	-4.86	-4.82	0.06	16.15	8.40	-15.54	-1.06	
	-6.45	-17.01	-13.38	-0.98	3.01	-11.81	-6.77	1.13	-2.00	9.06	-0.02	-9.79	
	-4.35	-0.08	-5.14	-5.30	-3.46	-9.42	-2.88	0.19	5.29	-6.40	9.42	-2.20	
	2.27	-8.58	-15.04	2.16	-4.28	-8.22	0.72	-0.28	4.50	-1.31	-4.03	-1.68	
	-4.67	-15.57	-14.10	3.11	-2.02	-14.04	-7.62	-3.38	7.86	-4.72	-6.94	1.35	
	-3.00	-16.12	-25.49	-4.34	-48.07	-9.97	-18.71	-9.52	20.72	-9.29	8.43	20.18	
	-36.35	-36.77	-54.41	12.31	-32.99	2.34	-9.50	-10.07	14.82	-10.32	13.31	22.46	
	-4.10	-4.40	-13.58	-30.40	4.19	-0.65	1.63	-0.73	5.63	-3.33	18.96	0.08	
	0.52	-4.36	-23.68	-1.95	21.29	2.41	-0.84	-4.77	-14.86	-1.65	-17.98	1.73	
	-38.56	-16.14	-26.51	-21.83	5.13	-1.28	-4.81	0.11	-6.47	-9.00	-7.86	-3.03	
	-22.68	-20.01	-25.65	-25.22	-9.88	7.60	-7.16	-3.45	-8.91	-15.25	1.58	-4.88	
	-38.31	-43.51	-21.10	-29.65	-17.10	0.08	-12.96	-26.33	-13.75	-38.96	17.66	-7.42	
	-33.22	-19.42	-6.84	-77.06	-27.72	-11.00	-19.18	-2.75	-1.48	-29.51	9.97	-12.94	
	-55.84	-28.22	-10.73	-30.11	-22.02	2.27	-15.76	-0.43	-14.12	-30.65	-6.71	-14.38	
	-13.30	-42.70	-1.77	-8.55	-30.01	1.21	-24.13	-17.67	-2.30	-41.07	-20.99	-3.78	
	-29.98	-27.01	-9.63	-45.00	-29.49	-1.78	-36.16	-43.07	0.18	-24.91	-21.26	18.61	
	-18.95	-9.28	-4.83	-27.07	-29.37	-10.61	-7.62	-17.50	2.47	-19.68	-47.34	-11.13	
	-25.79	-11.45	-13.64	-27.87	-33.48	9.04	-15.93	-63.58	-0.19	-34.35	-4.04	13.90	
	-31.81	-16.07	-1.81	-24.08	-26.57	5.07	-20.48	-59.59	-5.78	-47.27	-22.48	12.07	
	-12.27	-2.55	9.33	-16.57	-22.39	-26.18	-23.04	6.12	-17.45	-35.60	-30.76	-14.44	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-16.16	-37.43	-7.97	-23.56	-16.48	-29.50	-13.23	-0.67	-14.02	-6.09	-37.07	-6.46	
	-25.68	2.39	-3.01	-1.60	-20.22	-27.46	-8.55	-12.02	2.87	5.40	-25.86	-6.88	
	7.77	-4.70	0.64	-4.24	-12.31	-24.10	-17.63	-30.16	-3.96	-2.87	-17.53	-11.01	
	37.53	-7.31	5.92	-12.56	-6.48	-20.71	-18.59	-32.49	3.13	-0.72	-15.31	-17.48	
	21.27	-5.81	-19.30	0.98	-12.08	-29.70	-8.37	-24.72	2.07	-6.06	-21.54	-12.28	
	10.44	1.25	8.22	23.91	1.30	-13.60	-23.22	-9.13	-10.75	-5.72	-23.11	-12.22	
	-6.08	-5.87	4.94	28.18	-1.22	-7.36	-20.41	-16.81	-18.65	-8.86	-13.77	-3.52	
	-2.88	-1.56	2.55	16.20	3.98	-9.09	-13.23	-11.98	-12.85	5.25	-10.35	-10.73	
	10.56	6.21	-5.54	4.97	0.11	-8.60	-17.46	-8.47	-6.55	2.41	-1.50	-16.54	
	1.18	-5.50	-1.22	-1.52	-2.23	-3.70	-18.30	41.44	10.73	8.43	-8.40	-25.79	
	12.78	1.04	-1.29	14.57	0.76	-14.15	-16.70	38.69	11.01	-3.47	-0.69	-11.35	
	6.88	1.56	-1.32	-4.50	6.59	-8.08	-2.88	-11.53	-20.86	-6.08	5.74	8.58	
	13.06	7.69	1.75	-1.41	5.21	-14.77	-34.97	-11.36	-4.37	-8.81	-3.21	-11.49	
	8.79	6.76	-6.56	-1.87	-0.69	6.34	-11.70	1.43	-7.48	14.02	-4.13	-18.29	
	15.62	-0.53	-10.42	4.09	0.78	-0.32	-22.55	-15.82	-7.77	-3.46	-8.86	-5.08	
	2.03	0.07	-5.93	9.21	3.22	43.68	-15.80	-13.82	-8.58	-3.31	-6.24	-11.41	
	7.08	3.98	-4.49	-16.49	-1.36	27.18	-13.95	-21.70	0.13	-3.59	5.04	-2.76	
	18.91	16.55	6.21	2.76	10.61	8.40	-4.34	4.55	-8.52	-6.32	21.21	-25.32	
	9.06	10.92	5.68	-1.69	-7.16	15.91	-3.15	4.20	-21.60	-7.09	-2.10	-24.07	
	8.37	-1.93	-0.53	2.50	5.70	22.12	4.17	-1.67	-6.09	-6.55	5.27	12.15	
	8.51	-10.74	11.85	7.41	16.13	20.01	-12.25	-1.56	5.06	-6.19	-5.69	-11.92	
	-8.43	-11.27	-0.39	-7.66	-11.38	8.58	-16.87	-53.09	9.03	7.10	-10.25	-33.84	
	5.24	8.63	-2.64	-3.57	-1.25	0.16	-12.00	-27.36	4.43	-2.96	14.61	-52.38	
	15.82	14.60	11.46	3.45	-1.46	1.91	-0.29	-2.49	0.32	14.01	10.63	-2.99	
	10.22	1.03	5.83	-25.22	-8.13	0.17	-0.43	-6.31	-6.52	6.42	0.12	6.72	
	8.36	1.27	1.21	-12.58	0.60	-4.30	2.53	2.28	-4.27	-1.66	-3.35	-4.82	
	-4.99	1.99	9.23	10.00	7.10	-9.96	-1.73	7.26	8.41	-8.41	-2.18	2.96	
	-21.85	53.93	-4.45	8.14	5.47	-29.09	-0.20	1.68	8.52	-5.59	-5.17	-55.96	
	-2.14	10.06	0.22	35.37	4.30	-9.93	-2.55	6.45	11.31	4.01	-3.78	-41.00	
	11.99	9.23	6.78	19.81	6.16	-6.48	14.54	2.03	8.92	9.39	1.77	-6.08	
	6.13	11.64	-3.71	16.32	2.72	6.46	4.90	-1.54	1.91	5.83	3.10	-5.99	
	11.86	27.14	8.28	3.47	0.21	7.68	7.41	-18.57	-8.90	-2.24	11.99	-3.30	
	7.27	-4.21	4.60	1.92	1.36	2.65	-24.20	37.27	-7.23	-1.63	0.03	4.79	
	1.66	-39.13	5.13	2.97	2.03	3.67	2.36	12.40	4.42	-1.23	3.91	-29.35	
	-15.12	-33.83	-4.57	14.78	0.52	-21.48	0.12	24.72	3.54	-6.30	-6.21	2.55	
	-1.19	0.97	-2.50	11.47	3.93	31.31	12.13	11.94	-4.01	-6.44	4.21	-2.87	
	9.45	1.26	8.73	17.67	7.22	11.17	2.40	-4.28	17.46	-7.62	-3.37	5.22	
	-5.07	1.88	-5.49	-2.48	7.48	8.03	0.19	-7.64	5.73	-0.13	-5.21	-2.51	
	1.24	7.70	-15.53	8.52	21.43	11.82	3.54	-6.08	1.90	-5.11	9.21	7.99	
	10.17	5.55	-28.56	13.04	0.60	7.71	33.13	-0.83	0.76	-12.82	8.65	7.66	
	8.12	4.01	-10.09	4.84	-11.26	1.25	10.88	0.99	-1.14	4.65	7.34	5.57	
	12.29	3.62	-4.26	-0.90	6.12	8.22	-5.35	27.80	-3.09	-6.89	-4.19	-3.04	
	0.45	4.60	-9.52	-0.74	1.80	1.19	4.62	23.78	5.02	-3.86	-9.96	-1.60	
	13.65	4.55	-0.45	13.28	-2.41	-3.75	-6.01	34.21	12.98	-2.79	-6.22	6.00	
	16.36	13.44	1.01	0.81	0.20	0.10	-14.83	8.62	9.17	6.55	2.24	27.55	
	48.72	-4.93	9.42	-8.34	5.68	-2.71	2.41	-11.89	2.69	6.57	-0.73	34.91	
	15.33	-6.52	11.26	-5.18	4.67	-7.22	5.26	-9.60	0.03	-6.48	1.97	11.87	
	0.92	-5.68	5.82	3.95	-8.32	-0.93	-1.77	-2.52	1.39	-5.78	5.96	14.75	
	-4.08	-0.33	2.73	1.26	-3.98	-0.37	-13.14	-29.24	-3.47	12.79	-2.35	-7.07	
	-4.84	-10.31	-0.61	2.21	-0.11	-6.07	1.54	-2.30	-6.93	-2.68	-1.93	-1.71	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	0.18	-4.45	-0.55	0.28	2.40	-38.78	13.75	7.57	0.27	-11.42	-10.11	-0.41	
	-35.82	-7.30	16.81	-9.30	-12.24	-27.22	-11.25	-33.32	0.80	-6.19	-9.90	17.51	
	-9.01	-5.78	6.09	-9.29	-3.12	-14.22	-12.17	-14.40	-3.45	-13.49	4.33	-14.46	
	-0.96	-1.76	9.48	-22.22	-3.46	-2.88	-5.03	-22.70	-17.84	-10.43	-12.28	-29.34	
	-41.98	-1.13	2.16	-10.65	-4.02	9.85	-3.99	-40.91	-12.52	-4.49	-0.80	-28.56	
	-13.78	-3.70	4.55	-8.62	2.16	-14.27	-1.37	11.10	-1.01	-5.90	-13.10	-22.26	
	-11.29	-5.06	9.19	-7.80	20.82	-12.60	-3.51	-21.79	-3.71	-13.02	-24.39	-22.27	
	-44.39	-10.06	11.04	10.84	-18.61	15.58	-0.93	-30.76	-0.54	-2.64	-15.14	-13.87	
	-39.90	-0.59	13.48	5.84	2.84	34.92	-1.19	10.91	-2.81	-5.12	-0.55	-34.88	
	-17.93	-15.25	20.44	-2.56	-4.66	10.17	2.47	5.56	7.20	-5.28	-15.91	1.46	
	5.03	-5.24	-15.13	-3.28	-2.91	-6.27	0.73	3.00	2.93	1.40	-30.56	5.62	
	-2.15	-27.44	-26.91	7.85	2.80	-9.51	-4.07	-0.65	-2.86	5.26	-30.09	9.92	
	7.35	20.47	24.26	-0.68	7.63	-0.67	3.77	3.50	8.55	0.27	-25.09	2.52	
	11.45	7.00	7.51	0.13	9.52	0.41	20.77	1.08	1.27	32.28	-10.15	12.55	
	20.88	11.38	-8.40	15.88	13.13	-3.65	9.69	0.02	0.55	12.20	-23.08	51.91	
	-3.39	4.25	-3.71	4.11	0.55	4.35	8.47	3.67	-0.01	-9.97	-26.71	9.46	
	-0.53	0.65	-18.96	-12.58	3.08	-4.82	7.02	18.67	0.47	-4.45	15.85	9.34	
	8.80	1.25	-36.89	1.53	2.71	-7.58	-1.68	6.80	4.85	-9.48	-2.77	12.00	
	14.45	7.44	-12.83	-6.39	4.86	-10.61	-1.36	11.79	-1.72	-5.08	7.22	-3.86	
	8.99	28.50	-3.46	11.77	2.48	-4.58	9.88	28.09	-12.12	-10.48	6.60	-13.65	
	3.54	-2.42	1.84	-14.63	2.14	6.43	7.67	-14.83	-21.36	-2.02	6.35	-3.03	
	7.91	-3.78	2.78	-12.61	-1.17	5.66	4.55	-5.01	-15.17	0.69	3.70	-0.78	
	14.90	-1.89	19.99	-1.08	2.21	12.09	17.19	4.41	-16.36	4.92	0.13	5.34	
	9.63	6.44	3.98	-3.15	-1.46	0.72	25.11	5.75	-10.02	4.20	6.67	-3.07	
	10.50	22.37	-9.72	-4.97	0.76	5.37	-5.51	1.51	-20.02	10.97	10.89	-4.18	
	21.40	25.02	15.06	-7.09	0.31	-7.02	8.27	4.45	-9.59	-17.28	15.69	-38.00	
	5.50	4.11	5.72	-7.07	-9.65	-0.55	12.75	-12.07	3.22	-6.20	11.14	-53.11	
	6.75	7.17	4.19	-18.23	-5.34	-2.50	-1.66	4.26	7.51	5.76	-11.34	11.86	
	16.71	30.98	6.76	-16.91	-9.85	17.16	2.60	-15.93	5.51	9.33	-8.06	6.19	
	2.46	3.56	11.63	1.62	-9.80	-11.65	-6.28	-27.37	5.81	7.88	24.65	14.22	
	3.27	-2.70	25.42	7.20	-11.02	-6.11	2.78	7.83	6.53	18.67	11.41	-2.73	
	-48.22	13.28	17.83	9.60	6.59	-9.30	-12.94	40.35	9.46	16.60	18.58	-37.22	
	1.92	28.13	4.28	2.57	2.72	1.00	-13.79	7.66	9.29	21.72	10.29	-7.08	
	22.22	10.82	3.38	3.27	2.84	-5.77	2.39	3.24	20.63	8.46	15.76	8.01	
	14.25	11.79	1.12	-3.01	-23.88	-0.04	-1.54	14.07	25.48	17.06	11.81	19.14	
	16.12	3.44	9.03	14.20	-10.28	-1.38	-6.01	32.04	1.55	8.10	-12.58	14.23	
	7.46	-0.74	9.68	19.32	19.22	6.68	2.48	28.03	17.28	21.68	8.92	33.06	
	14.85	7.22	1.86	35.35	37.44	7.07	14.56	2.28	4.65	7.46	17.61	59.42	
	22.33	13.67	-4.41	17.55	59.29	8.68	18.05	18.51	0.68	11.18	12.63	17.81	
	34.78	4.00	5.03	15.13	16.79	28.64	8.37	17.28	11.80	32.48	13.91	59.75	
	36.87	12.46	16.35	13.36	11.72	26.28	23.64	23.98	16.58	18.66	12.40	1.46	
	9.27	13.74	16.63	4.92	18.02	9.28	19.98	-0.08	36.98	33.10	9.76	28.30	
	44.97	15.12	11.63	6.21	30.40	9.96	37.97	34.85	13.58	21.75	16.10	24.45	
	15.66	1.19	-10.76	3.05	31.08	28.80	-9.13	29.82	1.17	11.67	14.14	60.31	
	-11.79	-17.58	-5.77	21.64	-3.75	20.65	2.34	-42.36	2.93	7.55	11.13	39.94	
	2.31	1.17	7.13	7.32	11.11	27.09	12.10	8.44	8.92	13.55	10.74	29.97	
	43.83	12.15	6.77	15.93	19.76	7.82	19.57	16.40	27.14	18.40	11.87	5.04	
	12.60	7.71	-0.06	9.73	29.44	-17.06	36.21	29.88	9.66	25.46	17.23	20.33	
	20.33	15.86	13.42	12.33	31.61	5.05	8.27	10.83	0.66	4.65	16.98	26.37	
	0.37	17.46	6.45	4.39	36.75	15.32	18.12	20.64	10.89	2.34	5.38	12.20	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-10.71	-14.62	-5.56	-13.77	8.97	23.22	8.70	13.29	15.17	4.33	-7.74	-10.33	
	6.88	10.69	5.87	16.68	11.01	1.54	7.77	36.75	5.12	7.22	-0.12	7.79	
	-3.56	12.21	7.99	0.99	14.42	0.28	20.35	21.11	8.21	9.31	-0.75	20.16	
	15.37	10.44	5.45	22.43	11.16	1.41	24.86	-2.73	13.77	13.00	1.51	4.14	
	3.83	20.84	-5.31	8.89	10.98	-5.59	3.75	9.90	0.72	4.36	39.21	3.72	
	-0.57	17.55	8.21	1.11	-55.77	-60.19	9.24	-0.58	-2.26	3.27	19.28	9.02	
	7.71	30.68	-5.36	-6.41	-19.07	-11.45	-2.07	-22.01	8.52	12.35	-6.85	0.05	
	9.46	10.86	6.04	25.20	0.63	11.81	12.32	7.18	8.72	12.11	15.79	-1.71	
	6.96	5.55	1.14	42.22	2.96	31.83	-3.32	17.75	2.29	17.60	-10.09	1.93	
	6.31	2.32	-9.42	3.84	15.29	22.95	4.04	8.23	2.39	-0.03	-8.17	-1.49	
	18.68	6.60	7.55	-48.78	20.62	7.80	3.55	1.26	1.54	-8.67	1.49	4.03	
	24.11	3.07	-21.65	16.10	-2.34	4.09	-1.41	5.94	0.36	-1.31	-8.80	1.06	
	-0.16	-5.11	10.06	-6.49	12.15	-1.21	5.43	-9.44	2.80	1.28	-14.27	-0.42	
	4.97	2.60	6.44	-4.73	-0.12	-4.90	0.79	0.85	-0.90	-2.29	7.87	4.11	
	1.34	2.69	-0.57	-4.98	0.08	-7.34	-0.99	-4.28	1.73	5.43	5.21	-0.29	
	1.04	3.31	-6.56	-0.24	0.06	-9.79	0.35	1.69	2.50	-0.42	-9.85	2.74	
	3.77	-3.98	2.38	-0.68	-2.83	-32.43	-0.29	3.21	-2.40	-0.68	0.73	-2.58	
	-3.63	1.82	4.20	-2.48	17.62	-7.02	-3.00	1.75	-1.54	1.67	10.69	0.94	
	1.18	-1.47	-8.35	4.15	24.17	1.86	-0.92	-10.32	2.81	3.25	13.09	4.77	
	-2.87	0.92	-6.30	-4.57	13.32	1.10	0.96	-3.62	-2.15	6.92	2.84	-1.23	
	0.12	4.29	-9.55	-7.72	32.35	2.00	-3.23	8.15	2.02	-6.34	2.99	1.19	
	1.93	5.14	-2.79	1.47	-10.88	-0.05	-2.35	9.59	-1.54	-15.58	-3.20	-6.71	
	-2.06	-4.51	-1.88	5.59	0.99	-7.75	-0.13	0.15	0.90	-4.37	-2.90	-15.68	
	-3.18	1.63	10.18	2.77	-14.66	11.34	-2.49	-2.27	-0.20	-7.50	0.24	-0.18	
	-5.60	1.08	-5.14	2.53	-1.24	37.37	-1.70	-5.34	-0.93	-12.03	3.20	0.40	
	3.19	-0.74	-7.55	-6.22	-1.72	12.65	-1.49	-1.25	-4.14	-2.69	-9.25	4.25	
	1.71	1.18	-23.19	-5.07	0.21	12.05	-2.29	-6.00	-2.77	-19.31	3.97	1.42	
	-1.87	-0.35	-6.85	2.95	-5.72	29.49	-2.32	-4.60	-6.66	-11.44	-4.46	18.01	
	3.16	-9.87	-6.95	-0.51	-12.07	4.67	-6.27	-1.34	-3.53	5.34	-0.32	-25.50	
	-13.17	-10.26	-25.66	-16.92	-13.31	-1.47	-10.09	-7.61	-4.24	-10.87	2.47	-32.41	
	-9.44	2.19	-17.93	-25.74	-7.86	-4.70	-3.21	-4.11	-11.20	-9.42	-2.89	-11.62	
	-20.45	2.16	-8.53	-9.97	-9.45	-2.75	0.65	-20.57	-20.46	-7.39	1.23	-14.05	
	-20.95	-0.94	-27.01	-6.48	-7.13	-2.92	-6.48	-7.66	-14.73	-3.43	-3.45	-16.88	
	5.77	-6.69	-10.33	-14.25	-9.67	-3.64	-8.10	-3.71	-10.70	-11.79	0.98	-21.23	
	-21.94	-11.41	-15.71	-29.96	-16.45	-3.96	0.11	-12.94	-16.14	-16.58	-0.49	-21.90	
	-38.46	-11.96	-24.49	-34.51	-20.24	-9.59	-7.10	-77.21	-19.53	-10.94	7.45	-61.84	
	-42.00	0.29	0.58	-34.86	-32.86	-5.05	-21.19	3.51	-43.00	-17.21	-4.00	-47.87	
	-15.10	-2.23	-27.75	-21.27	-19.97	-29.03	-19.04	-10.14	-37.02	-35.91	-0.40	-20.50	
	-14.54	-18.06	-5.74	-21.37	-38.57	-12.44	-13.71	-15.91	-21.25	-32.64	3.65	-24.19	
	-55.63	-23.05	-35.66	-50.05	-20.69	0.77	-19.55	-10.60	-36.31	-45.06	-2.13	-25.09	
	-27.44	-11.25	-21.71	-20.83	-38.52	-6.31	-19.94	-17.86	-17.34	-39.24	-4.55	-18.02	
	-21.47	-8.45	-24.52	-25.44	-38.76	-1.32	-18.28	5.88	-21.59	-15.60	0.78	-98.34	
	-10.23	-12.96	-27.64	-44.85	-23.24	-5.09	-25.19	-12.58	-43.99	-16.15	-0.37	-31.23	
	-18.20	-23.65	-13.00	-22.32	-25.06	-17.94	-16.33	-32.81	1.12	-26.81	-10.08	-28.66	
	-25.26	-4.05	-14.01	2.35	-24.79	-23.42	-17.30	-29.98	-16.97	-4.88	-21.71	-29.97	
	-5.15	-24.96	-13.06	1.26	-11.23	-10.06	-39.06	-24.24	-14.64	-1.06	-6.22	-4.85	
	0.38	4.34	-11.05	-7.83	-10.67	-4.86	-18.09	40.08	-5.72	2.75	1.31	-10.67	
	-22.59	-13.82	-14.13	7.25	-10.26	-7.23	-14.19	3.23	-7.58	-5.46	-49.26	73.87	
	-5.70	-57.29	-16.75	-8.47	-8.40	-11.17	-28.66	-26.95	-12.28	-11.65	-27.95	22.95	
	-4.32	-18.30	-14.85	-10.66	-24.86	-3.80	-12.15	32.88	0.90	-2.14	-1.81	-21.45	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	5.65	-9.29	-12.44	-2.06	-16.22	-23.93	-10.08	-13.39	-6.72	4.00	-5.56	-8.25	
	11.58	-5.40	1.18	-10.26	-12.65	-20.85	-9.24	-30.01	-3.32	-6.17	-13.59	-12.65	
	0.49	-12.52	-7.12	9.65	-5.44	-20.58	-7.54	-5.70	-0.89	5.20	-19.57	0.54	
	-12.16	-8.54	-0.94	-19.69	-9.42	36.59	-12.35	-6.38	26.56	28.24	-19.74	3.17	
	3.96	-18.57	5.29	-6.74	12.16	-41.87	-12.71	-16.06	18.34	17.15	-35.88	-32.05	
	-9.50	-14.75	4.23	-6.73	-7.04	-15.93	-17.59	-0.93	0.91	-1.88	-9.58	-14.31	
	15.66	-4.24	-1.26	-11.38	-9.42	-12.45	-7.42	-27.55	-5.41	-2.82	-13.77	-4.52	
	18.44	1.82	-5.23	-9.81	-17.32	3.19	2.98	-4.16	3.17	-2.67	-1.39	2.63	
	6.81	-5.93	5.15	9.51	0.12	-27.40	5.57	1.77	4.48	1.71	0.79	6.23	
	5.40	-9.20	-5.85	1.36	3.96	-13.16	22.90	7.58	22.01	35.42	-6.23	69.29	
	-12.44	-6.47	1.55	-1.17	-6.27	-13.17	58.64	-6.18	17.63	13.45	-8.90	57.21	
	-4.86	3.22	9.70	-6.47	-1.67	7.66	38.21	-10.87	4.59	-4.90	2.59	19.65	
	-2.15	1.89	-4.38	-9.95	1.18	-9.26	-28.83	0.87	-0.35	-4.24	-5.86	-14.17	
	-3.30	-2.39	3.12	1.67	26.97	-3.24	-24.13	-2.67	-2.84	-0.44	10.48	5.59	
	-7.07	-2.28	-1.14	0.26	10.25	16.92	3.85	-3.79	-4.59	-10.42	1.72	-5.25	
	-6.75	-5.11	10.92	-9.84	-31.81	-16.55	-5.39	-0.22	-22.49	-55.62	7.64	-69.66	
	8.05	5.16	3.20	-12.38	-6.12	16.17	-2.72	-6.05	-22.67	-10.75	22.40	-30.96	
	0.86	-3.15	44.08	-7.29	3.27	53.49	-8.79	-1.75	-8.48	-0.42	4.88	15.21	
	14.95	-5.94	7.62	-9.52	-14.37	18.52	-2.11	-7.45	0.97	-6.59	0.57	-5.05	
	-1.01	10.35	-7.64	-17.54	-0.92	26.18	-0.58	-3.14	1.04	0.30	16.08	10.67	
	2.58	3.75	-0.21	2.20	-0.55	11.39	-1.20	-0.90	0.65	16.74	16.31	1.80	
	-7.51	4.27	13.20	-2.85	7.78	7.09	0.66	16.22	3.84	36.42	31.31	-6.91	
	-6.64	0.69	-7.12	-5.36	1.71	-6.37	-3.93	-9.91	4.22	26.08	-4.28	-3.31	
	14.09	4.45	18.16	3.75	-8.30	-5.33	5.56	0.56	0.94	14.48	8.00	17.88	
	5.11	1.94	4.68	3.46	-3.62	-31.75	-2.79	12.48	3.06	5.49	7.56	4.33	
	-5.26	12.81	4.82	-1.91	3.66	-8.34	-1.13	-4.55	-2.73	12.46	7.76	14.64	
	20.72	29.73	7.91	3.94	5.76	-13.15	1.82	0.23	-3.68	-7.84	21.60	15.77	
	9.94	0.95	3.48	11.26	11.09	42.60	1.93	1.31	5.31	4.20	12.20	35.12	
	-3.48	0.80	5.75	13.70	-10.94	21.19	-8.13	-12.44	2.45	-0.18	8.47	8.75	
	-7.12	-4.03	1.88	2.75	7.57	4.05	3.47	1.45	3.48	2.56	10.71	35.87	
	-9.42	-1.54	-0.59	13.68	3.36	0.35	5.26	1.34	14.31	8.18	10.04	4.80	
	1.44	-4.50	7.77	4.95	2.06	-4.13	3.58	-3.20	4.22	-0.14	12.38	5.52	
	3.95	-1.05	8.42	5.64	0.84	22.03	4.60	-0.40	0.20	-0.53	11.74	15.07	
	-11.39	2.99	3.70	13.96	1.41	55.71	-25.74	10.83	5.52	1.24	5.61	40.95	
	-0.37	-1.73	-3.02	7.21	43.96	28.37	-5.50	-0.32	-0.99	0.27	3.74	41.83	
	19.38	13.60	0.99	5.23	10.28	55.20	14.13	3.26	-1.67	4.33	-1.27	3.17	
	-20.42	3.65	4.24	9.33	5.79	-0.81	-12.08	-7.41	-0.87	3.65	11.13	1.26	
	9.03	4.86	3.77	-0.57	-11.76	-7.29	-1.90	1.93	0.37	3.44	9.31	0.65	
	-4.69	6.83	1.69	2.82	-5.66	-12.01	1.81	6.15	1.77	0.29	22.21	3.15	
	34.24	-2.78	2.05	0.75	8.74	-10.89	14.97	2.90	-3.40	-27.39	-0.75	52.94	
	17.32	0.97	-13.31	-0.57	0.45	4.72	16.83	-5.20	-2.61	2.24	3.17	27.29	
	-0.89	0.55	-1.24	3.06	-11.74	8.67	6.70	-2.60	2.64	-10.06	-9.19	-1.00	
	-2.50	7.21	-2.61	0.40	-33.68	8.20	-4.65	3.52	-2.67	-16.32	4.53	-1.01	
	-4.00	-23.18	-5.20	5.76	-8.65	4.03	10.08	-0.41	-0.63	-0.63	4.00	11.62	
	12.30	-8.36	-18.06	-8.45	7.39	0.50	16.84	-8.15	-2.98	5.28	-1.13	-12.29	
	-16.33	-8.21	-7.48	-8.19	26.64	-16.56	-2.28	-6.43	-36.83	30.43	-6.23	-33.97	
	-16.16	-20.38	-0.27	-7.24	15.19	-7.75	-19.46	-24.40	0.99	-11.08	-2.06	-37.32	
	-24.70	-2.97	-11.85	-23.01	-9.95	14.55	-5.32	-15.13	-16.05	-10.12	4.49	-38.24	
	-26.14	-22.28	4.25	-0.31	1.92	1.97	-6.95	15.15	-3.18	-2.28	-28.49	-17.64	
	12.46	-11.35	-16.98	8.77	0.96	-0.65	-0.55	21.67	-11.87	-27.77	-14.56	-13.91	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-24.89	-5.88	-7.72	17.61	9.37	-8.57	-7.65	-25.48	1.96	-15.30	0.41	-27.96	
	-22.35	-2.74	12.55	58.30	-9.02	-41.98	3.08	4.47	-2.56	-2.41	2.33	-64.85	
	-18.80	-10.20	10.98	38.64	0.53	2.54	-0.45	12.10	0.52	31.75	-13.51	-13.91	
	-14.63	-9.29	0.26	4.93	4.21	-6.96	1.45	-22.01	0.59	13.54	-49.06	-13.05	
	-5.18	-11.91	-7.10	9.66	2.39	3.30	1.07	-47.65	3.89	-3.31	-32.73	-17.60	
	-3.14	-20.06	0.43	10.82	2.32	-24.66	-0.29	0.58	6.36	5.78	-27.91	-1.92	
	-0.03	-4.40	-4.71	10.24	10.03	3.22	5.33	13.30	-2.76	1.35	-20.73	4.28	
	7.47	-8.39	-3.37	7.20	76.60	0.49	-11.24	-7.39	-3.59	1.30	-15.24	4.33	
	19.49	-6.16	-20.01	5.26	10.50	-0.42	11.09	-12.22	14.84	-0.28	-12.35	2.84	
	9.85	-4.56	-20.13	9.78	10.24	4.77	0.57	3.63	1.91	-5.37	1.01	31.24	
	11.47	-2.91	-18.21	3.76	14.53	-7.38	6.95	2.41	-1.68	-3.34	4.21	2.12	
	7.80	6.97	-12.77	18.71	-2.57	-16.42	6.14	13.00	5.06	-3.75	10.33	1.01	
	20.09	14.30	-13.29	2.07	-0.80	-7.11	7.99	5.28	2.63	-19.74	13.08	11.20	
	13.70	10.02	-14.81	59.86	-1.83	-6.15	-2.28	3.23	32.38	-14.70	11.29	5.85	
	-13.81	-0.93	8.28	12.26	-3.19	3.21	-7.95	2.26	13.99	3.70	13.17	-0.16	
	-4.68	12.47	1.11	-3.66	-0.36	-8.07	-2.71	37.40	-5.94	-1.53	12.42	49.15	
	4.93	1.50	1.99	-0.88	-16.67	16.65	1.24	3.41	-12.07	-5.58	3.61	-18.10	
	-3.50	15.22	5.02	-7.93	-0.36	-5.61	-11.51	7.49	-3.39	0.31	8.42	14.58	
	2.32	10.21	15.40	-5.48	-12.25	-15.97	-3.06	5.24	-17.05	1.40	3.44	0.34	
	9.58	5.66	8.33	-35.60	-2.60	-15.00	2.91	2.49	-10.56	-22.41	12.04	0.27	
	-4.52	7.78	7.71	-30.25	-7.20	35.72	2.90	-2.19	-4.84	-22.93	40.90	-9.99	
	5.98	13.57	13.51	-21.86	2.33	-36.89	4.07	-4.79	1.41	-5.47	-9.85	-10.90	
	1.53	3.66	13.77	-21.65	-1.90	22.21	2.31	-7.57	15.79	4.99	-12.41	4.10	
	0.22	0.83	7.13	-6.55	-18.95	-54.85	-4.82	-30.98	2.01	-0.82	-1.05	3.73	
	12.73	24.48	10.61	-2.65	-17.22	-10.79	-6.88	5.20	27.85	13.08	13.67	8.65	
	-16.35	13.31	12.89	1.53	1.10	18.99	4.92	28.72	-27.69	-6.45	1.24	-37.79	
	-17.99	9.83	4.54	8.29	12.46	-16.59	-13.69	13.64	19.63	9.81	7.78	7.35	
	10.27	4.57	20.88	14.76	12.93	-24.55	-4.11	-20.27	10.07	15.53	18.41	5.11	
	-8.99	9.15	15.24	9.95	1.51	-7.79	3.12	-18.49	24.70	8.91	9.39	3.05	
	20.32	7.06	10.10	0.73	11.90	14.77	-3.49	7.63	13.53	8.84	0.29	7.21	
	-0.14	12.77	14.46	11.37	2.26	32.02	-8.90	18.80	12.25	31.37	1.10	38.15	
	24.07	7.67	7.58	-20.11	-3.00	43.26	15.49	23.07	40.89	2.67	1.72	33.56	
	40.51	32.73	21.31	-7.11	0.80	-5.44	11.13	18.43	27.49	8.59	10.10	16.98	
	-18.26	13.15	27.05	13.19	16.87	-8.08	1.92	37.21	19.58	11.33	17.34	29.50	
	8.63	2.61	17.64	30.39	24.48	13.14	13.39	22.39	47.90	52.95	0.56	20.88	
	22.46	23.36	15.40	26.45	55.08	12.98	57.66	7.92	22.97	29.25	2.33	12.28	
	-2.89	22.87	19.65	13.72	49.88	10.04	31.74	12.72	-0.44	26.65	19.65	36.12	
	-5.42	7.74	13.48	-15.38	49.67	-4.67	11.98	-11.93	-1.61	13.44	-3.68	7.77	
	-2.30	8.06	0.27	-16.76	5.49	15.30	5.13	7.45	0.94	0.35	15.45	12.23	
	20.72	15.24	5.20	13.00	7.66	20.50	20.20	11.96	7.04	35.48	23.86	10.51	
	15.96	13.67	9.03	50.87	42.78	12.97	25.61	12.75	13.21	34.77	7.24	31.88	
	32.64	9.08	0.74	39.18	13.98	38.96	28.76	39.36	21.02	20.24	12.98	17.52	
	4.88	10.06	7.21	19.46	1.38	15.82	17.73	33.00	8.93	7.43	19.52	11.24	
	6.63	12.53	16.65	-5.41	-6.76	4.18	16.63	6.93	-18.60	14.06	6.46	16.76	
	-9.75	2.95	-2.48	1.62	-3.35	-0.60	17.20	16.66	-14.93	17.76	24.96	-2.68	
	11.01	2.70	-0.29	6.99	20.12	26.40	23.38	24.08	17.60	12.31	15.42	4.61	
	9.21	10.87	2.34	14.18	22.72	30.11	36.24	7.66	8.53	5.25	9.83	19.44	
	4.47	9.66	-5.16	32.33	7.57	23.35	-28.00	19.17	12.99	3.45	10.98	2.11	
	11.89	9.39	-4.60	10.12	11.40	-7.54	4.77	5.58	14.36	2.39	22.22	2.44	
	23.32	2.30	-11.91	4.57	-10.61	-34.20	1.41	4.54	5.25	2.94	19.14	31.34	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	24.07	10.29	-1.90	2.11	8.83	-38.36	-3.47	19.44	-11.04	7.36	7.80	47.73	
	14.32	3.46	5.94	-0.17	9.33	-11.13	-2.91	11.72	-3.79	3.43	31.60	-4.41	
	2.96	9.56	3.67	8.80	9.20	18.51	24.83	-15.29	2.15	0.96	-5.06	-6.94	
	1.09	-0.45	4.50	2.96	6.12	13.65	9.11	-16.29	8.78	11.43	1.85	0.92	
	9.55	4.51	-1.78	0.00	8.59	-19.38	3.46	-1.36	6.35	-0.99	19.21	3.07	
	3.48	6.14	-6.10	5.61	1.62	7.26	7.37	-2.58	-3.87	2.33	5.89	3.10	
	-2.34	-0.77	0.81	6.16	1.78	30.57	5.83	-0.71	-12.96	-5.19	1.33	3.39	
	-22.67	7.13	-6.13	10.66	7.31	37.33	2.09	5.95	-2.47	1.04	10.68	1.86	
	-3.90	-3.18	-6.52	17.30	3.07	28.76	4.02	4.85	-2.24	2.49	3.43	9.76	
	1.73	3.97	2.06	10.90	3.69	8.47	0.13	6.28	6.13	-0.43	8.17	-8.03	
	-8.92	10.23	8.13	-4.41	-0.19	10.39	6.10	9.44	5.65	-4.33	-0.66	-8.27	
	10.05	4.24	-3.86	27.98	-1.65	1.86	34.55	-4.70	-5.15	1.89	-9.81	-2.86	
	3.51	-2.68	2.49	33.54	32.36	-3.45	1.84	0.01	2.05	-9.53	-20.91	-2.50	
	-7.85	1.04	10.20	23.66	8.14	0.77	-13.56	2.41	12.27	0.95	-5.42	-2.81	
	-2.27	2.59	-0.18	-4.22	-4.75	0.92	-0.81	6.76	13.86	6.28	0.05	-2.48	
	1.04	0.60	-2.35	-9.43	0.63	18.50	-0.21	18.87	11.03	5.40	2.17	2.57	
	1.54	-5.22	-4.94	-3.84	-0.14	6.82	-2.59	37.23	2.40	-4.80	-0.73	6.78	
	3.84	0.20	-6.00	-18.38	-1.28	10.32	3.21	34.17	6.38	1.36	4.28	-4.75	
	-6.17	-3.46	-11.39	-12.85	-3.72	3.09	3.75	-4.67	2.98	5.24	2.89	-5.03	
	-12.95	-3.23	-9.25	-8.98	-29.42	-1.93	0.46	-20.77	-1.81	2.14	1.59	15.84	
	-3.50	-2.08	3.07	-10.07	-22.16	-0.40	-0.29	-27.76	4.53	0.76	1.44	4.39	
	-2.16	-11.89	-9.49	-27.17	-2.44	-0.01	-0.72	-9.88	3.24	-1.35	-4.15	3.06	
	-3.90	-29.09	-2.24	2.38	2.23	1.72	11.49	2.49	5.40	-0.33	-3.84	-7.73	
	-6.44	-18.36	-11.23	-7.61	-7.07	-5.18	-10.38	-0.12	-8.74	3.06	-1.77	-25.49	
	-22.04	-14.92	-18.11	-24.73	-17.54	-7.67	-11.02	-4.14	-6.90	7.59	-1.02	-4.10	
	-13.18	-14.54	-8.55	-14.33	-21.17	-35.18	-8.25	-2.48	-7.49	6.55	-8.27	-6.96	
	-19.49	-4.32	-8.26	-7.54	0.80	-41.99	-11.01	4.77	-24.05	-0.11	-4.08	-29.90	
	17.26	-20.08	1.46	-42.25	-5.61	3.02	3.18	-7.55	-14.69	-6.33	2.52	-11.01	
	-52.80	-14.99	-1.81	-18.63	-17.20	-0.48	0.67	-22.25	-13.38	-62.55	-2.69	-9.95	
	-15.21	41.11	-11.29	-33.43	-64.19	-28.48	-8.08	-45.11	33.56	-18.02	4.03	-1.64	
	-24.30	21.06	-17.71	-42.83	-46.38	-39.27	-39.35	-3.54	9.53	-25.01	9.52	-16.44	
	-33.04	0.15	-0.18	-17.53	-22.46	-46.42	-30.04	3.19	-8.95	-34.28	22.19	-19.22	
	-17.00	-12.04	-16.39	-35.55	-13.39	-47.36	-18.75	3.70	-40.74	-27.16	-3.43	-24.00	
	-26.85	-19.54	-12.14	-12.52	-11.91	-24.00	-19.30	6.06	-16.18	-29.07	-6.34	-35.04	
	-26.73	2.57	-2.63	-35.38	-27.22	-36.46	-30.60	16.08	-15.96	-29.84	-7.16	-7.23	
	-4.65	-23.76	-29.63	-26.48	-21.06	8.97	-35.28	26.09	-31.05	-34.19	-2.81	-7.41	
	-7.84	4.47	-4.14	-29.69	-44.37	-14.55	-26.29	9.08	-14.65	-40.69	-3.39	-17.44	
	-1.95	-5.67	10.93	-10.19	-40.55	-26.39	-26.08	2.02	-43.16	-30.15	-7.42	-17.08	
	-25.90	7.18	-22.40	-13.77	-23.93	-17.02	-16.63	-16.00	-13.24	-21.90	-9.27	-18.69	
	-17.94	37.10	-21.43	-6.01	-14.32	-18.37	-23.34	-20.78	-10.36	-14.49	6.34	-11.63	
	-0.98	-16.29	-6.45	-11.24	2.62	-4.42	-23.62	-17.10	-5.94	-2.02	-9.92	-19.73	
	33.68	-16.34	-5.41	-4.35	18.39	5.62	-12.09	-113.63	9.52	-0.14	5.75	-16.21	
	14.56	-35.45	1.80	-0.01	-7.70	-8.59	-33.32	-33.94	6.15	-0.80	-9.91	-9.12	
	4.46	-10.03	-6.55	0.48	-9.81	-2.23	-14.22	-21.10	1.53	-1.69	-14.24	-2.76	
	1.19	-11.05	-14.10	0.41	-6.72	-2.40	-24.37	11.16	-7.19	-9.18	-12.06	2.67	
	0.97	-47.15	1.15	1.21	2.70	-2.86	-8.87	18.77	3.51	-6.13	-13.98	2.91	
	0.29	-12.93	-0.82	-0.50	-0.99	-13.68	-12.20	-16.03	-2.48	-6.57	-4.42	0.40	
	16.31	-3.41	-3.16	12.98	-7.86	-16.12	-1.55	-16.12	37.33	-3.66	-25.78	1.37	
	14.84	-9.14	-6.12	-7.07	-0.48	-7.04	-0.08	-16.29	-3.73	-11.82	-15.83	8.91	
	4.21	-26.95	8.66	7.39	-1.74	1.93	-6.75	-16.21	-25.93	-2.49	-2.38	-12.04	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	11.44	-18.67	-4.10	-0.82	-25.27	-3.16	-7.61	-14.53	-8.27	-1.57	-6.29	-2.84	
	0.34	-4.61	1.02	-5.25	-5.07	-10.56	-0.60	-22.74	-0.99	-14.85	-7.81	-3.88	
	3.06	-2.40	10.99	7.08	2.03	-23.45	-15.92	0.36	-2.18	-1.49	-7.12	7.63	
	-15.47	-10.92	-15.39	1.40	-9.12	3.66	-51.65	-7.28	-18.77	4.69	-12.02	-20.14	
	-1.70	-7.35	7.67	7.98	0.00	31.55	-23.72	-23.83	-15.26	9.21	-8.76	-13.13	
	-5.25	8.11	-2.73	4.41	-1.24	0.91	-4.13	-15.28	7.80	-25.81	-3.04	-0.68	
	-2.13	4.72	1.11	0.76	-3.44	12.61	10.31	-7.31	-0.90	-9.50	-10.50	-3.81	
	0.14	13.97	2.84	-5.40	-1.91	0.72	31.92	-27.74	3.94	-6.88	-10.87	-0.94	
	7.49	5.93	7.23	-1.56	-13.58	-10.89	6.46	-7.54	-22.30	-16.97	-6.05	-2.32	
	38.87	-17.39	2.11	-12.66	5.63	18.98	63.62	0.01	-65.79	14.19	1.19	-1.10	
	13.34	-19.09	-2.53	1.14	0.93	37.61	10.79	19.37	-5.25	6.83	-0.14	-0.14	
	-7.16	-6.72	3.77	2.14	3.27	-6.81	-0.58	3.22	22.90	-13.33	-7.28	1.84	
	1.67	-1.81	4.63	2.72	-2.51	-12.35	-0.08	-11.63	-4.30	17.24	-3.89	23.70	
	8.56	-5.92	2.99	8.37	1.57	-44.04	-4.03	5.67	11.73	15.76	8.15	20.18	
	-1.83	6.04	16.18	34.69	3.66	-27.90	1.11	22.36	-5.74	15.51	0.83	0.41	
	-11.93	-1.45	13.78	5.93	1.81	-22.78	15.53	27.80	-11.71	30.45	-4.54	4.03	
	18.04	-1.03	-7.04	-8.51	5.20	3.81	-3.02	7.59	3.49	-0.81	0.85	-17.41	
	13.12	-0.15	29.28	0.39	9.34	5.45	9.56	6.96	-0.48	-3.86	-5.80	0.59	
	2.77	4.47	9.24	-5.36	11.13	5.57	10.95	1.96	6.70	-1.05	-2.17	5.74	
	6.16	1.62	14.76	7.93	10.71	2.18	-20.46	7.26	7.26	2.68	1.04	7.28	
	4.12	16.10	29.62	8.40	9.00	-4.49	-12.79	-8.57	-0.19	8.63	4.32	4.83	
	35.39	5.79	-10.96	9.62	1.29	38.21	-24.23	13.41	1.79	17.00	6.13	0.82	
	8.48	8.47	9.75	-17.73	-1.13	32.44	-1.70	11.68	-8.47	3.21	-5.56	-0.40	
	2.42	3.62	11.01	-5.78	6.88	1.04	10.31	-2.39	-0.05	-4.11	-0.70	-2.16	
	4.44	-3.17	9.08	-8.68	27.44	8.78	-12.94	-0.48	10.00	1.21	12.17	1.70	
	15.31	12.74	10.40	-7.56	38.33	-32.22	3.48	2.55	1.80	-1.76	4.62	10.50	
	-0.30	29.60	12.30	-8.86	5.90	-4.91	11.05	-11.27	-2.50	-4.26	-8.36	17.67	
	2.39	4.77	-7.79	1.44	33.15	30.19	0.45	-32.14	-6.13	-17.01	6.78	-0.11	
	0.78	-3.12	-19.20	1.91	14.35	-4.42	-0.87	-0.37	-53.91	-11.27	11.73	-3.69	
	-2.53	2.50	7.52	10.01	2.11	-1.78	14.08	0.20	-2.99	-5.65	20.08	2.00	
	7.19	-0.35	-11.11	-3.14	-2.62	1.43	-6.07	21.59	-9.13	6.18	6.33	1.97	
	2.41	-0.72	6.76	-10.89	9.65	0.01	0.05	6.19	-3.22	16.55	-2.02	-1.94	
	-0.94	2.12	-1.82	21.14	-17.41	-0.96	3.32	0.71	-3.72	9.25	-0.41	8.92	
	-6.60	-0.62	1.62	19.91	-10.80	1.86	-14.19	-1.54	15.26	-1.48	0.54	-3.62	
	-13.89	-3.70	12.79	4.95	14.87	2.90	-4.01	-19.15	5.42	-18.36	3.77	-9.02	
	-9.75	6.71	-31.85	-2.05	9.77	3.58	6.93	-15.24	-1.24	-14.09	15.00	-12.73	
	-12.51	1.69	-9.32	-4.12	-14.80	-13.25	3.40	1.84	-2.28	-2.45	-5.26	-3.99	
	-6.07	-8.84	2.32	-7.46	8.42	-6.71	1.21	3.51	0.33	-8.06	4.05	-15.71	
	-16.19	1.41	-8.02	-8.72	11.54	-0.34	5.28	-4.68	2.20	2.61	-3.32	-20.06	
	-8.50	-13.03	-11.02	-3.74	-8.29	30.35	13.44	72.49	-1.90	-8.42	-1.26	-23.39	
	-25.89	-28.03	-11.90	-7.12	-11.96	8.79	-13.06	0.06	0.95	-17.83	-5.96	-29.70	
	-24.66	-16.65	11.93	-5.61	-7.60	-8.95	1.27	-2.00	-3.59	-2.97	-1.41	-18.27	
	-10.14	-10.08	0.11	-14.56	1.31	4.64	5.16	-15.21	-6.49	3.38	-3.81	-15.45	
	-28.36	-17.79	4.83	-11.32	-2.53	-5.56	0.87	-26.26	-6.16	1.06	-28.82	-83.81	
	-14.55	-8.82	-2.59	-9.31	-13.49	-5.28	-4.25	0.04	-13.90	8.71	-5.21	-48.11	
	-26.23	-9.46	-4.95	-5.52	-6.04	-45.59	11.38	3.22	-34.15	-13.30	-11.77	-37.03	
	-36.63	-6.99	1.88	-8.13	0.59	-21.56	-9.82	2.73	-22.57	4.75	-20.45	-25.26	
	-13.50	-0.81	-2.72	-1.38	1.15	-10.76	6.15	6.91	-9.77	-1.67	-28.53	-6.54	
	-22.04	-15.39	2.84	1.40	1.83	16.69	9.23	2.12	-1.24	1.81	-40.54	-2.35	
	-6.72	-19.87	-3.33	-4.17	10.30	4.93	2.69	1.56	2.48	9.00	-16.46	-3.43	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	18.68	-17.23	-14.50	5.72	11.22	13.72	6.63	10.77	3.92	8.67	-30.25	-9.02	
	32.09	-14.85	-11.02	6.76	9.08	27.73	12.14	9.69	3.01	8.00	-32.67	15.69	
	8.35	-7.71	-37.17	2.38	2.73	20.44	18.69	28.59	3.70	-3.26	-20.40	13.59	
	8.34	-4.20	-4.90	6.47	1.38	-6.86	28.62	27.08	7.16	0.02	0.85	-5.89	
	12.12	0.69	-43.13	0.51	0.73	21.20	13.29	0.92	8.20	-4.84	13.46	0.86	
	6.88	-4.77	-9.37	14.79	6.81	8.73	10.44	5.75	4.40	-4.71	14.04	15.91	
	7.39	-1.17	-26.47	11.33	1.70	17.23	8.14	2.90	4.94	-6.84	9.74	-1.76	
	2.64	-1.75	-18.31	-1.43	14.37	4.64	6.81	2.80	1.29	-20.64	11.76	8.54	
	-2.07	5.88	-6.39	-11.05	-2.61	51.76	5.66	19.71	-20.42	-11.90	1.97	-6.06	
	3.40	9.43	-14.71	-6.67	0.07	7.05	32.44	15.55	-11.60	4.84	4.62	-5.15	
	0.17	6.92	-13.53	-24.59	3.01	-36.46	10.61	1.83	-18.39	10.72	6.86	4.48	
	-1.27	-2.35	19.45	-9.14	7.81	6.15	8.82	-12.88	-5.40	1.97	4.35	-4.39	
	-1.83	1.82	-0.82	-25.81	7.01	1.09	10.63	-10.81	6.28	0.24	2.65	9.58	
	4.84	-3.45	0.88	-4.22	-9.50	-11.31	8.73	-55.98	14.04	-17.62	-0.67	42.02	
	-0.89	4.88	2.58	-6.57	-12.85	-17.42	0.70	-17.49	8.00	-16.75	-1.99	-2.35	
	8.34	6.34	17.37	9.11	-15.67	1.21	-1.48	8.42	6.77	-14.62	3.22	-2.00	
	8.27	6.55	6.03	-3.93	-1.66	1.36	-5.28	3.14	10.80	25.74	2.10	-1.12	
	11.03	13.08	2.73	8.30	-4.88	-2.50	-9.78	-2.99	2.22	17.81	2.45	5.10	
	-3.12	10.19	20.20	7.74	-15.98	6.61	-6.91	-1.91	3.86	8.80	3.57	16.65	
	-50.23	14.14	37.39	7.77	-12.37	16.63	-7.08	-8.35	5.87	43.06	5.43	7.43	
	-27.69	8.25	13.44	11.55	-2.91	-10.42	-11.82	-4.96	28.95	44.56	8.35	19.45	
	-9.91	22.53	7.61	20.40	14.37	-40.51	-3.31	1.26	14.05	23.48	1.63	25.87	
	6.22	13.99	24.51	31.87	7.69	-34.61	11.98	8.66	15.00	30.98	18.91	5.65	
	11.99	11.25	10.37	13.45	8.50	7.73	7.88	16.23	27.64	12.47	1.91	-3.26	
	8.09	16.93	-2.72	12.08	14.23	12.77	4.96	19.68	13.39	7.56	16.74	18.48	
	-9.68	24.96	28.01	40.49	-38.63	-18.52	25.93	-0.68	10.09	-13.07	5.70	33.95	
	29.69	-1.20	4.22	53.04	-1.63	-4.17	31.67	28.48	11.74	13.25	5.84	37.48	
	37.79	4.00	22.88	3.96	16.38	33.88	22.49	5.69	28.13	-2.85	-1.10	7.86	
	14.23	27.90	17.09	-3.90	19.98	23.29	12.19	9.82	8.68	17.41	4.69	17.02	
	15.07	6.42	1.20	3.27	19.60	25.09	9.76	21.23	16.91	41.09	8.78	14.28	
	13.03	8.69	1.44	10.21	9.87	9.95	19.40	11.65	17.08	18.12	4.32	35.38	
	10.64	28.60	35.74	2.05	11.89	27.00	28.70	7.27	-0.47	12.21	-0.92	14.69	
	-19.86	12.49	14.16	11.74	-0.88	24.57	32.27	5.09	-5.37	15.56	22.59	-8.65	
	11.45	13.44	-5.72	3.94	1.28	9.15	-5.28	13.72	11.03	25.25	30.94	-1.02	
	12.55	15.46	5.94	-2.24	16.01	10.75	0.01	21.91	32.17	16.19	4.20	2.26	
	16.26	10.16	5.77	11.51	25.73	10.61	12.88	5.56	-0.73	11.42	22.52	4.04	
	30.23	16.21	-0.53	13.97	12.18	-20.18	19.35	8.32	13.54	16.16	21.55	-2.87	
	26.34	11.37	3.47	-4.85	5.94	-6.22	12.91	8.52	7.27	23.05	30.15	19.94	
	8.05	7.36	1.56	-19.92	17.98	-3.85	5.25	19.36	1.01	11.46	25.55	20.08	
	5.99	18.26	1.40	1.12	2.33	18.10	-2.08	21.24	19.10	1.52	14.46	-9.93	
	9.12	9.44	0.78	12.41	11.55	0.34	-13.13	6.85	18.54	14.57	35.25	1.02	
	3.87	8.18	1.03	6.52	11.69	12.15	2.24	0.87	3.94	34.73	16.06	16.07	
	32.83	4.04	0.47	-2.37	7.68	14.64	-1.77	3.08	6.70	3.05	-3.74	17.46	
	41.21	4.99	4.88	14.46	44.63	8.68	-4.60	5.29	4.11	-12.02	-2.82	11.70	
	13.64	-2.60	-2.90	14.65	7.94	-16.44	8.92	9.69	4.75	1.68	11.92	31.27	
	11.79	29.71	-0.57	-17.39	23.19	1.68	12.17	8.03	6.14	8.33	1.52	12.93	
	3.94	11.79	-4.32	-22.43	9.94	18.49	11.42	17.36	17.51	7.95	7.50	-13.33	
	-6.04	33.82	-4.07	-3.58	-5.57	-12.61	10.67	6.73	1.18	2.75	9.26	0.07	
	-11.58	-0.73	-3.11	28.34	-1.75	-8.54	8.85	2.37	-7.46	21.39	-1.06	14.89	
	7.83	1.50	1.38	18.15	6.47	-18.50	-2.05	1.99	-18.32	11.44	-10.29	4.92	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-32.78	0.34	-4.28	7.27	0.15	3.57	0.37	6.50	0.97	1.89	-6.91	-2.78	
	-7.47	-17.14	-10.20	6.69	-2.81	4.65	10.31	2.57	5.00	7.21	-7.43	-10.73	
	6.31	-20.56	-20.63	18.76	6.35	3.86	12.52	0.40	-1.23	-1.02	-5.82	3.10	
	-2.73	-8.56	-3.93	5.13	0.26	1.47	-0.87	-6.15	0.17	-3.60	-7.48	9.26	
	-2.56	-5.02	-11.59	2.53	6.30	6.38	2.95	1.68	5.51	-8.29	-2.68	18.55	
	8.96	-6.46	3.33	-3.06	23.22	20.33	4.71	-5.55	-0.55	-4.06	-5.70	9.26	
	7.74	-2.31	-14.04	9.03	8.78	12.56	13.72	-5.12	1.97	-2.81	-3.12	-4.34	
	2.54	-7.08	-9.23	4.01	-6.51	2.17	4.20	2.60	3.39	4.40	9.98	-4.68	
	-5.76	-3.78	-0.30	1.50	9.89	5.60	4.82	-4.66	0.16	4.15	3.20	-5.86	
	-9.42	0.80	-10.79	-1.95	1.91	-1.40	12.89	3.22	-3.87	3.18	-0.37	-1.46	
	-30.30	-1.01	-16.44	18.89	-0.82	-1.89	9.93	3.58	-1.21	2.39	0.99	-2.46	
	-12.65	-4.56	-13.81	-3.02	-2.92	4.73	24.07	-3.38	0.16	-10.23	6.00	42.44	
	-17.17	-22.29	-14.08	1.54	-4.98	17.90	46.19	9.36	6.42	-0.67	-1.68	-30.00	
	6.49	-3.25	-15.00	4.62	1.59	10.45	5.35	-6.11	0.07	1.19	4.80	3.28	
	-12.25	1.07	-17.78	-17.07	2.22	-4.62	-17.69	-2.40	-4.33	-0.51	6.44	-2.91	
	-1.92	-4.44	-34.88	-4.93	3.55	-0.64	-31.39	-1.34	-3.15	-11.65	3.12	4.66	
	-4.78	-9.45	-15.46	4.74	-3.84	9.95	-7.41	3.93	-11.40	-11.91	-2.90	-13.96	
	-36.29	-15.89	-33.54	-8.83	0.35	26.15	-11.57	3.25	-25.83	-10.18	-4.24	-25.74	
	-20.20	-22.90	-33.61	-13.21	-2.14	4.67	-27.81	1.92	4.70	-4.47	-6.37	-28.48	
	-4.88	-10.72	-35.43	-19.61	-5.17	-27.77	-25.30	1.67	-2.65	5.27	-3.93	-20.26	
	-8.42	-17.74	-29.71	-11.55	-2.82	10.87	-14.57	2.99	-14.96	-12.67	-1.69	-18.45	
	-5.43	-8.50	-32.00	-14.57	2.01	-27.05	-10.91	-4.67	-9.71	-10.95	-4.35	-12.82	
	0.21	-23.22	-41.43	-20.65	3.02	-1.55	3.89	-3.85	-13.89	-12.16	1.82	-23.93	
	111.29	-73.16	-34.22	-71.88	-55.62	4.67	-14.60	-2.38	-9.89	-20.08	1.45	20.54	
	0.10	-38.47	-19.14	-37.57	-7.38	-55.03	-22.06	-3.19	-29.51	-22.01	-0.39	4.25	
	-9.23	-5.44	-18.27	-18.48	2.40	-46.89	-27.92	-3.06	-37.92	-18.70	-9.34	-7.80	
	-24.75	0.52	-23.83	-27.10	-3.05	-5.00	-18.25	-20.30	-21.75	-14.20	-23.93	-11.99	
	-23.67	-20.54	-2.63	-24.14	-9.82	-45.90	-47.87	1.51	-22.83	-40.08	-50.17	5.99	
	-12.71	-31.00	10.89	-21.93	-22.04	-23.23	-26.66	5.19	-11.49	-70.11	-31.06	-24.68	
	-40.53	-11.32	17.72	-28.73	-40.72	-30.55	-36.20	46.12	-0.46	-16.19	-23.84	-51.30	
	-40.30	-11.93	2.16	-32.66	-24.56	-31.19	-16.20	11.55	-4.91	-30.30	-23.65	-38.48	
	-22.00	-17.20	5.66	-13.47	-18.81	-23.64	-19.13	-8.13	-11.44	-26.91	-14.30	-12.85	
	-1.66	-14.51	6.56	-23.21	-12.21	-29.04	-23.89	-15.23	-22.77	-15.79	-46.38	-26.52	
	-4.17	-15.47	14.24	-7.80	-1.91	-9.12	-0.14	-8.81	-14.48	-13.03	-26.50	-14.25	
	-2.06	-8.77	13.09	2.23	6.44	-5.68	-8.66	-30.02	-0.98	-9.46	-17.34	-4.88	
	-4.22	-8.83	34.56	-20.63	3.94	-15.70	-14.34	-55.79	-0.92	-4.30	-27.96	-52.82	
	1.09	-12.86	16.31	-18.97	-4.99	16.88	-10.05	-44.02	-1.79	9.65	-13.42	-15.88	
	2.94	-1.45	10.68	-0.60	-6.91	5.41	-27.70	-15.40	0.02	3.89	-46.30	-3.16	
	11.28	-0.83	-26.07	8.14	-14.81	-17.84	-38.70	-42.42	-6.31	-0.40	-29.82	9.60	
	6.98	-0.74	3.92	-4.47	-7.73	-22.19	-28.03	-27.91	2.88	-0.09	-9.26	1.05	
	8.39	-1.22	7.58	5.46	-14.28	2.84	19.47	-16.13	-10.64	-6.87	-6.87	7.11	
	16.91	3.04	1.60	3.28	-7.83	9.11	-17.12	-14.85	1.73	-17.46	-12.77	-1.82	
	67.53	-3.08	9.06	3.69	33.09	-2.85	2.26	-14.90	-3.58	4.08	-17.34	2.91	
	-3.52	-1.47	8.09	1.20	-4.08	12.20	-13.18	-19.05	-5.34	-10.78	9.04	-11.64	
	-9.83	0.08	3.91	2.25	4.41	7.42	-18.45	-14.33	5.79	-12.20	-4.81	1.18	
	10.53	0.47	11.29	4.57	-1.57	-6.54	-7.63	-29.81	2.27	-3.66	-0.27	8.94	
	5.34	1.16	9.74	6.52	1.30	6.46	-6.08	-12.43	-4.83	12.71	-1.56	3.17	
	-43.33	-0.02	11.46	6.12	15.25	-21.63	-13.45	-12.28	2.15	34.12	-0.80	5.85	
	-22.92	3.49	5.07	7.59	10.80	-18.36	-9.33	-16.47	-6.76	2.90	1.82	3.16	
	-53.80	6.33	9.71	-0.87	7.05	-7.44	-10.47	-1.83	0.75	15.58	11.94	14.74	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-1.89	-4.68	10.94	0.55	1.65	-1.19	-11.15	-15.39	3.76	12.55	-19.11	4.18	
	-5.16	-1.18	25.21	0.62	-0.87	0.01	-10.11	-10.88	-6.59	3.41	3.19	15.61	
	1.58	-2.54	-9.78	2.47	-2.40	-1.33	-11.78	-0.37	-9.33	3.20	9.44	-3.77	
	9.43	-5.89	0.90	2.76	0.06	-6.87	-10.84	15.90	-40.36	15.23	-4.40	-5.78	
	7.78	0.99	0.76	-25.41	5.59	6.32	-14.79	-4.38	-18.75	8.25	-1.51	-6.71	
	7.86	-1.88	7.69	2.23	9.41	1.08	1.07	-5.08	0.77	3.25	1.31	7.13	
	-1.77	1.71	3.77	-2.24	8.21	1.16	0.85	7.68	-4.09	7.69	-1.17	13.17	
	2.62	1.55	18.78	0.33	-0.34	3.87	14.92	-2.51	-2.23	1.92	2.34	21.47	
	-3.60	1.59	23.77	1.43	-0.98	-4.92	5.07	5.70	0.90	6.23	-4.08	9.38	
	-37.20	-3.34	18.16	16.01	6.68	-15.54	-30.24	44.93	13.55	11.45	-0.37	-36.89	
	-22.56	-8.74	-23.20	-8.96	1.87	-34.76	-6.96	18.11	1.78	2.82	2.52	-24.87	
	3.52	-5.75	21.22	11.92	-0.71	13.73	-29.03	27.73	4.84	-4.17	7.63	15.08	
	5.29	8.03	12.09	10.23	-1.49	-4.48	-19.63	-8.13	-6.06	-9.19	-2.49	5.59	
	6.32	10.42	13.36	4.42	21.25	29.38	-4.12	6.59	17.60	-1.00	-6.09	19.30	
	9.92	11.72	-3.01	9.72	29.79	25.04	1.99	0.18	-10.73	2.97	-9.65	1.10	
	61.82	33.62	-6.74	2.80	-39.07	79.85	17.97	30.38	2.34	5.86	-24.62	5.96	
	14.89	21.48	21.12	11.94	-1.67	-1.99	10.93	34.62	-0.93	7.19	-11.85	-4.11	
	-10.81	6.33	11.35	8.62	10.87	-10.30	2.05	-4.21	5.78	-2.90	16.16	1.93	
	-17.93	4.58	4.30	8.71	0.72	5.49	5.18	1.29	-5.21	5.80	3.92	-2.61	
	-21.64	3.46	7.59	0.36	15.03	-18.44	8.04	-5.54	16.39	7.84	-3.92	5.37	
	-7.49	-1.11	18.72	-10.43	4.34	20.51	4.87	-8.01	-3.08	1.63	-16.90	1.99	
	7.75	14.87	2.91	-11.38	-7.08	34.57	-0.59	-15.79	8.37	-8.12	-16.46	13.11	
	9.55	6.74	7.98	-5.93	2.62	5.98	-0.91	-14.24	12.03	5.42	4.30	5.12	
	3.83	-4.70	-5.17	1.87	7.28	12.23	3.04	2.34	4.22	42.95	-3.08	2.75	
	3.70	-0.01	3.26	7.78	-4.54	0.17	8.82	22.03	-3.86	-3.54	20.23	6.61	
	5.18	4.73	-15.07	10.31	-4.72	-0.39	14.08	33.49	0.91	2.30	10.89	-3.13	
	-0.34	2.68	-24.89	15.49	-4.65	-5.66	9.04	7.57	5.20	-1.94	-4.26	-2.85	
	39.22	-3.31	3.08	-0.41	0.83	-11.76	10.47	-3.97	8.24	-13.14	-2.01	-6.96	
	42.52	-11.66	-5.85	-14.65	2.21	-53.09	9.57	-0.63	-0.63	-15.66	2.24	-4.44	
	-7.27	-8.25	-28.47	2.44	-1.01	-4.87	18.20	3.64	-3.52	-0.98	3.96	3.51	
	6.85	-6.34	1.36	5.23	-6.58	7.32	8.69	-3.64	-3.70	5.58	-0.39	1.55	
	-12.62	-6.64	-22.16	-9.04	-8.83	-0.30	-4.39	-5.75	0.66	4.73	-3.95	-1.10	
	-30.61	-9.78	-2.03	-2.41	-5.64	3.67	-13.83	-3.67	-1.66	2.44	-5.18	-6.32	
	-35.21	-25.32	-4.90	2.84	-6.42	1.66	-23.63	4.30	15.85	-1.18	-4.00	13.50	
	-0.05	-27.73	3.65	-0.93	-10.29	-17.87	-13.76	-10.53	9.29	-3.63	-2.60	15.28	
	-5.08	-12.43	-6.09	-3.00	-15.07	-8.99	-3.72	-11.32	-2.25	-7.71	-21.15	-20.13	
	-3.70	-4.47	1.19	11.23	-9.80	3.56	-1.56	-9.54	-7.39	-3.42	-24.19	-4.49	
	-22.71	-10.80	3.14	9.60	-5.99	-15.78	2.40	-16.48	-2.34	-5.49	-5.00	-37.43	
	-34.29	-6.77	3.75	15.11	-1.69	-2.93	11.09	1.07	-1.26	-0.41	-6.72	-32.95	
	18.67	70.92	-4.71	3.54	-18.70	-3.19	20.71	1.47	5.25	4.57	44.73	-21.10	
	3.23	4.45	-3.17	7.36	-11.21	-0.30	22.55	6.79	3.52	-0.66	19.53	-4.44	
	-12.27	-3.42	0.41	4.87	-0.68	-0.90	6.42	6.22	-1.69	2.59	-54.05	-7.67	
	22.72	-9.02	-5.46	4.36	-5.93	11.16	3.37	0.01	-6.97	-23.61	-32.57	6.40	
	21.78	-8.98	-7.20	2.78	2.00	6.39	-5.79	10.51	-1.66	-15.58	-26.30	-13.91	
	-1.71	-8.34	-4.92	24.50	1.25	7.05	22.91	26.28	3.90	4.14	-18.91	16.96	
	19.40	-12.52	-10.67	16.04	-35.75	11.63	55.34	17.38	-5.03	-26.00	0.36	17.61	
	2.13	-8.65	-9.63	20.40	-18.46	2.31	42.11	18.37	-7.18	-15.73	-32.60	-1.27	
	19.11	0.98	-16.94	5.75	12.15	9.98	21.48	0.30	9.64	-12.24	-10.41	35.77	
	17.96	-4.48	-18.59	1.96	19.33	11.38	21.68	8.17	2.82	-28.68	-8.66	7.15	
	33.61	-2.87	-10.80	10.86	-3.46	8.11	9.43	-0.47	13.31	-1.95	2.62	10.43	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	9.68	3.35	-5.35	16.70	8.76	4.28	-14.81	-4.56	9.65	-1.41	-3.21	5.70	
	-16.61	11.68	-8.20	1.58	9.04	-16.19	-42.86	10.40	-3.31	5.15	-53.56	13.29	
	-12.95	-9.00	-4.17	9.64	0.00	0.29	6.21	10.94	-2.81	-11.10	-20.15	13.28	
	16.25	8.22	2.03	18.64	-2.78	3.12	-2.45	0.87	-10.90	4.42	-14.72	-5.09	
	3.95	-7.87	11.07	7.83	-0.34	2.02	3.08	-9.76	-18.59	6.21	11.50	19.69	
	16.99	-1.47	8.37	1.45	1.98	-2.30	10.09	-6.02	-5.48	6.77	-0.55	13.56	
	5.05	3.24	30.24	-14.40	-10.78	5.89	-0.01	-26.18	2.25	17.70	1.00	6.81	
	-41.38	-19.91	14.23	-22.07	-29.74	10.91	26.47	-42.16	-1.39	26.12	8.00	-25.28	
	-7.39	-6.07	16.19	-4.92	-21.27	-10.75	5.87	-21.31	-1.15	23.89	-15.44	-13.79	
	14.98	1.96	6.85	-25.31	2.87	1.14	5.29	-1.36	8.43	4.21	-2.25	11.58	
	23.83	6.11	14.20	-4.31	-4.07	22.82	-20.14	-13.43	19.06	8.31	8.61	30.08	
	-10.14	11.06	25.97	-4.56	-10.44	-7.72	-4.42	-1.27	6.89	2.17	2.26	-0.07	
	17.78	9.56	15.33	-5.44	-3.33	-25.16	13.46	-0.38	7.00	-7.93	3.10	9.73	
	11.09	-13.51	18.82	-0.96	2.17	-11.66	37.37	8.35	8.52	4.37	7.88	4.97	
	9.07	3.25	15.24	0.71	9.86	-21.41	11.65	19.25	30.59	13.27	9.23	29.14	
	6.85	26.05	22.14	3.91	-15.89	-15.06	16.90	8.92	26.60	23.13	-2.35	-0.15	
	12.28	6.27	20.53	8.87	19.10	-6.97	36.97	7.35	-18.40	13.85	7.66	6.91	
	32.42	1.08	26.14	11.72	23.69	5.41	20.43	16.15	21.46	14.81	5.46	18.44	
	5.71	3.87	18.21	11.93	7.73	-16.09	-4.98	7.29	21.05	13.03	4.53	36.71	
	-18.90	25.19	-14.62	17.27	11.52	11.50	8.24	38.91	-18.76	-26.64	4.90	19.98	
	2.83	24.72	9.30	8.94	12.68	14.21	34.45	25.24	-2.27	-3.85	25.02	11.76	
	14.67	21.82	19.12	44.88	17.50	38.62	13.91	18.21	33.70	2.22	15.63	16.52	
	12.31	11.09	7.73	5.35	8.23	0.51	3.83	20.92	2.13	8.52	-2.66	22.53	
	19.92	45.78	14.71	0.90	19.10	11.19	12.10	0.96	15.61	5.66	8.81	40.56	
	0.28	2.73	12.93	13.89	10.65	43.66	13.03	-11.96	15.00	10.99	6.71	32.05	
	-11.55	-14.01	5.96	18.69	17.64	-12.97	13.76	-18.02	-27.56	-1.34	23.95	8.57	
	4.63	1.11	-15.21	-16.49	1.30	0.34	23.94	-10.32	-3.66	11.08	22.01	-1.69	
	0.15	-2.28	-10.71	28.42	3.10	18.29	23.56	39.02	17.84	39.35	14.56	11.32	
	-1.36	27.10	25.24	39.71	12.83	26.45	13.74	57.50	42.27	-0.41	39.39	23.94	
	-0.91	10.00	8.13	1.07	23.31	27.01	27.37	52.35	9.60	17.79	6.01	30.38	
	4.46	0.17	15.37	23.87	18.83	3.92	47.98	3.01	5.17	1.37	1.56	19.46	
	-21.73	14.87	9.62	30.00	16.22	7.75	1.14	-10.78	-1.22	5.67	15.38	4.19	
	-17.36	2.90	8.99	-8.87	-5.68	14.53	-28.78	10.64	2.00	21.44	17.42	12.08	
	-10.83	20.86	6.28	2.80	39.11	15.45	8.29	20.15	6.05	-15.92	8.74	18.51	
	-9.19	-16.23	0.29	9.08	3.13	27.23	6.31	12.14	6.68	8.11	0.04	19.35	
	-1.67	10.57	6.23	2.41	12.43	6.54	3.65	14.73	7.06	29.70	-6.44	1.57	
	2.29	6.19	23.39	4.96	-3.38	-8.48	10.73	13.38	12.11	-0.98	27.60	8.74	
	1.83	25.91	27.69	5.58	-16.35	10.73	4.09	1.70	0.94	10.95	30.58	18.56	
	7.60	3.30	19.63	5.82	-3.74	0.02	25.89	17.39	15.11	-34.00	-19.68	12.91	
	7.84	-16.79	13.02	13.23	-2.75	7.56	23.31	1.82	5.80	18.65	2.54	21.93	
	10.74	-2.34	1.31	2.33	1.09	7.11	-78.46	-10.80	7.32	28.32	-1.85	12.51	
	1.91	16.89	17.67	12.79	-29.48	6.90	9.91	1.58	17.25	-5.86	2.72	6.12	
	5.91	1.09	5.14	11.92	2.75	4.17	34.07	-3.08	4.44	-11.03	28.09	5.20	
	13.05	3.87	-1.82	-2.55	10.99	3.13	-18.71	-18.13	-0.15	-1.86	-0.28	-4.99	
	7.80	8.00	4.09	18.32	-2.58	3.25	-11.92	-13.87	-2.47	2.36	3.03	-7.43	
	12.21	21.89	2.07	16.98	1.87	3.97	-4.45	-3.51	-17.40	0.34	-2.46	3.68	
	3.92	5.70	-2.38	-4.56	-0.52	13.85	9.47	4.55	-3.01	-9.15	14.83	6.53	
	0.14	-17.26	2.16	-0.21	12.35	1.91	4.01	11.82	10.83	9.89	2.41	6.94	
	2.24	7.96	-10.46	-0.18	11.80	21.84	-13.92	4.43	4.45	0.98	-5.05	-0.11	
	3.81	11.60	-13.71	1.39	35.23	17.64	-2.95	-3.41	2.69	8.48	-1.90	-0.27	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	5.39	3.08	-8.71	1.62	16.88	-3.67	8.13	4.22	-0.78	0.15	0.19	1.44	
	4.67	-7.43	-1.37	4.41	-2.61	-1.65	0.65	4.02	-2.30	-0.72	3.34	2.30	
	-4.74	1.93	2.01	3.43	-2.90	-4.59	8.32	-1.38	1.02	-3.03	2.08	-2.41	
	-0.35	1.43	-1.48	1.34	4.04	-7.24	4.64	1.07	0.72	-7.24	10.55	-1.62	
	25.17	-1.53	-5.87	11.59	3.76	-3.10	8.87	4.24	-1.15	-5.71	2.39	-2.70	
	-38.19	-1.54	-13.67	7.05	-44.67	-2.59	-1.90	-7.61	-1.14	6.81	4.44	-3.17	
	-15.62	2.74	-28.60	2.36	-9.28	7.88	-1.73	-10.27	0.78	-20.36	3.02	0.71	
	12.09	-7.52	-17.76	-0.65	1.24	5.55	-3.32	-3.95	-1.62	9.19	4.95	-1.72	
	-1.70	-2.91	-13.70	0.35	6.36	1.37	-5.35	-6.08	-5.92	-9.36	1.84	-12.69	
	-3.60	-0.32	-6.35	-0.05	-9.31	37.02	-6.34	2.27	-2.45	4.67	6.04	-8.74	
	-3.79	-10.75	-10.15	-13.98	0.94	-19.16	-27.58	-5.49	-4.36	-2.84	3.17	-3.57	
	-15.37	-4.98	-26.36	-12.72	-1.95	-16.05	-6.04	-1.25	-14.67	1.05	-4.23	-4.01	
	-8.36	6.57	-58.89	-11.80	-7.62	-3.27	-14.42	-7.40	-7.20	-6.56	-7.58	10.15	
	0.80	-36.81	-21.06	-12.92	-2.53	-2.86	-9.47	-7.16	-10.48	-5.53	3.15	-10.71	
	-8.73	-14.57	-37.24	-7.64	-3.35	4.73	-13.12	-5.56	-6.10	-0.27	-0.28	-50.47	
	-9.39	-20.31	-28.84	-9.01	-4.12	1.85	-12.74	-17.22	-10.19	-9.97	-6.89	-7.39	
	-6.77	-5.15	-32.30	-11.37	1.69	-2.89	-8.62	-25.11	-3.88	-16.22	-11.63	-17.03	
	-21.02	1.87	-32.67	-8.51	-2.87	-24.61	-6.27	-14.50	-0.87	-20.55	-11.65	-29.08	
	-16.91	-2.67	-38.28	-19.44	-8.43	-25.69	-31.02	-14.13	-12.00	-11.48	-7.26	-37.22	
	6.33	-12.89	-19.20	-7.14	-1.59	-14.63	-18.78	-10.72	-21.60	-7.85	-15.35	-30.41	
	-24.39	-38.42	-9.04	-4.78	-9.19	-19.99	-18.30	1.17	-17.08	-16.86	-9.26	-27.18	
	-10.68	-20.84	-7.92	-10.89	-5.06	-27.79	-25.42	3.83	-11.12	-20.17	-46.83	13.80	
	-28.04	-10.76	-9.54	-32.33	-1.02	-57.25	-19.92	-2.17	-5.33	-6.61	-5.93	-28.91	
	-4.16	23.94	-3.73	-6.25	-0.70	-27.14	-2.86	30.71	-18.55	-10.03	-16.60	-37.41	
	-6.45	3.09	-8.68	-3.66	-34.44	-29.89	-33.79	6.74	-69.04	-40.10	-39.04	-18.08	
	-19.41	-17.67	1.27	3.06	-1.15	-7.89	-20.02	-33.18	-13.13	-7.41	-44.59	-10.59	
	-13.59	-12.05	3.74	-24.94	-22.02	-19.76	-30.35	-38.25	-4.48	-23.07	-36.11	-17.10	
	-7.13	-15.62	4.96	-26.74	-16.36	-21.02	-22.68	-6.22	-14.39	-12.33	-56.18	-22.70	
	-9.12	1.30	1.45	-4.11	-0.62	12.87	-15.82	-12.97	-6.84	-18.02	-4.80	-4.39	
	19.71	14.62	15.37	-21.62	4.03	82.22	-23.32	-7.62	-19.86	32.60	-15.24	2.59	
	-3.32	21.84	-14.01	-4.00	-8.46	21.57	-21.92	-5.98	-7.22	7.59	-19.28	-16.21	
	-14.47	-13.13	5.75	-20.57	-20.82	-1.67	-20.61	-20.18	3.49	-15.91	-16.94	-10.53	
	-8.25	3.84	0.20	-9.55	-30.20	0.14	-18.05	-26.01	0.42	-11.29	-26.72	-4.25	
	-4.24	8.02	29.91	-4.65	-33.11	-3.08	-11.67	-48.53	-3.53	-15.59	5.36	-3.06	
	-6.16	9.82	62.43	37.33	-5.21	-6.76	-14.70	-20.99	-2.18	-5.39	-7.10	-7.44	
	29.79	6.90	-9.16	-11.50	-5.59	-16.97	-5.42	-6.17	-2.21	4.53	6.35	-11.50	
	4.42	5.22	14.97	-4.51	-12.69	-0.63	-7.19	0.53	-3.50	3.48	11.76	4.58	
	-4.88	-14.93	17.90	-13.67	-8.43	1.10	-3.73	-2.47	-12.46	4.97	6.43	2.29	
	-4.37	5.39	10.31	-47.58	-22.22	-7.53	-3.17	-6.26	-7.32	-7.62	5.80	-15.55	
	-11.01	-1.38	8.94	-5.38	-12.00	-5.33	8.77	-4.60	3.49	-6.65	2.10	-4.43	
	-4.53	-7.17	-2.39	-15.57	-19.93	-2.02	-9.58	-0.27	3.01	4.78	8.05	-1.16	
	0.33	-26.60	0.21	-14.60	-8.22	0.79	-3.65	-1.88	-13.90	-9.63	12.36	2.99	
	-1.51	1.64	6.76	0.85	-14.58	7.48	-0.22	0.61	8.62	-0.53	4.60	6.80	
	18.36	14.14	4.53	-0.84	-2.76	0.05	5.51	-4.79	1.76	-11.92	6.04	-2.11	
	1.65	3.72	0.55	0.99	6.36	1.21	-0.93	-6.90	-1.19	4.37	9.16	-1.85	
	14.55	3.95	5.20	7.00	3.03	-64.43	-0.77	-2.06	-5.33	4.67	13.41	0.48	
	-2.30	-3.41	-2.89	-0.99	-1.89	-53.39	-12.99	-0.57	5.55	-11.80	9.72	14.54	
	48.38	-50.81	-8.66	4.68	-2.65	33.81	-4.62	-2.00	6.24	-76.51	19.53	-9.94	
	35.05	-21.86	-4.85	-2.17	-9.62	25.33	-6.02	-2.34	-1.89	-20.44	16.60	-9.50	
	3.90	1.73	13.09	5.52	-7.56	-36.46	-2.98	-11.70	2.31	4.00	7.08	1.46	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	8.57	-0.74	7.79	-7.03	-3.20	-8.38	-2.33	-1.02	2.62	5.38	19.77	12.11	
	13.31	4.32	5.41	1.74	-3.05	-3.56	-15.97	2.86	4.68	-3.63	7.22	7.92	
	7.23	10.21	4.85	11.66	-9.82	10.08	0.75	-1.48	-3.86	10.43	9.29	6.60	
	0.15	3.56	-0.14	-0.19	-2.22	6.36	-1.62	47.25	8.25	-5.63	-1.82	-1.40	
	14.27	0.79	3.02	7.39	2.46	1.81	3.15	14.51	1.52	9.59	13.71	1.53	
	27.47	-1.15	0.00	20.20	2.31	4.77	9.62	0.62	6.05	7.71	-1.32	5.34	
	-10.66	-15.11	-3.97	-5.75	3.80	6.86	-6.52	4.68	-2.25	1.18	10.72	7.88	
	3.48	10.13	9.07	9.65	8.13	0.70	-2.81	0.88	0.59	18.87	1.58	17.02	
	24.14	-1.23	-3.59	23.00	3.17	4.46	5.20	4.00	3.27	1.78	9.66	-2.51	
	-9.69	0.12	6.99	13.01	-3.68	3.73	3.40	-1.86	2.74	-4.75	-0.61	-5.68	
	6.47	-13.76	7.45	14.48	-3.41	-2.81	-12.12	8.48	6.86	3.67	0.82	0.03	
	1.35	-0.52	12.45	12.17	7.69	0.94	14.92	12.53	0.13	12.93	-6.23	5.27	
	26.17	7.75	0.07	8.01	7.68	-2.19	1.06	-10.08	3.79	-3.14	18.75	9.12	
	14.95	0.96	-3.78	15.11	-0.05	6.38	-2.39	-0.61	-1.31	10.96	4.53	-0.08	
	3.51	6.35	6.02	12.70	5.55	7.62	-0.93	-0.62	11.89	9.36	6.17	-1.09	
	2.76	9.96	-7.28	-3.49	4.37	2.22	-4.50	-7.34	1.74	-0.17	61.57	3.89	
	6.98	-3.34	-40.57	5.38	14.96	4.09	-13.02	-8.30	2.02	-2.87	17.35	1.10	
	6.48	2.98	3.91	7.54	5.73	-1.00	3.28	-1.32	6.75	-2.48	1.03	-6.85	
	8.46	-3.30	22.35	4.77	7.17	-2.03	12.02	-2.90	9.23	3.28	-3.86	-12.19	
	9.70	7.64	-32.25	5.78	5.03	-9.94	6.31	0.19	7.00	4.95	-6.23	10.38	
	4.88	2.22	26.83	11.14	3.81	1.19	-4.25	10.87	4.53	1.06	23.55	4.57	
	-3.60	-4.59	0.26	-4.73	3.77	6.58	9.39	8.20	10.15	6.21	0.13	-8.03	
	-13.37	-6.21	-7.54	-0.90	-1.37	2.56	-5.43	1.91	2.45	-3.26	-1.30	-10.86	
	-13.66	-3.33	-7.55	-4.30	9.92	-16.90	0.35	-8.80	2.02	1.00	-5.93	-10.59	
	-4.42	-5.91	-45.06	4.13	1.22	4.87	12.42	-8.06	-4.81	-0.28	-1.56	2.05	
	-8.53	-2.07	-31.82	2.56	-1.74	-2.44	0.05	-0.08	-20.95	-8.33	3.75	-21.80	
	-5.35	1.48	-9.26	-15.19	1.67	-1.95	45.39	0.34	-11.29	-3.96	1.43	-16.75	
	29.34	34.86	-1.35	-46.29	-3.85	-11.58	12.96	1.30	-2.96	-5.85	-0.57	-23.30	
	2.16	25.08	-10.47	-17.15	-4.16	-9.08	-0.05	-1.81	-9.80	-11.48	-11.68	-28.44	
	-21.51	-7.09	-4.15	-8.93	-4.59	-6.92	-3.50	-15.93	-2.87	-5.92	-5.12	-25.27	
	-38.52	-30.87	-5.49	-6.37	-6.83	0.90	3.87	-7.93	-16.01	-11.77	-15.20	-28.62	
	-11.54	-12.38	7.58	-11.18	-8.57	-6.24	0.19	8.88	-12.13	-10.21	-48.05	-25.96	
	-25.39	-8.32	15.27	-1.74	-7.62	-3.41	0.59	4.50	6.78	-4.94	-29.19	-19.57	
	-23.04	12.28	-2.14	26.31	-6.99	3.43	10.72	14.50	1.06	2.48	-11.41	-31.27	
	-25.09	2.68	-8.45	13.49	-28.86	6.66	10.49	7.07	-5.34	-11.47	-60.71	-17.72	
	-40.50	-1.55	6.21	5.16	-5.41	0.79	7.44	-1.06	-6.53	-11.87	-25.46	-10.96	
	-23.72	-11.51	1.71	2.26	2.11	-0.42	7.23	-4.27	4.60	-3.35	-20.91	-14.50	
	-9.32	-7.57	-0.60	3.11	2.20	7.93	1.92	-4.58	2.06	-2.56	-38.36	-15.32	
	1.94	-3.19	-8.27	2.80	6.69	-1.99	-0.09	0.74	5.40	-2.24	-41.86	1.75	
	1.38	-7.30	-4.57	3.03	1.05	-29.17	-17.26	0.42	7.35	2.25	-26.12	17.21	
	-8.34	-15.47	-14.91	0.89	5.64	-5.61	-4.74	8.20	8.40	-5.84	-19.43	2.99	
	-1.74	-7.10	-15.60	-0.93	5.06	-10.03	12.91	14.28	2.52	-15.23	-14.18	-4.31	
	-17.48	-2.31	-10.67	0.14	2.98	1.13	3.08	20.25	1.72	-21.60	-13.00	7.20	
	-116.36	2.07	-32.13	-0.96	-1.32	15.17	6.02	4.62	0.51	-1.33	6.38	12.08	
	20.91	6.48	-2.11	1.68	4.32	11.44	5.29	5.31	-1.32	-3.86	11.03	5.70	
	98.24	3.26	-7.83	-4.37	2.69	3.02	2.45	7.88	0.29	-1.46	5.64	-0.59	
	29.45	-9.53	-9.76	-6.61	2.44	-7.29	3.64	-3.41	-2.61	-1.15	2.76	7.26	
	0.97	2.97	-0.99	-6.96	-4.57	-0.11	15.02	-4.36	-15.84	7.75	6.96	11.59	
	-10.33	7.64	0.47	1.44	7.37	6.17	5.80	7.53	-19.68	5.56	5.42	-2.50	
	1.97	4.03	-2.71	-9.18	-5.55	-2.41	15.11	-15.99	-11.18	7.29	3.78	1.00	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	18.88	5.66	0.67	-10.66	0.12	-3.02	14.02	-14.22	9.01	12.82	7.11	-3.04	
	-20.02	-7.22	6.76	-22.14	-9.14	19.53	-2.22	-53.96	1.85	7.06	-13.17	3.53	
	-14.43	1.31	21.76	-17.90	-5.93	-16.10	27.85	-46.27	2.70	8.00	-2.37	0.64	
	2.89	15.22	5.25	-10.16	-3.99	-22.22	-29.24	-25.78	5.12	12.16	-0.76	5.46	
	9.03	23.75	7.41	-12.75	-6.63	6.31	1.71	5.01	10.73	9.49	12.36	1.58	
	6.72	26.36	15.59	-27.57	-9.84	-41.74	-6.12	-5.88	16.64	9.89	8.45	-3.03	
	10.73	6.07	23.16	8.20	-11.76	-16.53	-1.17	1.14	0.33	13.74	10.91	10.12	
	-43.96	-44.47	18.98	-4.08	-19.95	-17.18	-30.98	0.73	-31.02	0.47	3.03	24.12	
	-12.32	-2.12	13.95	4.81	-5.10	-4.02	-10.50	8.11	8.99	8.52	12.59	24.90	
	-1.14	17.91	32.91	15.45	-3.67	-9.84	-8.07	7.72	23.03	16.23	16.40	-2.00	
	4.01	13.50	20.80	7.11	9.37	-9.77	3.14	17.86	53.83	8.82	5.75	15.18	
	8.35	17.66	23.66	9.07	0.72	-4.66	9.55	4.48	21.98	10.72	2.35	17.57	
	20.48	13.56	13.38	10.17	4.94	2.77	6.63	10.31	-8.55	24.62	-0.32	20.90	
	41.56	10.90	-3.57	9.07	36.25	-21.19	30.49	16.02	-36.39	-5.13	-8.51	17.52	
	16.02	36.48	-4.21	7.50	-6.73	-11.39	-29.91	23.24	-6.77	6.42	4.79	20.99	
	0.33	21.29	24.45	20.42	-7.04	32.98	10.93	20.01	-3.76	6.95	7.38	19.45	
	12.27	18.23	6.56	20.16	21.92	16.26	-13.21	4.17	11.30	27.63	9.88	14.08	
	5.90	29.91	16.50	3.10	12.82	8.21	-16.36	15.39	4.18	5.62	15.98	12.27	
	5.18	14.42	11.10	27.26	22.13	18.70	2.69	18.47	14.08	9.47	22.57	16.20	
	-6.22	8.22	2.61	55.79	7.64	16.93	12.09	19.45	13.31	17.89	88.52	9.89	
	4.81	-19.63	-4.19	10.93	17.33	11.09	8.90	2.14	19.02	13.80	69.43	7.20	
	11.92	-0.88	-0.05	7.65	-0.50	25.06	23.82	6.69	18.91	17.80	20.21	3.01	
	5.49	10.48	2.25	11.18	24.10	28.53	18.29	5.47	14.14	14.78	7.43	26.18	
	13.22	8.46	14.65	8.35	22.06	19.16	13.12	7.46	12.07	17.80	-2.04	9.72	
	12.60	7.57	-1.37	16.08	26.69	2.82	25.51	6.92	38.75	9.25	21.85	5.12	
	11.22	24.34	6.94	19.38	-14.19	2.44	11.08	0.33	10.69	3.21	-3.53	1.17	
	3.05	18.20	7.53	6.29	-10.72	3.98	5.21	18.05	23.44	5.46	-4.66	-6.30	
	12.48	-12.80	15.11	16.97	21.85	-1.00	7.88	19.02	6.69	4.80	5.94	5.09	
	14.52	-5.12	-3.05	10.26	4.39	16.64	12.05	7.07	-12.27	6.22	18.03	16.50	
	2.78	8.68	3.52	12.80	14.55	7.16	13.08	1.81	5.86	9.96	4.70	13.28	
	-9.50	24.84	1.13	9.27	9.21	9.31	14.15	18.60	9.15	17.18	-2.88	18.16	
	-20.18	-4.65	1.66	6.22	0.51	7.29	7.86	23.77	18.69	12.72	-30.98	4.05	
	-1.61	2.81	8.17	23.77	7.60	1.59	8.32	-3.53	14.03	0.62	-15.77	7.81	
	4.97	1.33	3.65	15.40	2.19	31.58	8.07	0.88	0.01	6.18	-3.05	4.57	
	3.73	-1.98	1.38	-5.91	0.13	18.84	5.24	4.09	3.76	3.46	1.93	2.72	
	7.84	6.13	0.33	4.85	10.02	3.85	4.91	8.55	8.23	3.27	1.40	3.09	
	10.56	-16.34	1.41	-5.56	0.04	17.07	6.18	11.44	13.15	-5.23	-2.13	2.32	
	-7.73	9.35	0.43	-20.12	5.70	24.74	-8.28	-5.77	3.98	5.54	17.85	-0.06	
	-46.38	32.99	0.75	-12.12	-2.29	29.16	15.26	-10.84	2.40	-0.58	18.18	5.40	
	-3.65	-13.66	2.84	9.49	-3.17	5.50	15.49	-5.15	-2.23	1.14	4.26	8.83	
	6.06	-15.76	7.13	2.90	-10.26	-9.37	-2.83	17.04	-3.05	8.11	9.05	6.72	
	-5.73	-4.75	6.02	-1.78	-17.84	-13.22	-4.37	15.92	-5.61	23.01	-15.22	3.02	
	-6.25	-2.85	-2.41	1.23	10.64	-26.54	-5.32	5.12	-0.59	12.03	3.73	-1.06	
	32.62	-5.84	-29.66	-6.74	25.23	-1.65	1.73	9.46	-0.17	-1.77	2.61	1.18	
	8.87	-10.44	-2.11	-0.85	17.53	2.96	11.14	6.70	4.01	3.90	2.88	3.24	
	3.75	21.01	9.66	-4.53	-4.61	0.30	-3.65	8.15	2.48	0.94	1.86	0.88	
	-8.15	4.73	4.03	-5.22	2.97	-1.45	-4.43	9.38	0.58	-0.21	-1.73	3.21	
	-5.36	-26.29	-1.66	-2.63	5.22	0.79	-0.28	5.59	-0.72	2.45	-1.09	4.96	
	15.35	-5.47	-3.43	-11.33	35.18	-0.97	10.18	2.23	-3.51	15.53	2.79	5.35	
	78.84	9.56	-2.58	-5.07	15.71	-2.27	-2.38	-1.23	0.18	17.32	1.86	-11.47	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	14.96	-3.19	-3.83	-8.59	43.09	3.07	-0.98	2.54	2.83	7.27	10.39	-5.38	
	6.64	-11.50	-8.91	-3.34	8.11	-2.73	5.50	3.46	-2.03	3.32	12.36	4.88	
	5.04	-37.13	-12.34	-5.07	-6.31	0.45	-0.51	-5.99	-0.12	-1.17	-1.17	5.42	
	2.43	5.49	-29.08	-0.39	-1.55	-3.19	-2.99	3.73	-12.75	-0.90	7.24	-22.63	
	-1.65	2.70	-7.41	0.13	0.35	-19.85	-2.71	-1.53	-17.53	0.88	14.32	-16.97	
	10.85	28.39	-42.51	-12.23	9.66	-40.41	-0.21	-9.17	0.60	-3.28	-2.11	2.68	
	-5.94	11.66	-39.11	-10.86	41.38	-9.87	2.28	-10.77	-6.72	-1.27	-6.85	-6.86	
	-3.20	-5.72	-34.61	8.78	6.11	-3.64	-0.10	-10.57	-7.33	-8.63	-1.98	-11.87	
	1.38	6.81	-34.34	-0.41	-3.49	-0.92	-2.18	-5.82	-17.63	-1.76	-6.77	-0.29	
	0.23	-40.15	-17.06	-21.52	2.07	-1.49	2.48	-15.11	-2.06	-11.19	0.14	2.72	
	1.63	-13.82	-44.06	-8.04	-7.72	10.89	0.74	-19.25	-0.50	-0.04	-2.94	-6.00	
	13.49	-23.65	-41.62	-10.27	-11.18	23.58	-3.56	-29.43	8.18	-0.01	1.02	-26.18	
	-16.87	-20.74	-10.12	-26.43	-11.44	-23.96	-14.27	-21.39	-10.31	-8.50	5.20	-40.40	
	-27.30	-34.12	-17.03	-3.86	-23.15	-19.10	-9.67	1.08	-13.55	-8.56	-0.71	-4.53	
	-12.66	-34.99	-26.81	1.43	1.85	-16.98	-8.17	-2.62	-11.19	-6.91	-6.18	-21.86	
	7.57	-5.32	-7.93	-9.85	-2.70	9.79	0.16	-16.90	-44.51	-3.34	-35.43	-25.92	
	-6.05	-17.54	6.16	-12.64	-38.60	-27.48	0.90	-34.92	-19.09	-6.85	-20.06	-16.90	
	4.81	13.25	-7.93	-10.66	-41.53	-45.65	-1.04	-21.88	5.71	-1.18	4.74	-20.20	
	-9.01	7.76	-5.92	-16.94	-34.44	-19.11	-27.82	-17.05	-7.04	-7.37	-13.27	-13.33	
	-22.68	-14.02	0.21	-11.84	-11.37	-24.53	-12.10	-34.15	-20.19	-8.25	-17.87	-35.56	
	-7.15	-13.04	8.80	-6.63	-6.24	-5.57	-19.26	-21.11	-18.27	-4.44	-40.28	-49.94	
	-10.55	-3.26	2.88	-14.93	-17.56	-9.03	-31.39	-8.75	-23.63	-6.00	-27.87	-7.09	
	-13.95	5.25	5.73	-20.72	-10.34	-16.02	-2.81	-5.51	-9.13	10.88	-36.16	-19.91	
	-19.54	28.73	12.54	-16.20	-19.51	-2.06	15.27	-1.39	24.75	-42.94	-91.90	-13.17	
	-20.60	6.63	17.72	-6.30	-19.24	-7.58	-4.99	2.66	-1.84	-22.28	-60.24	-14.28	
	-13.59	3.68	9.40	-15.63	4.26	-7.40	-26.31	-9.79	2.69	-15.92	-5.37	-8.41	
	2.26	2.19	2.29	-12.63	0.11	-4.82	-28.07	-26.54	-5.09	-14.26	-19.18	-8.61	
	-18.94	3.75	15.95	-2.81	-6.16	-9.06	-3.36	-22.35	-3.71	-19.52	-2.66	-6.10	
	-21.57	1.75	11.92	-5.41	-11.35	-7.79	-6.54	-12.97	16.84	-24.26	-1.27	-36.21	
	-21.92	3.97	7.04	-6.96	-4.12	7.70	-7.60	-6.19	47.56	-26.17	37.75	1.21	
	-20.63	3.92	3.01	-11.03	-11.05	36.54	-6.48	-7.27	-3.71	-14.20	9.06	-4.23	
	-34.31	-0.81	-0.50	-6.86	-6.05	12.07	-8.37	-5.62	-8.18	-1.57	2.09	-12.43	
	-8.43	-2.63	10.38	3.54	2.45	5.82	-17.14	0.17	-2.61	-8.93	-2.34	-10.33	
	-9.93	-2.56	7.50	6.10	-2.55	8.11	-15.47	0.06	-1.65	-31.30	-6.07	-5.13	
	-21.40	10.54	4.15	1.21	1.71	-2.15	-6.33	-10.70	-9.96	-32.41	-0.03	-5.96	
	-42.53	1.86	20.83	-1.07	39.38	-3.83	-27.59	-33.73	0.55	-17.63	-10.66	7.98	
	-22.39	5.16	9.69	9.56	33.50	-8.74	-21.94	-2.88	4.95	-3.08	-5.50	6.68	
	10.86	5.70	2.09	5.07	-3.41	5.17	1.48	-51.03	-5.30	-3.78	14.35	6.79	
	7.45	3.76	7.52	6.69	0.10	-3.37	-7.85	29.22	1.14	-9.87	-0.21	10.15	
	-30.19	7.46	8.43	3.36	3.79	0.60	-3.07	11.95	-5.78	-0.73	-2.75	9.52	
	46.11	-6.43	0.30	2.26	-2.97	4.67	-3.82	-2.28	-13.84	3.60	-2.90	2.16	
	92.91	-61.65	5.26	6.64	-0.35	10.36	-4.42	-2.37	-54.06	1.18	43.46	-9.38	
	35.60	-24.83	3.33	7.64	1.93	-7.27	5.23	-1.35	-33.31	1.36	19.44	-0.13	
	-0.10	3.66	11.26	9.26	6.65	-13.12	-11.70	-1.35	0.33	0.59	2.71	11.81	
	12.75	9.03	10.23	-3.27	-3.32	-3.49	-1.07	9.55	7.73	-0.35	5.78	4.24	
	4.28	-0.73	7.36	-1.54	7.57	-7.65	1.16	22.29	-9.88	-0.99	2.81	2.23	
	-3.36	-3.91	7.29	10.77	2.39	-53.83	-0.81	-7.42	-18.22	-3.85	-7.20	6.29	
	7.36	-41.74	9.14	1.49	7.34	20.75	0.26	-7.02	-34.39	-7.08	5.95	-1.07	
	4.71	-11.59	10.69	-1.40	-2.88	2.23	30.10	-0.63	-14.90	-16.09	3.10	3.17	
	3.55	22.02	2.35	16.51	2.64	19.76	16.75	4.58	3.95	-0.40	-0.88	2.21	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	4.65	6.79	11.54	22.39	11.48	6.06	6.02	4.22	2.49	1.63	-0.29	5.02	
	12.21	5.76	7.23	2.75	10.88	2.30	-38.02	1.10	0.16	-0.30	0.83	3.28	
	6.21	50.57	14.26	9.51	13.40	4.79	7.74	2.23	18.96	8.25	-17.55	19.06	
	8.27	12.52	12.94	40.48	17.00	6.22	4.04	-0.60	9.46	3.98	-85.22	18.88	
	19.22	-0.88	13.98	5.67	1.60	0.08	5.24	-0.09	11.16	-0.17	-37.70	-20.42	
	5.00	6.92	2.71	16.97	-3.87	0.13	-5.74	2.22	5.11	8.77	3.60	4.45	
	16.66	9.36	3.86	19.37	13.34	10.52	4.59	-1.19	-0.63	5.59	12.28	2.73	
	20.96	-0.21	3.68	18.40	10.91	15.29	-2.50	-0.02	-0.62	3.97	-5.53	7.32	
	2.40	-41.24	0.29	19.13	16.29	4.34	9.38	11.14	-1.28	7.01	8.37	-3.40	
	1.99	40.27	1.44	19.66	8.50	-1.26	7.86	12.35	9.51	41.10	-1.94	-0.39	
	4.84	6.14	-9.36	8.87	2.42	-9.84	9.71	-25.91	-1.73	-8.76	0.55	7.10	
	17.07	20.20	-11.40	17.04	10.18	-1.08	9.32	-17.75	2.86	-11.43	15.49	10.37	
	10.75	5.33	-7.21	1.69	9.18	1.05	7.31	-4.94	1.11	-1.23	-1.05	8.65	
	16.67	3.61	-5.24	0.81	10.40	6.98	1.22	4.11	4.00	-0.83	3.75	0.72	
	0.22	1.88	-1.54	13.32	-5.09	0.78	-7.39	-0.82	-1.82	6.87	-8.82	18.43	
	2.72	-12.06	-1.13	16.03	10.14	-5.78	1.88	39.04	3.88	7.37	11.75	37.53	
	-0.24	-1.89	-2.32	-8.35	-1.84	-1.44	4.99	8.02	-5.04	4.16	6.82	13.52	
	12.75	-7.62	-6.98	-7.72	11.26	21.55	1.56	-0.05	1.84	9.24	8.90	4.46	
	-2.74	35.48	-3.64	-1.40	10.24	25.67	-18.81	0.90	-10.55	6.35	4.15	1.36	
	-7.74	-30.61	-6.55	1.65	36.38	-11.42	-0.07	0.71	1.29	-37.05	10.24	1.80	
	-1.45	-34.87	2.21	-5.81	4.59	-5.55	51.66	3.90	-1.53	-22.48	12.01	2.59	
	-5.11	-47.47	-6.91	-3.23	-9.78	-35.50	1.63	9.76	-9.12	-4.30	0.18	-0.93	
	-17.56	-21.25	-1.74	-4.82	-17.74	-17.74	12.91	0.74	-9.04	-7.75	5.17	-24.66	
	-23.44	-17.83	0.36	-9.10	5.85	-6.21	15.36	3.73	-2.29	-11.48	18.83	-10.35	
	0.87	-22.23	-0.45	-6.99	-28.50	-4.69	7.97	-5.48	-9.95	-21.26	3.93	-28.52	
	-12.78	-16.70	-13.93	-17.82	-16.81	3.06	1.26	-2.91	3.77	-10.02	-22.26	-11.62	
	21.17	-2.64	2.71	-18.00	-9.83	-0.93	-7.55	-1.59	1.95	-7.88	-11.15	-18.69	
	19.79	-13.84	7.39	-5.98	-7.92	-3.93	3.45	4.69	-1.35	-0.93	-4.15	-41.22	
	30.38	-7.63	0.11	-12.99	-0.73	-3.83	12.65	0.02	0.73	-11.03	-15.15	-26.43	
	41.78	-6.00	-1.63	2.86	6.08	3.55	9.22	-0.34	2.90	-0.63	-22.56	-3.88	
	9.16	-5.52	-5.03	-2.70	5.05	12.02	16.07	9.40	1.04	-5.30	-23.37	-6.20	
	4.73	-8.77	-6.35	-2.25	0.90	-2.32	-9.35	13.27	1.63	1.37	-21.01	2.96	
	-9.28	-5.31	-1.08	-0.66	3.87	1.60	-13.37	7.73	7.33	4.46	3.13	6.52	
	-30.31	16.79	-10.14	2.43	4.96	7.86	9.19	-18.76	1.10	-8.58	46.92	10.35	
	-13.66	4.77	-26.41	6.62	9.47	5.85	25.13	-4.73	4.03	-2.92	12.79	9.64	
	11.97	-6.47	-12.34	-6.80	2.41	12.18	7.69	-10.18	3.81	-12.79	-1.70	15.92	
	6.16	-0.79	-11.95	0.27	-3.68	8.59	-10.17	10.52	-0.11	-22.56	26.50	-1.83	
	-30.00	1.27	-22.67	5.61	1.97	5.07	-9.34	1.32	2.45	-16.06	7.75	6.42	
	4.48	-0.28	-13.77	-4.29	-0.50	11.48	0.77	-1.71	6.83	-9.20	-2.31	5.16	
	53.12	-7.73	-5.60	-5.33	1.78	-1.51	11.55	5.78	-9.40	-7.59	-11.75	13.21	
	13.98	-2.24	-10.87	-1.42	-7.92	-7.02	10.53	-2.90	-13.76	-7.80	10.55	3.08	
	-19.00	6.61	-2.28	2.06	-17.40	-3.96	4.72	5.76	-10.64	-4.17	8.07	1.61	
	-1.03	2.69	3.45	-1.21	-8.72	-3.79	-5.48	13.10	-6.81	-0.11	4.27	0.53	
	-12.77	1.14	-0.22	-5.90	-4.51	0.65	7.24	29.51	1.24	6.27	11.95	2.83	
	-1.80	3.35	2.09	-2.70	3.67	6.88	6.50	21.00	3.49	9.20	9.69	9.13	
	1.11	-20.19	11.18	-24.45	5.34	19.13	17.50	-0.22	6.52	10.60	6.88	-41.71	
	6.93	-6.56	20.24	-12.23	-4.44	13.72	18.19	-7.69	-1.23	2.61	9.83	-9.87	
	-5.50	4.44	8.06	-10.69	-11.90	-30.70	-13.52	-16.74	10.58	8.44	1.75	5.61	
	0.95	3.63	27.99	-9.14	-1.04	-0.15	-20.57	-6.71	2.72	5.24	8.96	3.00	
	8.72	-0.16	16.56	2.65	-0.60	12.09	-13.01	2.43	5.43	7.42	24.71	9.86	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	8.85	14.69	2.64	4.34	-20.18	-11.98	-11.00	-1.86	11.70	13.86	-5.86	5.21	
	14.33	1.60	0.09	5.68	-19.61	-10.51	-6.64	-17.03	14.05	16.65	3.04	18.08	
	9.33	3.17	38.15	10.43	-0.53	-1.36	34.12	25.14	9.24	2.88	6.17	10.78	
	18.14	9.20	6.47	9.23	18.30	-12.60	-11.92	11.02	12.21	11.94	30.46	6.38	
	-5.02	10.85	1.23	7.55	13.91	3.04	-7.65	10.70	10.47	12.79	17.65	16.18	
	13.95	12.18	23.36	15.16	-7.15	7.88	-7.40	18.30	9.18	5.93	4.01	34.61	
	-2.72	28.32	24.30	2.11	0.78	4.51	0.75	21.64	44.22	13.45	10.44	8.83	
	3.30	11.61	7.78	23.15	-18.68	-39.74	-1.42	25.36	14.21	46.27	11.82	12.64	
	7.93	29.70	-2.08	10.22	-8.30	-11.46	-18.65	27.80	0.46	15.91	8.98	16.60	
	14.07	8.21	11.56	17.80	32.61	25.43	1.61	20.58	4.63	9.50	8.62	13.43	
	7.74	-37.39	24.43	6.46	18.47	23.90	-26.27	12.92	8.74	7.07	16.31	23.63	
	27.78	6.64	16.26	9.34	14.44	19.92	-10.87	22.91	8.05	8.18	13.00	36.86	
	0.64	13.54	12.11	40.89	22.80	8.75	-9.26	2.75	23.77	17.24	15.05	23.19	
	-69.74	46.27	-4.29	5.67	-23.75	-37.09	5.97	-27.14	-5.67	36.42	19.29	5.64	
	-3.73	-6.53	-15.54	1.96	-4.20	-31.49	11.06	-6.63	-9.18	9.33	33.84	-3.40	
	8.27	19.88	14.16	21.35	22.76	19.62	21.24	20.97	3.35	9.30	19.96	12.13	
	10.53	57.47	12.29	15.51	24.99	38.61	13.11	14.55	13.26	23.84	11.57	32.10	
	9.97	18.29	2.98	10.06	12.08	40.12	42.11	19.18	7.15	11.69	5.09	20.50	
	-11.93	18.36	5.89	12.38	5.39	30.80	32.79	7.37	3.66	8.20	27.09	22.09	
	-41.22	30.79	9.25	8.07	11.96	53.23	7.71	-3.95	-41.49	5.15	25.28	-4.95	
	-7.94	-18.00	17.59	23.51	7.23	14.14	18.26	4.54	1.62	8.28	3.04	-11.52	
	-32.83	-27.36	7.31	10.19	24.36	9.83	15.23	16.97	9.15	21.29	10.84	9.95	
	1.18	4.74	2.83	4.31	18.60	4.33	27.70	12.57	12.70	18.18	38.34	14.83	
	14.48	5.45	8.12	2.89	3.13	-12.26	2.16	6.19	11.63	15.46	20.73	37.95	
	3.66	1.09	11.08	6.22	29.79	0.75	11.02	17.17	1.89	-10.94	15.64	10.68	
	-5.62	-10.09	0.19	2.37	-13.01	9.26	7.71	-6.42	7.14	10.22	39.44	10.67	
	0.49	11.40	-9.98	-4.98	6.01	11.69	8.41	-18.70	2.79	4.21	-4.48	26.59	
	14.76	3.40	0.68	12.38	7.14	-0.17	-8.26	0.63	9.80	-7.39	1.06	30.56	
	15.36	-3.17	4.15	0.74	5.56	13.99	-15.70	4.04	3.48	3.61	5.64	7.74	
	-15.16	12.11	2.32	8.24	-0.66	15.99	5.48	19.21	13.78	7.59	4.35	8.60	
	3.35	13.25	2.73	4.73	1.46	-0.33	0.95	7.75	11.99	-0.35	12.52	29.50	
	19.92	2.74	-6.63	13.41	2.89	3.63	9.19	-1.95	5.00	-0.87	-2.48	35.47	
	21.52	5.80	3.06	-8.75	6.09	6.77	8.53	2.80	-5.95	-1.75	3.62	-11.10	
	-5.35	3.77	0.45	-12.65	13.83	-1.53	1.66	-2.88	1.65	2.53	-4.67	2.33	
	-9.01	5.46	0.65	-1.22	-7.59	2.38	3.51	-5.05	0.55	-0.14	-8.65	11.62	
	-55.18	1.64	0.07	-3.04	-3.09	5.91	2.08	0.24	-0.17	0.71	9.01	6.89	
	-8.00	4.00	-4.23	1.44	-0.22	7.73	0.45	11.41	-1.94	2.79	21.02	2.36	
	-10.53	-12.68	-33.52	7.96	-8.19	-3.03	2.29	25.18	2.53	-3.36	4.22	0.13	
	-14.83	-0.18	-7.71	-7.66	3.39	-10.25	5.04	11.80	22.79	1.42	-3.45	1.02	
	-3.76	-1.00	41.10	0.67	-5.13	-2.15	2.30	5.39	4.50	-0.84	1.84	20.06	
	-17.61	0.77	-1.72	11.15	11.04	3.90	-5.85	-4.42	1.11	-0.57	4.34	16.09	
	-1.63	6.92	-1.55	5.32	2.29	0.63	0.48	-5.26	-4.63	-2.61	24.69	0.03	
	-0.41	6.90	-7.45	-2.83	-2.41	-1.75	1.30	23.14	1.62	-2.57	21.05	1.05	
	-8.28	4.42	-1.75	-1.44	-3.41	0.59	-0.28	18.75	3.71	7.16	2.02	-7.21	
	-1.66	-0.60	26.63	-0.19	0.78	-1.74	1.43	1.85	2.65	1.27	15.33	-3.24	
	-0.33	1.70	2.25	1.00	-3.23	-3.26	0.73	3.55	-0.87	8.71	9.80	-1.28	
	-1.65	-16.51	-7.24	-1.06	-2.88	1.25	18.90	-5.37	0.28	-0.01	4.40	-9.32	
	-4.31	-14.05	-14.14	-3.58	-10.69	-0.25	9.63	-5.88	0.19	-2.92	-6.89	-1.30	
	-7.36	1.41	-6.21	-4.86	-5.00	-6.22	0.44	-12.65	2.59	-3.12	1.54	-8.73	
	34.88	8.43	-25.17	-12.32	2.63	-13.32	1.09	-8.13	-0.02	-7.24	0.43	-8.21	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	6.31	-12.13	-49.82	-1.49	-10.88	-2.31	3.73	-17.43	0.85	-18.77	-17.95	-9.52	
	-30.18	-9.72	-23.60	-2.10	-6.47	0.12	21.58	0.46	-0.65	-17.82	-9.61	-14.59	
	-28.16	-17.03	-32.10	-19.17	-1.80	-1.84	6.58	-12.03	-8.54	-21.46	-1.00	-15.20	
	-18.05	-12.66	-32.06	6.39	-10.94	-2.71	12.49	-8.07	-20.83	-13.92	-8.00	-6.11	
	-44.30	-11.57	-22.98	0.08	-11.18	-0.38	6.57	-29.83	-16.09	-16.55	-6.94	-14.79	
	-107.85	-41.37	-6.11	-1.54	-17.86	-0.52	-5.69	-8.52	-4.29	-45.47	-4.26	-11.47	
	-83.38	-35.56	-14.45	-8.97	-38.72	-36.55	9.02	-0.93	-4.10	-30.99	-16.01	-5.44	
	-24.58	-35.84	-31.16	-12.33	-12.12	-9.81	-10.85	10.71	-3.41	-21.32	-18.03	-5.54	
	-6.88	-24.21	-38.27	-2.69	-37.83	-14.19	0.33	15.34	-11.21	-39.81	-7.43	-9.98	
	-35.74	-17.22	0.01	-5.69	-43.45	-21.61	-27.41	17.30	-39.51	-53.96	-10.01	-17.01	
	-49.05	-25.75	-5.22	-5.27	-20.42	4.17	-36.21	-16.30	1.17	-18.31	-45.60	-11.08	
	-59.06	-22.73	-2.57	-19.39	-39.85	-25.80	-32.55	10.64	-3.06	-37.77	-27.92	-15.18	
	-17.15	-8.09	-7.94	-9.70	-37.23	-31.70	3.03	9.92	-10.41	-45.50	-54.71	-22.39	
	-17.18	-13.62	0.27	-15.37	-25.46	-0.60	-1.47	14.41	-9.44	-15.01	-54.54	-12.60	
	15.67	-19.65	4.09	-9.86	-29.61	-16.34	-19.75	-13.95	-7.84	-15.39	-30.90	-12.87	
	-3.95	-15.07	30.07	-32.09	7.01	-5.66	-15.79	-21.03	-10.79	-13.33	-22.14	-8.86	
	-2.00	22.06	-6.84	-10.35	-8.62	-6.50	-23.33	-25.10	-2.31	-3.62	-23.80	-12.98	
	35.31	64.69	5.47	-32.22	-15.77	21.68	-21.68	-32.19	14.60	-10.12	-1.68	-13.35	
	11.16	28.48	6.20	-16.20	-10.26	-11.85	-42.99	-43.46	5.33	-10.04	-8.72	-23.44	
	1.78	16.68	2.88	-19.51	-4.36	-19.86	-5.65	-34.41	-19.74	6.43	-7.30	-38.32	
	3.95	6.69	0.60	-11.63	-3.00	-4.40	-7.05	-16.76	-31.65	-0.23	-4.59	-35.97	
	-3.72	5.26	6.71	-9.35	-3.07	-12.87	-11.70	-9.42	-5.41	-0.80	-2.85	-11.79	
	-2.12	8.46	5.87	-1.92	-0.54	-8.29	-27.70	5.66	-7.10	2.92	1.49	-12.27	
	7.44	-26.24	4.95	-17.94	11.24	-8.66	-20.14	-5.93	-14.55	1.96	4.00	-19.63	
	0.44	-14.84	1.58	-13.57	2.99	-4.32	-19.89	-7.62	-14.34	28.67	2.53	-14.61	
	2.01	7.59	2.96	-5.92	3.77	-10.78	-12.09	-6.31	-23.67	10.91	-3.35	-12.49	
	-3.07	2.55	-5.01	-10.71	5.48	19.53	0.90	-4.81	-6.14	2.46	-0.03	-19.45	
	-17.08	5.54	-2.05	-13.72	3.48	-3.98	-1.72	6.35	-7.76	0.45	-21.75	-9.17	
	4.63	16.52	5.08	-10.80	-8.24	6.14	-14.46	1.37	-11.90	-1.06	3.36	-6.70	
	17.36	22.58	10.21	-16.09	3.19	-2.23	-0.72	-10.74	-12.78	3.97	7.49	3.25	
	9.94	1.96	-13.05	-26.51	0.97	18.07	-3.51	-14.18	-2.26	21.98	1.62	-15.15	
	1.62	7.59	12.51	4.87	4.68	-5.33	5.31	-19.46	-6.86	15.48	18.71	-2.84	
	-3.96	7.95	0.91	0.27	7.45	8.95	20.39	-5.55	0.51	-2.63	11.38	-13.79	
	9.96	20.69	-0.47	-8.43	1.10	1.41	13.32	11.54	-11.11	-2.13	-14.82	-1.81	
	17.50	2.47	9.81	0.89	6.18	-3.77	-6.26	24.27	-9.29	11.64	2.20	0.86	
	90.92	-6.88	-2.90	7.15	-3.56	1.41	-15.65	2.73	-10.84	8.83	6.28	-1.67	
	33.00	-4.93	-3.39	-13.62	-1.58	-3.42	6.38	-0.14	-2.04	5.70	-5.07	-3.60	
	-10.67	7.18	8.88	-5.15	14.93	1.80	-12.13	2.55	0.05	-3.02	4.82	0.55	
	4.49	-23.98	-2.95	-2.88	7.94	-0.10	-5.70	0.05	-4.73	6.78	-9.10	13.00	
	-0.49	-12.15	6.86	-1.89	5.61	1.50	12.61	-26.40	-2.17	-2.51	-1.73	-3.04	
	0.67	23.37	11.38	-1.83	-0.88	17.64	3.57	-10.10	-1.16	0.65	-7.00	-2.50	
	-16.83	-14.50	8.91	1.35	0.42	20.93	-2.46	8.17	1.35	-20.45	-7.67	-5.08	
	-22.84	-13.84	1.23	-5.48	2.84	12.76	-1.85	18.60	-1.80	-5.08	2.43	14.25	
	2.77	-1.17	15.28	-3.29	10.63	-16.22	1.20	20.73	2.34	23.15	-18.63	9.12	
	12.52	8.70	1.75	19.33	0.72	-5.55	-3.97	4.20	-4.52	3.83	-4.57	-1.29	
	31.08	11.86	4.93	-1.30	-1.79	-0.43	1.87	-1.99	-0.72	-1.15	-0.18	-9.61	
	16.40	7.34	2.92	-2.27	-1.40	18.39	-27.26	-0.20	8.53	5.51	-7.77	22.60	
	73.42	6.72	-1.21	-1.96	11.02	24.67	4.45	15.17	8.84	20.68	-1.17	65.84	
	11.81	1.08	-4.09	14.20	-1.24	27.18	-6.84	19.81	3.97	25.19	-9.43	21.36	
	8.36	7.47	0.58	7.07	13.27	2.43	-7.46	-19.99	-4.54	-4.21	-1.25	-7.89	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	24.16	5.94	-2.85	4.33	6.60	1.35	3.56	3.67	2.04	-1.03	-14.11	-8.21	
	-0.88	14.58	1.46	7.54	6.47	-1.14	10.89	13.19	1.81	3.81	-4.03	-3.61	
	-26.61	14.83	8.70	1.75	-0.37	6.94	3.82	-1.84	1.01	0.92	2.69	5.46	
	-14.88	7.81	29.91	7.79	2.96	6.17	6.70	0.36	2.27	2.27	8.37	2.12	
	-1.26	1.72	6.77	6.52	-0.85	36.13	7.02	8.18	8.26	6.19	7.78	-3.99	
	25.61	-2.16	6.40	15.78	-1.61	80.49	-0.14	2.37	6.65	5.02	-2.87	-6.22	
	-8.07	11.84	-20.76	4.86	-0.53	15.35	-2.32	4.88	1.06	5.27	3.89	-1.38	
	13.86	-0.30	-8.03	-4.80	4.52	8.64	3.71	6.09	2.56	-3.07	12.20	5.01	
	-1.13	-4.98	1.07	3.45	1.43	65.86	-0.40	4.36	2.84	-0.09	13.90	1.77	
	-25.22	1.34	-11.23	-2.62	-0.26	-1.64	-6.64	5.56	6.35	-1.73	58.59	-0.18	
	-4.21	2.54	-11.29	5.58	-7.96	-29.10	-7.89	9.64	-1.15	9.28	6.86	-8.40	
	-2.87	-5.85	-11.21	0.43	-8.83	0.05	-6.84	3.01	-4.25	-11.42	5.23	-14.32	
	-0.04	3.90	-11.28	2.01	-6.46	-19.66	-5.74	-8.26	-2.02	-3.02	-2.52	-8.17	
	-18.52	-8.41	-2.66	3.52	16.86	-13.60	-9.54	-12.09	-5.86	-4.67	1.78	-8.23	
	-19.43	-1.98	9.31	-3.78	17.46	-40.19	-4.10	0.75	-3.47	-2.73	-17.16	-5.99	
	-43.18	-2.10	1.83	-0.49	-1.38	-44.04	-8.44	16.20	-2.25	2.78	-10.48	-8.99	
	-31.90	-4.08	-16.81	-2.43	-18.25	-12.70	-3.64	0.70	-2.74	0.09	-21.62	-18.39	
	-18.84	-11.20	-4.71	-0.11	-44.26	-6.23	21.35	-6.89	-3.40	-6.60	1.41	-29.01	
	-50.43	-6.67	-4.27	-1.37	12.02	-10.17	7.28	-2.99	-7.20	-4.67	-3.18	-24.45	
	-9.55	-10.07	-7.55	-1.34	46.16	-8.38	-11.70	3.79	-4.93	-28.23	-4.63	-18.66	
	3.38	-14.19	4.97	1.10	-10.45	-6.64	-6.53	-6.63	-11.51	2.44	-36.38	-49.88	
	-12.95	-14.39	8.83	5.85	6.58	-33.70	1.63	-3.26	5.45	-0.54	-55.27	-78.38	
	3.35	-9.72	13.53	5.04	-11.02	-13.46	-2.83	4.60	4.73	-8.09	-47.36	-28.36	
	-22.67	-8.32	-9.98	14.06	1.76	14.11	1.49	-2.29	1.02	2.41	-17.96	-10.05	
	-26.03	-8.51	6.52	8.64	6.31	8.13	-9.90	-3.48	-1.18	-7.15	-16.56	4.62	
	-9.67	-15.96	4.96	8.43	8.66	0.13	-16.97	3.47	1.49	-1.81	-30.94	19.82	
	1.91	-32.88	-6.16	-8.80	-1.45	18.28	5.11	-5.28	3.68	2.30	-44.07	-4.55	
	15.26	-11.83	-2.05	0.95	5.03	-2.67	3.84	-35.33	1.38	8.12	-12.95	10.46	
	-1.35	-21.23	-12.66	2.12	0.32	-3.43	12.63	-9.01	18.53	-9.85	-12.20	34.53	
	6.03	-14.74	-13.91	2.44	0.07	12.44	0.79	10.00	-4.33	-15.33	4.14	-0.61	
	2.89	-6.22	-21.22	5.36	-0.30	1.53	-3.70	32.35	-1.78	-10.61	-1.62	10.16	
	13.95	0.99	-29.01	2.20	-0.52	-0.58	1.38	13.76	1.81	-9.67	-9.26	32.13	
	11.48	-7.86	-32.55	-10.40	5.07	8.57	5.14	6.61	0.08	-4.93	-15.12	1.03	
	-2.98	-1.34	-0.91	2.83	1.03	7.75	2.51	5.01	-2.03	-6.06	-8.82	18.53	
	-5.62	15.45	9.94	-3.16	-5.57	-6.81	-3.37	12.48	-11.76	-12.35	2.13	8.61	
	0.97	-0.33	-32.76	-5.62	-2.27	-34.09	-3.37	16.46	-16.30	5.02	12.39	-7.59	
	1.85	-4.44	-30.33	1.48	14.33	1.47	1.06	-5.85	-8.22	-0.96	13.15	5.15	
	14.27	9.97	-10.06	-5.96	1.28	-2.18	5.49	-36.02	3.15	7.47	12.22	2.70	
	0.31	11.50	-2.92	-6.98	4.03	1.79	-7.86	-6.96	26.88	3.23	9.43	13.70	
	1.86	9.77	12.99	-7.46	0.48	1.42	-3.55	-3.94	62.43	-22.21	8.32	8.07	
	-7.39	19.68	16.22	-9.91	3.86	1.41	4.27	-8.55	27.81	-10.23	-1.77	-8.35	
	14.86	15.33	19.85	-17.21	-13.87	1.43	-6.05	-10.63	3.27	5.92	-2.81	-1.49	
	44.27	-0.95	51.01	-27.38	-13.47	-2.37	-3.12	-18.89	2.11	17.20	7.57	1.59	
	2.28	-0.95	-4.27	-10.17	-14.88	-3.23	-6.06	-20.07	0.84	10.70	2.28	1.46	
	13.94	7.89	23.41	-4.55	-18.15	-4.09	-7.98	0.17	5.73	6.90	1.96	-0.56	
	1.12	32.96	19.35	-4.05	16.43	-24.69	-25.13	-21.51	-8.49	11.15	-1.89	17.90	
	23.00	-20.24	10.60	0.11	-13.36	-2.70	35.15	6.28	8.08	3.82	14.33	29.73	
	15.55	11.58	35.21	7.06	4.89	-2.53	-21.18	29.94	22.87	39.28	1.26	5.97	
	16.03	17.68	11.46	6.22	19.57	1.45	-2.64	46.28	20.76	30.81	5.93	14.91	
	9.58	24.28	10.61	3.84	39.95	13.16	18.74	13.82	13.75	19.47	0.34	12.73	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	30.52	6.44	23.05	9.32	-4.09	-2.04	12.64	1.92	2.16	5.02	26.61	-4.66	
	29.51	30.20	18.94	6.76	21.18	-7.71	7.12	1.07	1.71	4.86	14.73	1.22	
	62.03	50.47	-4.40	6.75	32.06	-1.12	9.17	15.88	13.72	34.29	26.79	6.16	
	59.36	10.23	18.67	22.11	10.26	14.38	-13.59	16.99	10.68	17.56	5.74	1.35	
	43.78	32.44	20.63	-5.18	30.19	2.27	13.47	-2.52	15.34	37.37	12.83	4.55	
	20.72	11.75	12.33	22.87	8.65	10.67	16.21	35.76	8.77	37.64	23.60	4.66	
	20.48	8.72	-0.37	20.15	32.59	22.56	10.32	30.29	-2.28	11.68	17.82	16.00	
	9.43	4.64	1.33	5.73	13.05	20.98	15.20	-20.77	-22.93	2.21	14.51	-32.92	
	-9.69	-9.29	7.84	7.23	3.53	75.66	42.89	-21.75	-5.90	0.56	22.08	-11.05	
	2.62	14.15	-2.25	19.36	17.45	15.26	11.10	-10.91	-0.54	10.27	24.04	15.32	
	18.94	18.94	3.33	8.92	25.03	18.60	12.46	10.83	9.30	17.37	32.23	20.66	
	33.83	19.99	8.84	12.23	21.07	11.52	23.00	16.64	48.83	16.78	6.97	13.11	
	-44.23	12.16	5.15	10.11	16.04	8.66	13.46	20.89	15.05	30.80	17.47	16.71	
	-60.57	9.96	1.96	5.47	18.69	24.40	25.91	33.47	8.47	27.61	23.25	9.19	
	-46.07	-7.13	-6.46	16.36	17.52	-29.74	31.61	19.04	25.31	10.79	23.35	12.41	
	4.69	11.28	-3.40	17.33	15.90	-7.03	10.51	19.26	8.38	7.16	6.19	7.90	
	-6.85	7.05	11.42	4.87	11.03	9.34	8.96	-31.42	0.42	-0.56	4.10	19.78	
	14.54	19.96	6.51	-1.03	1.66	18.97	6.57	-7.34	13.27	-4.27	25.26	11.43	
	-10.57	8.97	-2.39	10.06	-21.73	10.28	8.99	11.68	2.15	7.61	22.01	-0.83	
	-65.45	-1.74	3.35	3.59	-1.92	-1.73	2.44	12.49	0.31	2.02	-14.80	11.10	
	-60.81	-0.79	8.52	1.75	16.54	-9.33	9.22	-4.58	1.87	5.22	-12.48	7.99	
	14.46	4.95	2.87	3.60	20.31	-10.95	32.90	25.48	2.43	8.68	11.54	7.87	
	3.29	6.64	1.27	2.19	-9.66	5.51	27.51	21.39	2.96	7.00	17.53	4.45	
	6.50	11.48	1.98	0.05	-14.34	1.23	-2.92	15.43	0.87	5.96	0.43	8.14	
	2.36	4.89	5.17	3.86	3.37	11.12	5.24	-8.39	2.32	-10.51	-5.25	11.10	
	-6.16	12.40	6.10	0.47	2.60	5.33	9.94	-23.68	14.86	-0.38	-3.83	2.62	
	-3.05	7.66	-4.18	-5.82	1.79	1.52	1.09	5.68	8.40	-3.87	14.13	0.52	
	2.17	1.06	10.60	-4.40	-7.61	5.24	4.55	-12.56	-2.66	5.24	-1.71	-5.65	
	-9.93	-2.60	49.97	2.83	11.81	4.36	-0.01	-9.95	-3.34	1.10	-1.07	7.43	
	9.57	3.76	22.59	2.45	-4.84	-1.53	-17.64	10.68	0.36	-2.34	16.75	-1.24	
	9.29	1.23	-2.22	6.44	-5.46	8.06	-8.95	-0.10	-0.06	5.09	23.41	3.98	
	29.46	8.93	-12.52	-1.73	4.74	-2.53	1.87	1.09	1.03	1.10	12.62	3.74	
	8.02	-1.43	-44.22	-0.84	4.98	0.40	-6.40	2.98	-0.31	-1.10	33.74	-0.65	
	-3.89	-1.40	-26.50	-1.65	3.37	-6.10	-5.75	-1.08	-1.70	-1.07	3.83	8.66	
	-4.96	2.03	-0.97	-2.65	0.40	1.84	1.99	18.44	0.91	-1.08	-2.10	5.38	
	5.65	5.41	-5.85	-2.95	-3.03	1.82	4.39	28.22	-1.02	-0.08	-10.35	-14.87	
	9.45	-4.33	7.27	-4.16	-1.83	-3.26	3.84	22.01	9.37	-1.80	-3.70	-4.93	
	-2.46	-14.01	-8.05	-12.48	-22.72	4.60	-0.36	27.86	15.45	-1.82	1.15	3.72	
	8.81	-11.34	-7.18	-9.50	-26.38	7.18	-4.07	20.40	1.91	-2.45	10.21	-5.42	
	1.46	-8.66	-11.87	-14.90	-16.54	0.67	-2.85	8.15	-0.50	-1.50	21.29	6.35	
	-0.60	-3.02	-11.70	-23.20	-21.38	0.08	-6.31	7.44	-1.26	-1.19	23.07	-12.24	
	-7.48	-8.53	-34.18	-8.32	-2.43	1.69	10.32	0.26	2.52	-4.48	8.80	-2.37	
	-3.26	-3.85	-28.51	-8.91	-10.11	-1.86	-5.73	7.53	1.99	-3.34	-7.28	-16.58	
	6.31	-8.47	-38.32	-9.55	-20.04	-36.68	-11.88	6.46	0.83	-8.72	-4.99	-6.93	
	-2.42	-9.34	-36.96	-10.08	-14.25	-23.86	-10.65	-10.12	1.74	-17.43	-1.54	-4.30	
	-3.91	-3.97	-15.25	-6.33	-4.27	4.63	15.09	-4.48	9.42	-12.55	-7.88	-7.57	
	-0.02	-7.38	-24.12	-11.00	-12.03	12.04	-6.69	-5.96	1.97	-18.14	-5.87	-8.06	
	-26.04	-4.01	-45.62	-13.26	3.27	7.07	-10.88	-13.87	-4.22	-29.96	-17.88	-3.11	
	-23.94	-25.33	-26.68	-9.62	-8.50	-4.92	0.21	-37.86	-5.96	-32.11	-0.61	-4.07	
	15.68	-44.83	-26.77	-8.62	-26.65	-10.91	-32.25	-46.68	1.54	-15.42	-7.69	-25.98	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-7.28	-26.43	-2.79	-33.83	-26.69	8.79	-26.60	-41.46	-11.66	-23.58	-39.81	-18.72	
	-13.15	-23.26	-16.38	-1.75	-16.49	-3.27	-12.63	-24.19	-9.20	-50.42	-16.48	-3.42	
	-23.01	-33.16	-22.55	-15.82	-10.41	11.84	-1.91	16.62	-0.46	-7.28	-2.74	-7.89	
	-52.40	-8.09	-7.17	-12.29	-16.56	-6.33	3.12	3.10	-3.65	-42.91	-14.77	-15.55	
	-44.17	-14.75	9.36	-22.09	-48.37	-14.25	-13.08	-16.10	7.09	-19.91	-46.30	-13.95	
	-62.11	-29.20	71.33	-23.19	-31.80	10.68	-7.99	-16.24	8.37	-43.72	-19.12	-18.80	
	-30.16	-20.48	2.69	-11.64	-31.26	-22.29	-13.15	-22.32	-1.02	-39.95	-0.97	-14.94	
	-31.23	-21.06	5.51	-19.12	-22.02	-11.62	-41.95	-40.14	-12.34	-13.84	-17.00	-10.51	
	-14.13	-5.26	-2.40	-18.17	-29.32	-12.95	-40.61	-26.56	-15.75	-12.16	-62.91	-41.19	
	9.09	-9.56	5.10	-9.24	-26.69	-6.90	-19.02	-23.28	-8.19	-6.39	-7.00	-15.92	
	8.84	-15.00	1.32	-28.23	-9.69	-20.61	-12.39	-10.77	-1.29	0.37	-47.74	-9.38	
	-42.61	-5.64	-20.50	-12.03	-10.87	-31.90	-19.55	-9.49	-8.36	-6.66	-37.85	-16.28	
	-16.08	-20.31	-0.22	-16.91	-20.98	-14.54	-22.66	-11.34	-26.88	-0.20	-12.73	-16.82	
	1.88	-2.33	4.79	-8.91	-13.19	-17.56	-25.02	-59.36	-32.39	-12.90	-11.42	-23.63	
	2.40	-5.93	-4.62	-18.68	5.99	-20.86	-17.43	-12.82	-35.92	5.28	-13.24	-16.45	
	2.82	-5.49	1.99	2.28	-2.48	-7.56	1.92	-4.38	-10.60	12.98	-9.17	-8.84	
	-0.45	0.37	2.27	2.56	-2.10	-21.28	-4.06	-12.65	-8.49	0.87	-6.18	-8.94	
	-10.34	-7.69	-20.96	-5.96	8.84	-11.88	-28.35	-12.38	-2.82	-5.16	2.69	-8.36	
	3.12	-2.98	-2.00	-3.19	3.10	-6.68	-14.04	-7.64	0.07	-3.46	-0.81	0.14	
	1.64	0.51	8.57	-5.27	0.80	-7.73	-8.42	-10.42	-46.82	5.20	-2.10	-9.44	
	12.83	-21.98	0.99	-5.71	-2.24	-20.33	-8.06	12.98	-8.98	7.18	1.83	-9.03	
	-16.18	14.42	-12.19	-1.63	-0.20	-20.59	-14.55	1.23	1.79	2.49	6.63	-2.67	
	9.23	-6.75	7.59	3.72	-0.30	-0.72	-6.57	-18.38	-2.47	13.37	2.96	-7.27	
	99.66	0.37	5.02	-1.07	4.00	-2.30	-6.81	-0.67	-20.43	-3.33	10.77	4.58	
	31.94	-2.94	2.79	20.15	17.94	-1.52	-1.10	23.74	-10.21	3.47	-7.14	-0.21	
	7.29	4.56	-1.44	2.54	10.58	-8.15	7.21	4.98	-10.70	-3.53	5.85	2.51	
	11.32	5.31	10.86	0.90	-7.66	-0.09	-0.33	-1.12	-8.33	-5.54	6.51	7.10	
	-1.94	0.48	13.03	2.07	0.94	-3.23	-10.51	2.13	-0.87	0.36	10.25	9.15	
	3.86	7.45	13.29	-9.28	0.37	-4.73	3.13	6.86	-4.51	6.56	3.77	9.70	
	-9.21	51.34	5.95	5.34	-7.31	-14.15	-7.21	15.63	-21.48	-0.05	5.97	29.49	
	-0.34	3.85	18.47	3.45	-3.10	2.88	-5.96	17.16	-14.06	-6.37	31.15	20.12	
	-0.72	-2.71	10.14	3.48	1.88	9.64	-2.33	13.35	-6.80	-0.07	0.73	15.20	
	6.40	3.84	15.95	6.65	-2.29	1.55	-4.88	-11.84	-1.59	1.20	8.08	12.14	
	4.59	-2.51	18.20	5.29	-7.06	-4.36	0.80	0.21	2.31	-8.37	3.01	4.91	
	-7.69	19.45	-2.86	6.54	2.99	-8.20	1.74	13.93	-2.62	-5.55	-8.79	0.34	
	-45.00	4.73	5.01	-1.97	10.49	11.26	-5.08	7.99	-0.33	12.30	-21.76	0.12	
	-9.83	-0.78	6.63	5.17	10.45	-5.80	-2.30	5.71	-1.65	1.74	1.42	13.41	
	1.51	10.45	0.02	3.16	10.05	-1.08	9.09	-3.00	6.77	5.18	-3.40	-2.54	
	-1.57	6.80	8.67	18.93	7.96	-2.50	0.85	14.32	1.31	7.85	2.31	7.57	
	-28.82	10.47	0.16	10.56	1.91	6.68	-3.10	16.17	0.01	-2.13	6.89	31.07	
	11.35	7.80	11.60	11.11	4.64	7.01	8.24	-11.05	1.89	2.48	12.74	8.33	
	37.79	30.35	21.04	3.88	-11.99	9.98	42.88	-2.44	-5.80	-1.19	5.68	28.41	
	29.89	-7.35	10.02	3.97	0.50	-3.62	36.42	9.98	5.08	-0.05	-3.82	21.53	
	1.18	-13.88	3.98	4.66	4.89	-3.91	9.42	14.12	8.05	39.36	3.98	4.69	
	1.92	9.04	-1.15	7.51	8.08	1.53	1.44	7.70	-2.50	-35.71	0.94	4.41	
	3.64	10.26	3.22	5.28	8.30	-0.55	2.65	15.75	8.25	-11.84	6.42	28.80	
	7.35	-14.04	2.00	10.76	2.13	7.40	3.48	3.63	3.61	9.83	-10.18	-2.99	
	-20.78	-53.32	-5.46	0.54	6.09	4.45	-0.64	12.90	5.46	-2.16	-21.57	6.50	
	16.57	-20.51	-3.54	14.15	8.57	-13.83	-2.16	1.62	9.72	1.13	1.29	8.93	
	1.50	5.58	-10.33	4.80	0.21	2.71	0.93	4.52	3.15	7.18	12.33	1.46	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	3.70	-3.95	0.38	1.75	-9.33	7.99	2.27	-6.66	0.53	-6.66	14.29	8.41	
	1.83	-4.36	0.60	7.59	4.33	1.63	-12.00	2.09	12.29	-5.24	-1.75	2.78	
	0.46	11.81	-0.34	7.33	-2.77	-2.73	-34.34	0.60	14.80	2.83	16.72	0.26	
	-3.23	54.11	1.15	2.81	8.38	3.09	-48.72	54.05	-0.46	8.27	2.33	3.80	
	-14.08	11.58	1.02	-4.29	-0.92	0.20	-10.41	34.85	10.97	-8.76	5.55	-1.41	
	4.74	-7.90	-1.74	-0.83	-15.06	20.08	-0.78	5.30	4.10	-5.99	11.99	-10.21	
	-7.33	-2.72	-8.07	-3.01	-5.29	5.54	-16.38	-10.78	-10.87	-7.19	2.64	-5.07	
	-8.99	-1.42	-1.37	-4.68	-2.99	-2.40	-10.33	-22.84	-10.42	-14.04	8.07	-3.85	
	-8.36	7.37	-14.11	4.93	-9.42	0.15	12.69	-19.84	-1.54	8.89	8.54	-7.09	
	-36.89	14.79	-14.45	-2.53	-6.98	-11.32	51.78	-5.64	-1.47	-17.88	-3.63	-5.37	
	-21.16	-5.21	5.83	-6.79	-4.05	-7.78	12.63	-4.84	-19.95	-17.60	-0.33	-12.79	
	-11.95	-0.24	-2.45	0.79	-11.30	-23.18	-1.09	-1.03	-12.75	-20.54	12.98	-14.54	
	-9.47	-11.44	2.13	-7.79	-7.64	6.53	-3.25	-2.29	8.56	-8.20	-5.59	-12.82	
	-25.73	1.19	4.91	-1.67	-8.07	-10.90	-4.21	-20.22	-8.27	-6.52	4.13	-17.12	
	-10.79	12.49	4.81	-1.42	-5.13	-10.82	-8.88	-8.94	-8.53	-8.51	-6.70	-16.41	
	-10.05	30.19	2.97	-3.18	-8.58	-26.58	49.51	-56.29	15.77	-9.01	20.97	-40.67	
	-19.13	-12.99	12.15	-0.40	-12.19	21.15	20.15	-28.25	18.54	-3.61	20.45	0.93	
	-13.45	16.69	2.93	5.61	9.72	29.90	9.59	-8.71	0.34	1.86	-6.86	-0.61	
	-7.14	-7.73	4.46	14.40	4.68	14.80	10.75	4.59	-4.46	-6.28	-9.12	17.05	
	-20.01	6.17	-16.34	1.43	1.95	6.42	9.06	1.44	-3.35	-3.68	-18.98	12.90	
	14.03	-9.23	5.21	3.90	10.59	-4.53	11.90	41.01	5.82	7.17	-49.50	14.30	
	66.67	-43.79	-13.86	4.54	6.92	3.85	23.81	-0.05	8.56	7.74	1.40	-27.08	
	37.26	-30.69	-2.26	16.01	-4.60	-1.88	-5.37	3.80	14.66	-9.63	-6.21	-3.02	
	9.16	8.29	-10.60	10.95	4.19	16.12	-11.43	-1.48	6.34	-2.19	-2.00	17.95	
	7.58	11.58	-10.70	6.10	14.23	-6.00	14.62	-3.54	4.05	-3.92	-1.12	8.56	
	8.20	11.66	-27.62	13.74	2.07	20.06	7.90	8.77	5.29	7.90	-0.05	6.70	
	0.93	25.32	-18.10	5.91	6.67	14.19	24.66	11.48	16.32	12.88	7.14	2.32	
	-36.32	12.72	-6.10	1.73	5.05	-3.60	11.48	0.73	1.96	16.16	10.55	7.99	
	-12.00	7.24	32.31	-3.71	-1.44	13.55	-3.42	-4.16	-17.27	-4.76	19.82	5.92	
	5.28	-3.43	17.21	-4.16	1.72	11.66	0.28	-0.78	-23.21	2.70	12.60	7.29	
	-1.36	5.88	13.88	-7.54	3.06	-2.03	2.05	11.95	-18.13	1.84	9.74	8.53	
	6.91	39.11	12.14	-10.71	-1.41	-14.04	-5.61	-3.49	-10.21	7.22	3.99	19.18	
	1.37	2.03	5.01	2.65	3.97	-11.01	6.40	-7.91	12.48	10.11	9.85	7.11	
	19.94	13.45	7.88	-3.31	2.42	-4.36	8.27	-16.90	12.60	11.27	14.23	4.23	
	-0.30	10.22	0.76	-35.39	4.54	6.37	4.33	-43.06	11.27	25.00	20.93	1.35	
	2.58	9.73	5.36	-20.67	0.12	4.32	-1.38	-28.60	11.04	4.24	7.71	0.19	
	10.49	19.58	9.03	-20.05	-7.82	0.35	4.47	-16.87	14.17	33.58	5.61	3.36	
	9.37	26.09	11.03	-0.32	-2.70	5.74	-3.55	-7.00	8.40	-2.34	1.04	9.01	
	3.84	12.22	21.78	10.34	-7.83	-8.43	0.69	-2.11	9.06	10.04	2.82	-0.65	
	-12.60	16.48	17.33	14.85	-4.15	-11.03	0.10	-5.75	-1.65	13.85	-41.55	11.42	
	-5.87	9.98	32.61	15.62	-4.39	-5.42	-2.21	15.95	13.26	19.24	0.27	10.39	
	21.27	18.42	25.69	21.09	-5.56	-0.41	2.10	0.03	0.14	8.64	-2.79	5.78	
	20.71	19.43	21.28	32.41	12.90	-0.57	-3.40	14.97	14.34	45.05	-6.31	16.77	
	15.75	5.93	32.21	5.24	6.56	7.94	29.89	25.69	11.20	21.85	13.58	13.44	
	13.37	2.06	13.83	36.38	-9.22	1.31	20.72	13.83	8.48	19.43	23.94	14.53	
	-34.05	11.53	7.25	2.98	20.73	0.90	-20.73	11.29	-1.02	16.81	-0.24	16.07	
	5.73	6.87	-9.47	26.52	28.55	17.05	6.13	31.19	7.57	30.47	23.86	12.29	
	78.28	8.11	-11.22	16.08	28.95	10.90	22.91	5.15	2.10	22.53	31.96	23.32	
	17.56	27.96	16.04	26.32	12.78	12.35	18.65	11.78	14.16	9.24	3.84	35.84	
	0.26	26.17	18.70	26.05	-0.28	25.41	42.98	15.23	2.86	43.36	13.89	6.34	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-8.51	-2.27	1.29	13.73	10.87	-1.63	3.93	12.08	10.36	21.29	12.39	4.89	
	24.53	11.11	5.46	38.22	11.43	3.81	-32.56	7.69	40.83	7.47	4.44	3.10	
	-1.66	-9.29	20.35	8.05	27.01	10.85	-2.01	2.43	19.47	27.65	33.01	-13.07	
	3.94	-21.91	7.12	2.20	-8.85	13.15	19.92	14.41	12.69	3.43	3.37	12.40	
	21.41	24.89	-5.89	26.79	7.56	9.72	20.23	12.87	37.97	11.35	14.02	23.32	
	13.33	29.10	-17.39	31.03	40.62	2.29	33.05	22.36	4.87	18.96	13.70	12.78	
	4.83	-6.15	-5.98	16.90	26.42	4.87	19.12	10.61	21.10	23.48	12.15	34.58	
	-71.61	8.76	-8.15	35.71	-1.01	5.71	2.85	5.59	13.02	12.18	3.92	7.51	
	-27.37	-6.66	-1.58	4.60	21.96	29.89	12.92	10.64	4.79	3.23	16.73	9.81	
	7.29	10.25	-21.38	6.73	12.91	5.60	16.35	20.63	0.03	10.49	0.33	20.21	
	13.96	-4.45	-5.31	37.34	8.94	11.24	15.38	18.72	25.14	8.97	1.28	9.24	
	-3.93	13.99	11.47	-0.85	18.39	25.25	5.61	24.09	-3.59	11.38	9.91	6.84	
	6.09	16.86	9.85	-6.48	26.36	6.19	3.66	25.21	1.47	8.63	10.86	15.79	
	-17.88	13.07	7.91	-11.13	-6.64	12.33	12.34	19.38	3.35	3.09	6.65	9.21	
	4.74	20.49	0.34	-25.97	-0.98	-1.51	17.45	-6.90	7.99	19.07	0.46	-2.19	
	7.34	29.93	3.50	-8.74	8.67	6.05	-17.24	-7.19	5.47	10.81	-1.35	13.44	
	9.63	25.75	3.85	2.54	0.99	0.81	-0.01	6.37	2.70	-9.33	1.33	3.20	
	14.98	36.10	-11.88	-1.66	-25.07	1.72	1.89	7.08	3.64	-2.09	6.56	14.88	
	8.87	8.51	2.70	5.20	-4.27	2.57	0.51	-2.18	-5.07	2.10	2.33	11.30	
	48.39	-5.05	16.02	18.50	11.16	-6.77	-0.48	7.86	-19.38	-0.87	8.94	-11.45	
	14.82	0.91	7.69	2.34	-4.60	-0.73	-1.63	30.94	-18.08	-3.01	0.00	9.97	
	1.41	2.27	3.07	-7.44	-7.42	5.15	5.90	19.91	-5.53	3.99	-1.73	5.70	
	12.85	-10.49	-3.86	-4.53	18.66	1.64	6.62	4.03	-2.90	14.89	2.02	-2.32	
	4.73	-16.71	-1.94	-7.12	25.55	-1.19	7.67	1.23	-0.71	10.49	0.13	3.99	
	2.55	-1.78	6.55	-2.44	15.93	3.84	-5.53	-2.22	1.82	4.99	28.70	0.72	
	6.11	-2.56	-12.34	7.10	20.39	-1.86	-5.03	-9.95	1.34	-9.20	5.85	4.64	
	-1.14	-21.64	-13.64	-3.76	9.68	12.76	0.78	-22.67	-2.42	0.97	-7.56	2.45	
	7.32	-21.26	-6.65	1.00	-26.38	2.84	-6.18	8.95	0.12	-1.09	14.31	1.09	
	2.31	-2.72	-1.62	-1.54	-25.87	-5.02	-9.20	5.95	-4.07	-2.61	3.92	-1.58	
	2.14	-4.41	1.32	-5.66	-6.80	-4.13	-3.21	6.78	-2.40	-1.28	2.21	0.51	
	-6.22	-20.37	-9.24	-4.66	4.89	-3.36	0.89	0.77	5.36	3.08	-4.98	0.59	
	3.02	-28.65	-19.31	-4.46	-4.63	1.10	7.17	-4.90	-3.68	1.76	4.00	3.69	
	-0.66	-9.35	-7.97	-11.23	-5.15	1.71	3.49	-14.44	-4.56	-8.60	6.49	14.44	
	-6.24	4.23	7.22	13.00	-2.64	3.54	-0.53	-12.08	-4.31	7.09	7.01	-3.71	
	-3.79	3.64	-36.11	3.58	-2.24	-3.39	-4.34	-0.61	-1.05	-6.39	-2.49	-1.70	
	-2.31	6.84	6.83	0.00	-10.16	-6.64	-0.44	-4.07	2.58	-5.92	3.32	-9.33	
	-2.64	-8.28	-12.08	-17.28	-23.16	-1.13	9.51	-5.48	-1.50	-3.28	-1.47	-3.73	
	-7.77	-3.55	3.54	-29.48	-23.95	-8.76	3.01	-6.27	-4.40	-4.85	-1.87	1.06	
	-14.26	-8.67	-2.59	-16.97	-17.95	-3.34	-5.30	-14.24	-18.75	-13.01	-0.64	-0.24	
	2.27	-2.36	-2.20	-4.45	3.21	0.41	-5.69	-3.02	-24.84	-17.62	1.39	-10.43	
	-15.51	-8.23	-8.98	-40.36	-0.53	1.28	0.18	-7.89	-2.93	7.59	-2.43	-0.27	
	-26.12	-12.01	-7.67	-15.89	5.87	-1.67	-4.19	-10.25	-5.33	-4.55	-11.52	-6.28	
	-50.33	-17.27	-2.62	-4.25	-5.07	-5.38	-10.74	-7.00	-19.20	-11.46	-14.12	-10.40	
	-28.15	-17.07	8.88	-13.31	-16.67	-6.06	-10.54	-13.89	-16.73	-24.14	-7.53	-14.52	
	-18.89	-16.53	-7.73	-58.18	-60.68	0.41	-25.71	-13.00	-6.83	-38.70	4.37	-12.86	
	-31.06	-30.21	-15.16	-17.67	4.50	-1.56	-27.70	-7.06	-26.48	-52.62	4.15	-7.20	
	-23.38	-15.74	11.78	-9.44	-35.30	-8.87	-15.57	-14.24	-19.45	-32.39	5.61	-2.61	
	-38.20	-20.98	-14.49	-19.22	-42.90	2.16	-26.24	-33.53	-26.04	-41.99	-4.23	-7.41	
	-21.76	-8.50	-7.73	-11.42	-21.01	-10.45	-8.39	-44.66	-9.10	-16.84	-3.87	2.03	
	-11.93	7.27	-9.34	18.99	-36.77	-13.99	22.61	-40.47	-13.77	-34.23	-5.11	-1.90	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-15.50	-14.79	0.94	-18.81	-44.86	-12.49	-9.05	-51.68	-8.91	-21.16	-11.75	-11.26	
	-24.89	-22.49	1.30	-36.22	-12.47	-12.87	-6.85	-50.30	-9.06	-18.92	-17.30	-14.78	
	-4.08	-58.33	-5.94	-56.13	-17.99	-1.13	-12.79	6.00	-14.93	-33.11	3.02	-12.18	
	-7.18	-26.06	2.24	-17.57	-16.18	-35.75	-35.86	7.25	-40.07	-16.54	-4.20	-9.80	
	-6.61	-15.55	0.72	-26.55	-3.07	-14.79	-18.89	1.60	-11.90	9.28	-2.98	-6.59	
	-11.98	-19.09	-18.02	-12.25	-9.60	-21.61	-17.52	17.46	-2.85	17.82	-56.38	-0.69	
	-10.09	-46.05	-6.68	-4.27	-20.19	-18.31	1.30	-12.52	19.61	28.10	-18.07	-26.04	
	11.21	7.73	-2.91	13.02	6.77	-18.83	-8.86	-25.58	-7.60	10.90	-12.34	-13.23	
	5.18	5.61	16.73	-16.11	-5.39	-9.66	-5.62	-16.49	-9.81	7.22	-11.00	-13.22	
	0.10	-16.95	8.04	3.80	18.99	1.16	-3.63	-29.50	11.85	3.13	-7.98	-27.79	
	10.81	-24.39	-3.81	-4.84	32.80	-14.46	-18.79	-29.80	3.40	7.04	-16.33	-23.59	
	2.75	-8.73	1.06	-5.35	10.44	-4.87	-12.80	-2.86	8.60	-7.73	-18.08	-32.09	
	10.59	-2.95	-4.50	15.25	-21.15	-64.34	-1.77	7.28	2.96	0.39	-15.72	-16.74	
	4.29	-14.84	-3.31	17.85	-33.91	-7.03	-1.86	-4.15	-4.40	3.09	-21.39	-9.11	
	12.85	-7.90	8.15	2.58	1.84	-29.54	-0.80	-6.33	-14.59	-10.21	-6.68	-2.13	
	10.94	-0.15	-0.72	3.89	-4.46	-12.03	-2.69	-3.65	-13.90	0.73	-19.87	-10.95	
	12.36	1.83	-1.45	5.81	-0.07	0.17	3.30	-15.45	0.71	12.79	-4.92	-15.54	
	5.22	-2.09	-52.02	-6.00	-2.66	-3.83	9.31	-0.14	67.01	-2.74	-12.32	0.10	
	-4.35	5.73	-13.89	-47.65	-1.93	-11.15	11.61	20.82	43.41	-13.07	-4.51	1.19	
	16.25	-4.93	-0.38	-8.20	3.58	-12.85	-0.16	-6.66	-5.52	-12.80	-1.89	-30.75	
	13.59	-3.78	10.71	-9.82	-0.11	-1.15	3.08	-7.53	-19.03	1.60	-8.50	-17.85	
	13.89	-1.54	5.52	-16.45	3.58	-9.59	-1.70	8.10	37.31	3.36	5.61	0.15	
	-2.75	1.57	-5.20	-2.26	-9.98	1.05	-4.57	31.50	-27.15	-8.18	4.31	1.75	
	-5.29	19.92	-28.16	4.00	-8.78	-1.10	-45.62	48.41	-23.59	-18.38	1.86	-4.93	
	23.34	3.95	-12.59	-19.94	5.47	-6.22	-26.80	18.96	6.73	-12.14	5.41	-4.87	
	34.10	7.97	8.64	33.35	12.08	-5.77	6.15	-4.92	19.57	-10.75	-2.68	-5.36	
	2.72	12.88	13.65	57.34	17.70	-5.14	-0.84	-12.76	-10.74	11.86	7.34	1.03	
	-23.90	1.16	14.15	-11.35	8.44	1.44	2.49	-6.51	-5.11	7.77	13.41	2.36	
	3.99	-5.94	1.73	-38.99	-1.79	1.65	-1.62	2.92	1.55	-5.05	-3.21	4.23	
	-9.99	-37.30	3.71	-24.91	41.13	-5.60	0.01	33.75	-34.94	17.01	1.99	4.21	
	4.34	-42.19	-7.33	-16.11	-11.37	10.55	4.98	10.04	-25.33	17.34	1.24	1.12	
	53.23	27.26	1.31	-0.03	-14.43	2.57	11.54	-16.08	3.62	-2.36	3.15	3.70	
	15.70	11.57	32.71	-4.53	1.50	2.06	3.12	-15.36	-4.27	-6.54	-4.80	2.58	
	18.55	-11.24	16.02	-3.94	-3.52	9.84	-0.03	6.23	-1.74	-5.83	1.48	4.13	
	9.79	18.59	0.60	6.02	5.11	-3.80	8.67	-5.37	9.13	18.33	4.95	2.75	
	-9.02	0.12	12.33	-1.94	24.48	17.57	6.39	3.35	-18.61	27.46	7.42	-0.34	
	4.34	16.01	9.01	-1.88	4.03	2.61	-8.20	4.51	-15.51	14.07	7.77	9.24	
	5.29	1.06	6.59	7.54	3.42	-1.17	-10.61	-15.30	-6.31	3.45	21.72	-3.42	
	1.48	5.72	6.11	1.97	-6.82	18.28	-10.86	-23.27	1.79	14.81	-15.40	4.02	
	0.19	25.59	-3.62	3.01	3.61	22.57	17.61	-9.94	5.01	12.12	2.16	9.51	
	6.15	7.18	4.55	3.59	22.41	-7.68	15.10	-9.91	-8.54	-2.10	1.27	11.00	
	3.49	-2.89	17.69	8.18	2.49	29.88	3.42	-38.11	-17.35	5.54	8.42	11.64	
	24.38	1.84	-4.24	2.40	4.64	16.58	-5.47	-21.96	-7.65	-3.67	1.58	1.28	
	57.00	6.46	0.24	-2.06	12.81	12.90	6.52	-2.91	1.66	2.15	2.42	3.32	
	-79.11	-2.96	-5.06	-0.48	13.86	-7.02	7.46	-9.67	2.09	1.68	4.98	4.02	
	-12.45	-6.23	2.78	9.64	20.49	-4.04	0.76	0.97	-0.94	10.79	14.20	-0.45	
	-4.76	3.66	4.62	0.09	29.72	13.44	-4.62	-0.94	4.05	-8.78	0.28	7.39	
	29.72	-15.17	-8.22	-5.02	-10.79	-5.55	-1.84	22.36	0.13	-7.67	1.58	-10.99	
	9.31	0.40	-2.36	-6.42	-12.59	-6.25	-1.97	6.29	-7.05	5.86	-5.52	-9.59	
	-3.72	-14.16	0.19	21.10	0.52	-1.47	-3.07	-0.48	-7.73	-3.38	1.12	-7.46	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-8.89	-22.48	3.41	-2.45	-7.98	1.97	0.91	-3.30	-2.03	7.66	0.99	4.00	
	-5.88	-31.67	-19.72	1.40	0.68	2.24	-4.69	-1.09	-0.86	-28.25	1.37	-3.10	
	-18.81	1.00	2.20	-1.24	-13.23	3.06	1.74	6.69	0.08	-3.06	-3.05	-7.58	
	-7.05	2.41	8.40	-1.18	-3.56	11.18	2.71	21.19	3.27	0.95	-3.63	-13.60	
	-10.71	-9.37	-22.57	-2.45	-11.33	-14.00	1.98	1.27	5.04	-6.70	-0.09	-14.45	
	-25.31	-12.05	-3.77	0.27	-12.21	-16.16	-9.91	-7.08	-13.02	-11.51	-3.30	-18.47	
	-12.60	-12.25	0.50	-0.85	-2.68	-3.55	-10.60	-2.23	-11.14	-2.24	2.98	-35.65	
	-17.21	-8.42	2.87	-23.51	-0.76	-5.36	-6.57	-9.49	-6.15	-13.37	-7.71	-14.06	
	-0.27	-6.29	0.62	-30.24	2.57	-5.34	3.35	-5.47	-2.67	-6.28	-33.30	-35.11	
	39.43	3.61	-0.88	-17.08	23.15	4.84	12.36	-16.45	6.24	-5.37	-12.76	-16.41	
	-3.96	-11.60	1.83	-19.20	3.73	-10.79	1.80	-11.10	7.23	0.30	-8.63	-5.79	
	-12.42	-19.45	1.70	-33.07	7.27	-1.20	0.88	1.70	1.92	-10.24	-39.65	-3.14	
	-18.38	5.02	9.86	-13.59	2.61	-0.10	-0.90	1.32	4.75	-3.36	-28.87	0.31	
	-15.81	-20.96	35.65	4.93	10.01	7.40	2.16	0.31	6.27	-4.86	-34.21	11.53	
	10.54	-10.86	4.50	44.43	10.09	15.74	2.04	5.35	7.49	-10.46	-42.29	5.47	
	11.61	-20.57	-0.57	110.94	22.97	16.62	6.08	11.85	10.13	4.81	-24.00	7.99	
	4.20	-13.69	-1.37	29.31	28.07	3.60	8.50	11.83	-4.77	3.91	-16.50	16.38	
	8.06	-2.66	1.77	-5.47	11.69	8.75	-8.26	6.72	5.69	-37.56	-13.42	-2.05	
	-0.29	1.05	-17.64	2.62	12.13	12.81	-7.95	1.62	5.96	-0.57	4.94	3.82	
	14.55	2.12	-27.16	13.66	2.33	11.10	3.39	3.32	5.67	-7.98	9.78	12.84	
	12.25	5.76	-16.49	18.20	-1.02	-2.52	12.14	4.25	10.88	1.37	12.34	-0.22	
	-2.16	14.89	-41.64	8.15	-12.92	4.17	1.87	-21.49	11.39	2.17	21.66	0.22	
	9.74	-5.18	13.74	-24.82	-7.19	3.32	2.66	-12.52	-19.58	0.88	4.04	9.13	
	-13.74	-2.00	9.50	-10.27	-3.96	-2.51	3.64	0.15	-19.73	-0.95	8.37	11.20	
	-15.72	-0.32	7.67	-2.80	-4.59	-1.30	22.60	0.85	-25.82	-11.87	4.69	10.66	
	5.56	12.47	12.51	-3.02	-5.39	-9.00	8.27	1.05	1.11	1.11	5.70	-1.57	
	-3.24	7.73	6.15	-1.04	7.02	-3.25	-0.42	6.70	5.36	12.55	6.11	8.03	
	-41.66	-3.97	6.46	0.95	3.30	-7.82	0.29	23.03	-13.12	3.05	2.02	5.56	
	0.34	10.23	8.10	-11.27	-8.90	1.23	-9.39	-0.87	-4.81	-5.33	-3.30	0.13	
	4.25	8.14	13.75	-10.58	-1.37	5.52	4.83	-7.55	3.76	12.91	0.25	12.17	
	4.48	15.34	12.10	-7.58	-11.82	-4.19	-0.78	-12.64	8.79	7.13	4.56	9.89	
	10.46	12.41	-0.34	-3.65	-8.50	-4.76	-6.98	-2.21	9.99	-1.61	5.66	8.82	
	11.11	15.34	6.06	6.63	-11.54	-2.89	-3.67	11.55	-2.59	-5.73	-1.76	0.58	
	11.62	8.63	37.63	-5.51	-82.50	-37.01	5.68	5.33	-17.48	6.81	9.19	4.94	
	24.93	17.00	23.16	-2.28	-26.67	-32.07	0.04	10.23	2.51	33.87	5.05	1.76	
	9.71	15.51	10.58	13.55	0.00	-11.92	8.25	13.51	6.91	0.26	5.12	16.79	
	17.95	-3.19	7.37	12.84	14.50	-1.05	3.69	3.19	13.68	9.94	0.02	4.47	
	6.75	-0.23	17.03	30.21	18.08	8.18	44.90	8.16	17.53	23.52	3.48	4.58	
	19.69	-1.94	8.45	14.06	13.76	10.88	-10.00	5.33	7.10	25.11	8.85	11.25	
	-19.95	11.38	36.07	-2.79	22.96	6.27	19.87	-11.68	-3.07	21.40	-0.36	7.88	
	12.52	19.02	20.39	19.40	15.11	14.12	25.73	-1.60	-0.35	32.40	11.31	0.57	
	19.46	18.10	-2.77	27.41	15.80	13.45	9.34	6.78	9.16	17.30	15.18	14.59	
	28.84	1.45	9.66	18.59	20.22	34.06	25.34	5.02	44.21	14.47	8.36	17.44	
	28.03	21.20	17.14	12.53	28.41	2.02	20.71	12.92	5.13	20.83	10.98	21.20	
	4.13	27.65	8.00	21.41	43.41	28.01	20.34	9.65	24.95	3.57	9.72	3.52	
	7.16	20.26	3.13	37.80	15.29	26.86	-15.80	5.89	23.80	8.48	20.29	1.70	
	-3.89	-24.93	5.01	14.91	17.66	21.77	-9.44	4.61	17.84	10.40	4.18	21.89	
	16.84	1.18	1.44	30.39	27.60	9.05	9.13	28.08	23.99	11.70	11.53	35.75	
	27.01	13.63	10.97	5.55	20.24	19.59	15.78	23.30	6.92	25.78	10.84	2.05	
	12.86	15.04	15.40	14.70	10.65	20.33	9.60	30.07	13.95	17.84	1.57	19.23	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	15.46	-0.60	10.39	47.26	10.04	15.10	6.78	44.03	17.11	28.10	17.36	17.65	
	-9.24	14.50	-5.68	22.07	-14.97	18.33	3.83	14.41	36.42	-3.96	13.38	10.25	
	0.53	-1.57	9.81	2.73	10.13	11.40	10.39	16.69	16.27	-12.91	11.76	2.41	
	9.66	10.44	5.93	-20.20	11.74	13.64	22.23	6.36	7.86	0.61	7.44	3.84	
	4.59	1.21	5.62	-9.92	18.36	9.77	4.00	2.46	8.98	3.69	26.35	5.14	
	13.00	6.89	-0.05	5.40	10.78	12.07	-9.71	-3.12	14.16	6.06	38.59	5.98	
	15.84	10.97	-1.13	5.76	-1.84	9.31	8.27	1.82	-0.08	3.39	-4.50	5.85	
	-8.96	-10.00	-4.78	22.09	-10.13	7.93	8.34	-3.02	-6.21	-21.91	-1.74	5.30	
	2.75	-0.51	13.92	4.80	6.36	8.06	10.70	1.85	-6.12	-15.20	1.73	1.08	
	25.21	3.22	-0.73	-1.29	14.09	2.40	7.20	2.31	1.59	10.63	-2.46	35.61	
	13.51	-1.34	-0.14	8.81	23.28	-2.38	15.00	5.12	2.87	5.60	11.18	-1.16	
	7.30	1.54	-0.29	4.61	3.83	3.57	34.02	8.66	1.98	-6.25	9.25	1.21	
	5.00	3.89	-4.85	5.85	-10.36	6.05	-8.17	7.79	0.97	-3.97	10.66	0.21	
	8.53	2.20	0.85	7.07	24.72	1.33	-1.59	-3.83	2.03	-0.01	13.01	2.13	
	12.96	2.86	-0.72	30.95	29.33	-12.31	-4.99	-15.36	1.87	1.04	-0.37	-0.49	
	3.86	4.74	0.13	-0.19	11.54	-10.44	10.14	1.75	5.01	-7.52	8.32	0.85	
	1.31	-3.77	0.73	9.47	1.24	-0.39	-3.33	-6.16	6.91	0.67	-7.71	0.85	
	12.94	4.98	-2.20	6.89	24.44	-2.46	2.16	-15.72	2.54	6.50	3.46	-0.83	
	1.30	-9.26	1.02	8.70	7.55	-1.68	-0.06	0.54	1.38	0.38	8.75	1.93	
	-30.60	-3.12	0.30	-2.10	-3.33	-7.10	1.88	10.38	1.72	7.61	-8.60	4.02	
	-6.40	-10.04	-5.24	5.57	0.70	-10.57	0.76	8.03	3.23	11.02	-9.35	0.03	
	2.73	-17.20	-5.45	8.14	6.18	-2.61	-0.68	9.73	7.22	-7.97	18.95	-1.00	
	18.04	-12.66	-5.38	2.19	10.00	-2.47	-18.87	1.95	6.65	-12.16	-1.94	2.21	
	30.27	-5.70	-3.94	-3.08	4.28	2.88	-14.96	2.41	0.91	-4.78	13.01	2.94	
	-29.03	-1.61	-1.65	-2.01	2.56	5.34	3.09	-1.88	-0.69	-11.27	0.44	-2.24	
	-9.30	3.23	1.52	-12.63	-3.68	-7.19	1.65	-8.16	0.98	-3.04	-0.92	-5.50	
	32.04	-5.59	-9.49	0.55	3.31	-6.92	-3.73	-21.12	-2.76	26.36	-1.72	-2.33	
	3.47	-1.73	-10.92	-3.84	0.46	-0.98	0.52	-37.75	-1.68	-2.53	-2.97	-0.95	
	6.13	-3.65	-5.56	4.55	-0.02	-0.79	0.61	6.37	-2.43	-11.01	-4.64	-3.17	
	1.14	4.35	-13.46	0.20	12.37	-0.48	1.66	-1.27	0.72	-10.46	0.97	-1.06	
	-3.03	-0.22	-2.95	0.20	5.68	5.72	-3.99	-1.03	-0.22	-5.00	-5.24	-1.53	
	-10.33	-4.74	-6.76	-7.09	-11.88	-12.30	-6.09	50.03	-13.32	-11.18	-3.23	-7.80	
	-19.17	-4.45	-6.17	-19.47	-10.98	-11.87	35.68	12.25	-8.17	-20.88	-2.97	-3.36	
	6.66	-9.30	-9.49	-9.20	-2.13	-1.80	9.65	1.63	-5.56	-3.02	-13.11	-6.55	
	2.77	0.27	-15.58	-7.60	-3.62	-13.09	-14.70	3.89	-31.50	-19.48	8.63	-10.52	
	-16.53	-18.69	-41.10	-6.76	-7.93	-10.69	-15.24	-2.36	-11.56	-22.45	7.38	-11.34	
	-13.06	-10.14	8.31	-27.08	-28.49	-12.40	-42.54	-13.72	-11.21	-17.39	0.87	-11.73	
	-8.97	-12.46	-6.38	-70.94	-55.59	-20.17	-27.00	2.40	-17.05	-24.65	37.49	-11.32	
	-69.43	-22.85	-3.12	-49.57	-42.59	-20.85	-18.07	16.08	-20.41	-33.60	12.83	-26.86	
	-31.25	2.53	-20.62	-10.69	-27.84	-18.16	-10.16	2.91	-26.63	-68.12	9.59	-0.95	
	10.52	-11.33	-10.83	5.88	-21.88	-32.64	-22.40	-1.70	-28.35	-38.81	0.04	-5.79	
	-15.72	-1.38	-5.87	-24.80	-13.84	-32.53	-9.77	0.59	-19.21	-20.97	-12.15	-6.18	
	-23.99	-2.94	-29.82	-25.99	-52.70	-23.65	-35.61	-6.63	-9.39	-35.65	-6.24	-4.30	
	-24.14	-8.34	-42.51	-19.48	18.84	-31.07	-50.47	-11.52	3.54	-13.27	-14.86	-11.01	
	-16.90	-16.86	-23.41	-15.21	14.91	-19.38	-15.03	-9.81	-13.07	-32.95	-5.66	-20.83	
	-13.38	-22.41	-2.42	-10.86	-38.65	-16.27	-18.14	-18.63	-23.10	-38.65	-11.06	-12.93	
	-14.46	-7.05	-4.42	-17.70	-12.07	-20.81	-21.31	-20.38	-16.89	-8.54	-8.68	-2.64	
	-0.54	-15.83	-10.06	-11.09	-1.42	-8.43	-4.05	-23.28	-12.43	-4.69	-6.47	-2.24	
	-14.89	-22.10	-11.63	-4.00	-68.85	-2.00	16.08	-11.78	-2.29	-10.69	-23.67	-4.40	
	-14.42	-18.30	-13.02	-8.35	-81.65	-14.40	24.31	-13.54	0.31	-15.05	-12.97	-10.34	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-21.04	-32.01	-16.69	-4.72	-66.79	-7.72	2.77	-16.54	-1.21	1.49	-4.37	-9.47	
	-2.88	-14.89	-15.77	-9.34	-24.73	-20.13	4.95	-23.82	-0.38	-14.07	-11.18	-11.98	
	-2.43	-1.67	-8.40	-7.45	-0.38	-32.58	-11.62	-25.78	3.21	-9.92	-4.27	-6.28	
	-13.64	0.59	2.40	8.15	-0.56	-12.96	-9.95	-26.14	1.33	-5.00	-2.08	-3.69	
	2.14	-8.72	1.52	21.74	-9.13	-7.02	-18.83	-8.33	3.47	7.87	-19.53	0.45	
	-15.09	1.82	-8.45	23.99	1.82	9.88	-37.25	-3.79	-2.42	-9.70	-92.36	-1.46	
	-14.92	-5.88	-4.49	-7.56	1.27	-4.85	-8.21	-14.46	-4.07	11.60	-29.64	-0.31	
	9.93	-8.98	-1.13	-7.81	-1.14	-13.46	-3.47	11.97	1.68	-7.44	-28.84	-19.43	
	-16.13	-9.68	-5.66	-4.79	-1.09	-0.54	-0.92	-36.81	1.11	4.40	-24.46	-4.88	
	-9.73	-7.66	-2.06	-1.36	-1.69	-5.34	-5.22	-24.37	1.67	-3.21	-12.30	15.30	
	-1.59	31.18	-8.34	-7.18	-4.73	-13.28	-2.03	-13.51	-17.15	-2.70	-4.77	-4.53	
	-8.05	87.95	-13.73	-1.64	3.09	10.75	-2.99	-22.19	-28.76	-4.29	-10.76	1.61	
	0.25	13.92	3.81	-10.61	-5.79	-10.61	-2.33	-8.77	-11.36	5.03	-14.83	25.07	
	-3.70	-0.37	-1.64	-0.42	-16.69	-21.10	-7.64	-16.57	7.65	2.59	-16.88	8.10	
	1.46	0.02	-2.66	-8.09	-4.89	-8.06	-12.02	-4.28	3.44	-2.17	-19.63	1.08	
	-8.76	7.35	-1.70	0.99	-12.37	9.46	-8.42	-14.77	2.12	0.32	4.14	6.86	
	-3.30	-3.08	10.64	-11.45	-26.52	-5.49	-7.88	9.06	7.41	-2.07	1.44	15.80	
	-9.15	5.18	1.04	-8.27	-36.63	-22.81	2.34	-1.00	10.35	6.25	-1.25	2.60	
	-0.57	-0.93	6.19	-5.23	19.12	-3.29	4.42	0.34	2.56	-3.38	0.10	-14.63	
	11.42	4.46	4.35	-24.33	33.38	9.37	16.36	7.05	-4.27	-1.52	1.93	35.43	
	10.77	-0.73	4.47	-22.43	30.56	0.64	22.72	5.95	4.06	0.43	5.23	4.93	
	1.25	6.77	5.80	-45.55	6.18	-13.71	-6.81	6.07	5.44	-0.27	-2.01	-9.57	
	-3.75	6.77	13.11	-20.37	-7.99	-2.62	12.64	-43.61	-2.29	-3.21	7.72	15.78	
	-34.10	-26.73	20.66	-5.72	-13.47	7.17	6.36	-56.70	5.14	-2.92	0.28	-0.52	
	3.71	-3.35	-3.95	-16.25	-18.22	-0.78	0.08	-37.97	-3.12	1.42	4.54	0.15	
	-5.77	6.25	5.68	5.77	11.56	-1.73	-1.99	3.85	12.74	11.26	1.60	8.54	
	4.77	-7.99	6.46	10.41	4.39	10.25	-6.00	-0.18	4.03	5.19	19.41	33.83	
	-0.25	5.74	10.98	18.95	18.61	-7.87	-16.45	11.91	12.66	2.14	-2.60	21.03	
	10.34	8.40	-4.55	3.41	1.07	3.19	1.73	27.99	1.30	1.83	1.21	9.90	
	2.16	11.76	24.39	0.62	4.01	-6.38	-5.96	93.85	15.92	3.32	5.43	10.45	
	4.79	4.11	1.29	6.56	-2.41	-0.57	-4.31	32.57	4.33	5.03	1.06	5.51	
	12.25	8.99	1.48	2.98	-0.26	0.41	4.82	12.50	1.57	0.36	3.38	3.47	
	-0.53	17.39	3.28	4.69	0.83	5.22	1.88	14.01	-5.80	2.27	-8.07	7.95	
	-2.38	25.64	21.90	-2.21	9.55	0.82	2.88	13.51	2.87	5.38	6.74	-6.91	
	16.05	12.35	4.22	5.30	26.93	5.59	3.21	-2.42	8.19	6.38	3.59	1.77	
	2.75	14.06	-1.10	28.65	-15.61	0.76	1.58	9.50	5.07	-4.90	-21.83	-1.43	
	-11.26	4.69	-1.36	-1.25	-7.62	-1.17	0.60	18.72	-11.11	47.81	-10.32	0.68	
	-12.90	5.85	-3.97	5.56	-9.49	3.18	-2.23	7.79	6.36	25.53	7.71	3.90	
	-11.20	32.38	-1.66	-9.34	13.09	2.67	7.07	-2.63	-6.04	-4.10	9.07	6.30	
	6.17	4.02	9.47	-5.40	11.11	55.41	9.68	2.58	5.84	-7.56	8.90	1.82	
	4.82	-9.86	7.55	4.96	5.19	17.77	1.33	2.01	1.20	-3.32	15.32	-4.63	
	-5.83	15.05	-16.53	2.03	96.11	7.39	1.14	3.82	-8.68	-5.61	19.21	-3.21	
	-2.71	2.99	-10.68	-7.38	48.83	-4.55	3.46	5.63	-3.53	4.65	25.64	-4.51	
	-2.42	8.73	-8.77	4.16	-0.24	-10.11	-9.86	4.94	-5.46	0.34	-10.44	-1.36	
	0.11	-6.41	-3.22	1.92	-9.20	4.02	-0.79	8.00	-3.58	8.61	-4.00	-1.16	
	-8.29	-3.68	-17.77	-2.22	-12.43	-3.21	0.03	6.91	6.04	2.41	-4.02	-12.81	
	-11.77	-8.26	-3.51	5.69	-15.87	-5.87	15.48	-5.44	-5.83	-44.14	-4.47	-18.83	
	-7.15	-11.73	-11.56	16.71	5.65	-15.61	-29.14	-27.75	-11.96	-15.94	-22.62	-15.68	
	-25.64	-22.93	9.36	1.58	0.47	0.73	-35.34	-26.32	3.67	10.73	1.04	-13.62	
	-5.36	-7.46	13.18	-3.56	-4.34	3.16	-10.75	-31.27	-20.42	2.95	-4.41	-23.86	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-15.94	-3.38	0.99	-0.08	0.10	-10.35	6.11	-7.30	-9.02	-10.45	-13.01	-36.89	
	-7.96	1.90	7.20	-2.46	3.06	-18.01	3.86	-0.61	-1.18	-28.71	-9.82	-23.51	
	-9.46	-10.79	4.74	2.32	14.66	-4.16	-39.08	-1.79	-1.89	-16.72	-14.57	-38.74	
	30.76	-25.04	1.42	8.26	5.89	-12.11	-5.61	17.65	29.73	-8.53	-26.72	-57.81	
	11.46	-3.74	-1.77	-0.30	-14.55	4.39	-1.72	21.62	8.33	-8.93	-19.95	-38.78	
	-10.21	-13.53	-7.11	-1.30	-5.08	0.37	-2.27	-14.07	-0.42	-6.63	-19.46	-5.26	
	-11.06	-59.55	-5.33	1.81	-0.31	31.25	13.68	-4.20	9.90	-4.92	-42.36	1.71	
	-5.17	-9.90	2.64	-1.12	-1.68	0.26	7.11	-0.59	-5.30	-5.84	-46.55	1.79	
	11.78	-11.84	-3.01	0.79	-2.40	4.32	-0.96	4.71	0.00	-3.55	-27.46	13.40	
	5.25	1.05	-25.76	-41.61	6.43	8.05	6.94	-6.11	-22.21	-2.21	-7.35	12.53	
	6.21	-10.50	-20.74	-11.42	-28.18	19.63	-0.07	4.41	-14.42	-11.85	-3.79	11.68	
	-4.23	-13.44	-23.41	-1.08	-2.02	20.71	-2.82	9.11	-1.24	-13.47	-8.60	5.91	
	5.21	-17.07	-18.12	-3.23	1.29	-0.22	22.68	5.12	-1.78	-11.72	8.69	5.52	
	26.25	0.17	-12.43	-8.14	5.79	3.35	10.87	13.61	3.84	-2.48	13.86	26.59	
	-1.01	-1.35	-18.95	6.96	-4.83	17.34	-1.90	44.45	-3.85	7.47	10.77	-4.59	
	-26.09	-11.47	-11.30	-1.26	5.64	1.43	1.63	31.01	15.46	8.78	7.99	14.84	
	-5.64	-6.49	-15.43	-5.62	-0.86	3.55	7.89	13.89	-11.51	-4.08	16.49	-0.16	
	8.93	3.05	-0.86	-5.89	5.35	-5.00	6.18	-4.46	-16.25	7.82	7.37	0.18	
	10.22	3.65	-3.22	-3.22	-4.98	-9.56	3.65	-1.37	-9.70	12.60	2.90	-6.42	
	46.75	-8.22	-2.80	-5.06	-6.91	-3.97	30.13	1.44	1.98	0.70	12.48	7.35	
	-7.49	1.85	7.19	0.13	-4.31	0.70	3.49	1.20	2.62	3.27	11.32	18.64	
	-14.99	6.83	6.15	-8.65	-0.56	19.16	-44.10	-9.00	6.35	6.89	12.04	8.11	
	2.17	2.84	3.22	-19.60	-1.50	2.52	-18.59	-10.34	17.73	7.03	4.33	4.39	
	0.66	9.07	8.78	-14.13	-24.39	-13.75	-9.45	-16.47	10.57	7.73	7.51	5.46	
	4.40	3.01	9.32	-3.68	-20.24	-2.50	0.80	3.71	9.83	6.96	16.59	7.58	
	2.75	8.58	12.44	-0.63	-0.47	1.32	-5.06	7.41	6.92	4.29	15.90	30.36	
	12.39	14.31	13.22	6.04	-6.89	-2.57	-9.92	-0.21	-0.42	3.06	-5.63	15.04	
	9.97	-20.62	24.41	11.78	-2.44	-3.64	-1.43	11.00	-22.12	2.28	8.51	8.64	
	15.24	-9.52	17.08	16.34	0.48	-4.09	0.74	11.32	-3.48	17.98	14.17	9.10	
	41.71	11.27	15.43	8.83	-1.55	-1.24	3.39	10.19	15.41	8.96	11.42	12.25	
	21.72	6.50	56.75	33.38	-8.68	-6.05	11.00	11.80	8.75	4.72	1.16	11.23	
	9.57	13.63	9.10	3.91	6.67	1.95	10.31	6.11	12.36	29.80	13.85	6.18	
	21.03	6.31	21.37	5.82	8.37	6.21	14.58	-22.84	44.52	19.94	42.29	40.72	
	3.60	-16.78	41.60	11.45	6.49	2.63	21.36	-6.70	21.96	7.59	12.88	12.27	
	9.54	-4.36	29.92	10.58	27.97	11.97	15.43	2.22	6.28	14.61	25.01	10.56	
	22.91	9.07	22.19	16.51	5.55	27.30	10.44	14.97	31.41	22.09	29.40	19.46	
	20.14	14.24	49.69	42.60	9.81	20.18	16.68	15.33	-1.18	20.70	38.09	25.50	
	16.78	17.41	-1.52	16.85	14.89	16.98	18.89	16.46	-2.29	22.00	3.66	34.50	
	14.70	31.24	-5.00	33.18	34.87	17.94	5.66	9.74	27.13	35.36	41.63	30.85	
	-12.11	32.66	-1.23	13.95	59.30	15.15	-18.86	1.82	-45.72	6.51	28.33	-4.55	
	-3.42	36.32	21.14	1.38	-9.00	36.98	5.63	23.10	-16.25	-11.99	27.84	11.00	
	12.93	14.71	32.17	5.64	15.05	25.26	8.05	11.71	4.94	9.37	15.40	19.71	
	6.48	13.66	6.38	29.71	10.54	3.78	11.84	9.21	19.17	26.82	12.40	33.17	
	31.39	15.44	5.68	24.99	20.32	5.87	15.13	24.21	11.51	17.12	5.77	17.82	
	14.22	10.08	10.88	10.99	25.84	12.64	23.80	13.29	-4.05	14.68	40.20	5.40	
	-1.96	15.82	4.01	22.25	-0.77	15.11	15.18	4.80	-22.32	0.93	15.72	13.82	
	-7.74	5.79	-2.65	-6.28	-2.05	21.71	5.20	5.10	-6.86	-3.29	3.51	18.76	
	-9.40	14.13	7.20	12.44	8.95	19.26	14.20	10.19	4.64	9.45	23.93	9.34	
	4.84	-3.93	-2.88	3.29	15.45	9.77	7.90	4.90	31.52	7.42	22.17	7.62	
	11.58	3.12	0.08	8.43	6.51	3.97	6.38	2.50	-3.68	4.50	14.48	11.73	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	22.42	-2.94	-3.24	51.11	7.10	8.03	7.24	9.94	11.28	11.82	5.88	4.82	
	-16.97	1.68	8.66	68.95	13.54	16.05	10.98	-21.48	17.41	8.74	0.70	-4.74	
	14.66	4.56	-6.91	13.99	-3.35	5.07	11.10	-13.57	27.06	3.90	8.26	-12.83	
	-7.05	3.74	10.09	8.50	17.28	-2.37	3.77	9.21	5.93	4.12	32.51	13.62	
	12.99	2.65	7.84	19.14	-3.95	6.22	1.84	-4.55	17.66	9.84	25.85	0.23	
	-3.14	6.40	-7.06	8.87	7.12	7.00	0.52	2.77	0.62	3.60	3.47	6.50	
	1.91	11.20	-1.24	-1.12	21.98	1.97	9.77	7.32	0.13	13.13	7.60	5.81	
	20.72	-22.49	3.01	1.47	-4.10	-0.61	30.44	-5.75	29.55	9.31	3.11	-27.16	
	34.29	-21.95	8.47	4.06	12.70	-1.42	7.98	1.52	-11.89	3.11	-6.74	-30.11	
	10.21	9.77	3.32	8.98	2.61	7.29	-2.81	7.17	-7.15	8.13	-2.54	-4.68	
	22.68	-8.02	-6.71	15.07	1.93	30.04	2.58	6.77	-9.04	11.03	0.64	8.87	
	-36.73	-9.39	-9.38	14.43	-5.42	6.80	-0.22	9.59	-8.82	14.99	6.59	24.15	
	-5.39	-1.11	-27.00	14.87	-2.99	8.90	4.38	16.30	-2.00	-4.14	1.23	19.85	
	33.60	2.45	14.93	9.71	-1.98	22.02	6.97	0.87	0.50	-3.14	-0.58	55.18	
	3.35	-14.07	-14.60	14.10	4.18	0.55	12.65	-11.64	-3.44	2.29	2.49	28.43	
	-4.56	-0.17	-3.24	3.71	3.76	-1.22	19.18	-2.14	1.74	-4.00	5.28	11.47	
	24.12	-6.14	-36.29	8.01	-0.39	5.56	-6.33	-3.45	2.81	2.46	10.27	-7.87	
	-0.32	7.72	-20.16	16.26	-4.30	-3.09	-8.80	-0.73	3.61	11.41	12.07	-0.74	
	2.08	5.34	-6.01	0.62	3.75	16.81	-4.35	1.59	6.75	3.17	10.83	1.53	
	-39.99	-12.97	-9.14	-12.42	-1.22	21.36	-1.74	4.09	-7.80	-3.64	8.61	-2.25	
	-38.53	-14.77	-10.71	-16.03	6.45	-0.73	-4.39	19.75	-2.31	-1.06	0.77	-2.78	
	-10.49	-11.03	-6.96	-5.93	-1.37	-1.68	-3.21	16.78	-4.47	-9.52	-0.93	-5.62	
	5.54	-12.15	-22.77	5.05	-3.50	-1.57	0.34	5.84	-7.43	-0.84	-1.53	-8.10	
	-15.59	-6.02	-17.05	11.80	0.45	-1.51	3.83	2.45	-2.69	-3.06	1.26	-22.75	
	-5.41	-1.44	-19.93	-0.01	0.55	-2.90	8.75	-1.16	-7.53	-8.97	12.31	-7.36	
	-6.69	26.10	-26.66	-6.73	0.81	0.29	10.38	-3.34	-3.49	-7.69	10.34	-27.11	
	-11.83	16.30	-42.71	-11.06	-2.07	-1.58	2.02	0.89	-4.76	-12.00	0.91	-30.97	
	-19.03	-8.23	-60.27	-24.46	-4.94	-4.16	-2.30	-3.82	-7.22	-17.89	-3.83	-1.51	
	-13.45	-6.45	-3.63	-29.65	-3.76	-2.70	-5.93	-2.12	-17.87	-11.36	-4.80	0.21	
	-8.10	-20.89	-12.70	-27.26	0.34	-16.05	-23.64	8.56	-17.34	-9.67	1.64	-3.82	
	-4.00	-43.37	-9.76	1.28	-6.66	-6.96	-13.12	-7.72	-9.68	-11.47	-11.32	-0.20	
	-53.65	-10.36	-18.07	-56.89	-5.92	-12.69	-10.76	-23.19	-24.61	-21.90	-8.50	3.94	
	-5.86	-31.65	-22.08	-37.66	-10.24	-16.29	-11.37	-15.65	-17.27	-25.47	-15.73	8.40	
	-67.62	-36.11	-14.54	-23.66	-10.84	-13.40	-17.75	0.29	-48.47	-14.30	-13.39	-11.18	
	-22.99	-29.52	-17.38	-16.27	1.27	-15.53	-46.40	-5.17	-28.09	-19.07	-16.03	-22.41	
	-21.63	-37.82	-12.22	-31.70	-7.07	-16.77	-25.42	-0.80	-29.48	-31.94	-16.41	-16.41	
	-43.49	-10.08	-16.48	-38.63	-11.54	-31.16	-24.16	-19.27	-19.20	-19.08	-17.27	-13.18	
	-27.48	-1.03	-5.43	-20.78	-13.81	-36.54	-25.64	-25.31	2.34	-11.23	-12.68	-18.17	
	-30.08	6.77	-1.38	-22.89	-17.26	-22.44	-30.58	-27.72	-19.99	-2.20	-36.54	-23.56	
	-24.91	-9.20	10.04	-28.38	-14.52	-18.60	-20.89	-19.07	-16.19	8.31	-32.13	-12.49	
	-3.84	-13.03	1.55	-18.60	-33.49	-13.38	-10.61	-10.30	-19.96	-37.26	-25.24	-6.46	
	-3.01	-4.68	-7.41	-9.22	-2.71	-19.39	-4.33	-8.40	-14.52	7.18	-22.07	-7.26	
	11.79	-13.99	4.21	11.18	-15.15	-39.01	-18.47	-22.06	-2.66	-5.24	-25.41	-11.06	
	27.64	-50.73	8.10	-16.83	-15.45	-1.75	22.17	-12.68	-10.83	-13.21	-42.11	-9.48	
	13.65	-22.94	3.27	-6.17	-17.41	-8.60	1.24	-10.34	4.76	-1.56	-46.85	-29.52	
	-0.49	17.03	-7.69	5.47	-20.34	-26.38	-11.90	-14.68	5.59	-11.50	-14.88	-5.05	
	12.98	16.35	-15.03	1.93	-5.14	-16.10	-5.18	-23.47	-9.85	-0.68	-17.52	-6.12	
	5.14	10.40	16.49	7.82	-4.24	-9.84	-6.11	-36.83	5.98	16.51	-1.62	-6.75	
	-2.05	19.25	11.43	-0.26	-13.27	-3.70	-16.69	-8.55	-0.10	19.15	17.83	-7.60	
	4.89	-17.60	14.58	-4.93	-17.78	-8.78	-39.29	-8.28	0.16	-0.30	-5.58	-7.34	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-8.79	15.85	6.21	-1.75	-23.81	-7.56	3.48	-13.75	1.30	-11.20	-15.61	-14.50	
	8.45	14.24	-1.23	-4.84	0.20	-4.05	28.79	-17.65	-4.18	6.48	-2.01	-20.30	
	-5.12	4.88	5.46	7.73	5.04	-4.36	39.77	-2.03	-2.24	5.60	-6.89	-11.00	
	8.07	24.23	9.94	10.24	-5.43	-8.13	2.72	-16.58	-0.27	0.89	-7.13	-1.45	
	-3.43	34.54	4.11	-1.50	-7.50	-10.52	-8.35	3.19	1.32	3.32	7.18	-3.09	
	2.98	32.22	-0.32	-4.91	-8.62	-0.38	-3.51	33.77	6.00	30.78	-1.05	-12.65	
	9.49	12.78	3.86	-1.09	-5.46	-0.41	-20.30	27.44	4.13	-9.26	8.70	-8.43	
	17.82	34.66	47.43	2.17	-0.31	-6.09	9.46	7.08	0.98	-2.13	-0.09	-3.56	
	9.78	12.21	17.25	11.87	-4.70	2.02	3.87	-14.70	0.13	-5.72	1.14	-5.32	
	-8.33	7.25	-7.65	6.67	-4.46	-4.20	-33.05	-6.90	-0.41	-1.23	11.93	-6.33	
	4.65	11.32	7.05	-0.13	-0.17	-3.63	7.75	-2.35	4.49	-5.98	6.98	-0.24	
	-42.19	77.91	2.89	12.68	-39.16	-2.81	-5.93	-5.10	0.12	-1.43	0.14	-6.10	
	-28.49	38.28	-0.94	37.67	9.52	-0.89	-8.48	0.50	3.20	12.78	25.28	-7.05	
	35.19	10.19	-7.01	-20.99	-9.84	-6.88	1.82	-3.79	-2.32	6.11	-4.08	-4.76	
	-2.08	20.35	4.95	-21.52	-2.96	1.04	-0.69	-2.63	-2.57	-12.59	1.50	4.38	
	9.64	12.33	16.71	-7.45	7.42	2.99	-0.83	-9.90	-3.06	16.11	-2.11	-9.60	
	12.13	-5.11	26.78	6.34	1.36	1.89	1.95	2.53	-1.70	3.83	15.44	-5.73	
	-13.75	-5.85	13.18	5.46	-5.15	-0.37	5.16	-3.84	6.57	-0.17	0.14	2.48	
	-14.07	-9.59	-18.79	-0.75	-5.01	6.10	-4.71	-1.08	4.25	20.01	6.70	-7.00	
	47.26	6.37	-38.95	8.06	2.53	0.60	2.93	-5.92	7.09	0.32	4.93	0.05	
	28.72	-3.58	6.13	8.73	7.83	4.60	-1.13	3.84	4.50	3.01	-7.48	2.32	
	18.21	9.09	18.60	5.76	1.21	-1.13	-0.17	9.50	0.77	-7.00	-1.17	2.61	
	3.28	4.94	14.79	5.11	5.36	-1.61	-1.00	8.57	3.17	4.42	4.48	-0.11	
	6.74	-44.39	-1.96	-4.34	1.60	3.98	2.79	23.06	2.99	2.27	-6.97	7.04	
	9.72	-19.98	-9.12	2.34	3.97	2.94	-32.06	14.11	-3.02	15.86	-0.65	17.34	
	10.19	2.63	11.38	13.56	7.41	0.52	-15.96	2.25	2.31	6.20	6.31	6.55	
	-8.04	11.10	3.87	8.16	10.12	4.04	0.60	-0.66	3.22	-5.04	13.93	12.71	
	-47.44	20.22	5.27	6.73	6.76	1.62	1.94	8.03	4.21	-2.33	0.66	8.04	
	21.77	-3.88	-1.99	14.40	10.14	-0.39	1.13	14.90	-0.25	26.69	8.30	5.74	
	-2.85	-23.76	3.57	10.46	23.86	12.33	8.55	3.88	0.86	20.74	2.85	18.26	
	6.41	-7.94	3.15	-6.34	11.50	2.64	3.87	-26.18	4.98	25.72	5.50	16.49	
	-1.08	-11.60	5.29	-0.92	-14.62	4.95	-6.33	-1.54	1.67	0.46	8.29	12.21	
	-2.74	-5.13	-2.59	8.46	-39.02	4.85	0.72	15.35	0.84	9.46	1.86	5.06	
	18.83	1.16	-7.04	4.93	-4.39	-5.34	-2.18	10.67	3.49	17.05	-1.33	0.02	
	-8.55	1.45	-6.99	-2.56	28.29	-0.36	1.57	3.15	-1.42	-5.20	2.58	-0.12	
	-1.53	-3.72	-22.87	59.82	50.47	3.55	3.24	-6.71	-0.59	-2.43	-4.93	2.32	
	-6.86	-3.14	-21.96	-3.54	1.58	-2.68	-0.76	-4.28	-4.13	-13.54	-2.37	4.60	
	-5.30	-4.24	3.67	2.96	-6.65	-1.02	0.68	6.73	-3.81	-12.08	2.18	5.73	
	-3.36	-13.65	-4.25	-2.50	-5.50	-1.70	-3.58	-2.62	2.84	-14.33	9.89	-2.87	
	-5.71	-10.84	-8.25	0.75	-1.60	-3.11	-4.12	2.06	-7.44	-14.17	-2.91	-19.05	
	-6.88	-8.38	-27.36	-9.40	6.71	-1.48	27.02	4.53	2.03	-21.52	-2.36	-21.46	
	23.17	-0.89	5.82	-52.79	-5.80	-0.91	9.48	5.18	-7.59	-12.42	-4.98	-59.07	
	23.74	-7.56	-0.96	-0.69	-0.95	-8.63	-3.25	-2.25	-10.38	0.54	-14.13	-25.54	
	-11.28	-6.95	-2.83	21.71	-0.39	-3.53	-8.39	-3.07	-9.66	-10.57	-4.65	-21.30	
	-7.35	-29.54	-1.13	-5.06	-5.61	-0.12	0.22	-4.40	-7.02	-11.33	-11.38	-23.18	
	-15.34	-0.55	15.23	-0.93	-1.82	-2.14	-5.74	-1.63	-4.82	-9.76	3.94	-19.47	
	-15.50	-1.54	-5.34	3.94	-5.07	-2.46	-23.26	-4.00	-1.37	-0.21	-1.30	-10.03	
	-15.41	-3.82	5.14	0.50	3.91	-2.20	-30.67	-1.79	5.42	-4.65	-9.69	-14.01	
	-7.06	-6.73	4.13	3.04	0.36	0.74	-25.90	0.29	9.14	-12.49	-20.56	-8.19	
	-32.88	-25.45	1.36	8.28	-4.31	7.08	-1.18	7.57	0.07	-0.23	-18.78	3.12	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-28.21	-6.98	0.86	2.87	2.19	-0.14	-8.62	2.13	-2.59	-14.21	-32.32	0.22	
	-20.37	-16.39	-8.55	8.73	8.94	-4.27	6.52	5.24	0.12	6.55	-37.43	-1.47	
	9.17	0.02	0.54	-3.58	4.33	6.34	4.32	5.58	9.28	5.49	-32.83	5.62	
	5.87	6.52	7.59	1.58	-14.88	26.69	8.51	7.58	5.22	-16.69	-19.92	8.81	
	5.24	22.62	-6.11	4.79	-4.20	2.40	13.41	14.27	-5.93	-4.83	-26.21	13.42	
	2.62	2.10	-7.43	-1.17	9.64	7.17	4.37	13.67	3.51	-28.27	-4.88	17.87	
	13.41	2.86	-19.08	7.39	3.44	2.55	26.08	4.15	9.14	-14.89	-2.81	11.28	
	-4.68	9.93	-30.04	13.57	2.89	4.36	-13.61	3.69	8.17	-12.71	3.85	-1.68	
	5.42	6.27	-1.66	1.49	9.85	5.88	3.55	6.44	-0.28	4.67	0.12	8.96	
	2.66	11.88	-4.35	-0.58	16.93	5.12	9.90	5.31	-12.94	7.03	26.34	14.71	
	-0.59	6.30	-7.30	-9.33	-0.93	-0.48	-6.05	-3.94	0.44	-32.17	17.61	-9.46	
	0.80	6.06	-12.23	-3.34	4.50	9.49	1.09	-2.84	-13.73	6.36	0.25	5.71	
	2.13	9.21	-3.63	-9.90	1.54	3.18	3.89	-7.29	-5.06	11.66	15.82	-14.68	
	5.97	5.53	9.11	-2.86	9.52	3.84	-3.38	-4.29	0.42	24.69	9.39	9.11	
	11.74	-5.75	6.17	-5.29	1.06	2.55	3.29	-12.75	1.69	16.25	6.31	8.29	
	2.17	40.55	13.35	-1.81	13.89	5.12	33.34	-54.23	9.92	24.80	9.90	15.88	
	1.21	60.60	19.42	-13.97	10.82	12.71	-5.04	-23.51	2.95	9.76	-3.16	6.94	
	4.70	-41.29	15.96	-13.24	-2.98	-5.33	2.87	-6.63	4.74	-1.72	-0.86	-0.74	
	5.97	21.03	25.31	-5.23	-8.51	-3.22	-1.18	-3.68	7.83	-2.97	15.89	-9.51	
	3.34	27.02	13.75	9.29	-8.33	-6.75	-9.52	-1.91	23.78	1.37	10.99	12.21	
	-0.37	14.94	23.88	2.43	-13.04	-5.62	-9.76	6.00	17.14	-0.67	-5.53	11.35	
	0.40	16.78	11.01	19.90	-8.39	-0.57	-8.00	-5.50	6.40	5.34	4.69	22.80	
	9.62	14.33	41.06	15.37	-2.36	-7.68	-5.06	35.46	11.89	14.56	1.23	8.74	
	16.03	47.16	13.94	11.91	2.04	-8.16	-0.19	7.12	40.67	11.77	2.08	8.70	
	-2.01	10.32	15.86	7.34	-6.61	3.56	-14.02	12.36	-0.11	8.02	-2.71	-4.72	
	6.74	14.92	15.23	-0.07	11.07	5.13	-1.65	8.88	17.34	1.61	21.50	20.20	
	23.04	13.96	21.69	5.67	-0.10	9.68	1.24	12.84	14.10	12.95	26.35	-1.06	
	-21.29	23.31	32.76	10.59	16.40	12.77	5.22	11.62	2.61	10.02	7.42	12.02	
	14.04	11.15	-16.69	12.20	31.41	15.63	12.90	6.80	5.12	-0.53	26.92	23.95	
	3.50	32.71	0.56	18.44	14.63	-3.74	20.50	19.66	17.93	26.53	14.35	25.97	
	9.87	40.85	26.01	21.66	9.94	21.15	17.48	17.41	22.76	34.05	25.12	38.22	
	20.53	5.99	15.78	37.57	10.08	20.32	20.35	14.57	14.36	19.44	10.46	25.45	
	13.34	17.58	38.89	19.26	8.66	16.25	18.84	20.56	16.43	-27.65	0.68	20.32	
	-3.97	2.72	0.21	1.31	10.46	25.70	2.25	21.07	4.75	-8.28	7.40	22.99	
	-1.30	10.83	-15.62	5.05	15.96	-1.46	30.10	6.73	18.36	3.43	13.09	4.76	
	19.61	16.05	10.35	25.71	27.43	12.03	2.54	9.35	22.86	12.39	20.38	6.31	
	19.04	5.66	-0.86	15.38	5.82	15.08	20.91	12.50	29.19	-0.33	3.91	24.31	
	1.99	3.26	10.05	30.70	4.56	-6.38	5.10	22.20	18.20	13.37	26.30	34.57	
	11.45	25.11	2.40	36.73	32.24	13.55	20.39	24.89	13.51	6.36	26.52	26.98	
	-3.04		12.37	25.55	21.69	37.41	22.28	13.27	17.45	24.36	-2.25	4.49	
	-4.28		5.71	-13.81	5.16	27.80	22.40	4.38	30.90	9.05	-3.35	2.06	
	8.40		2.33	4.56	9.50	11.16	12.70	3.17	6.93	3.54	12.51	4.97	
	8.37		-5.27	16.83	24.75	9.44	12.96	6.54	7.60	5.05	13.18	5.21	
	13.90		7.08	7.12	-5.57	12.92	52.83	2.83	6.86	-0.84	16.63	6.68	
	14.75		-0.64	19.80	4.72	15.11	7.66	12.07	5.92	17.86	8.57	4.73	
	4.10		2.51	12.25	4.12	-1.41	3.94	9.45	-0.54	43.52	15.12	0.01	
	2.67		-0.84	4.45	6.88	10.66	-0.35	15.76	3.73	2.22	-4.16	7.36	
	5.60		7.37	2.90	12.15	-0.80	2.77	-2.05	8.18	0.08	-4.91	20.99	
	15.17		-0.34	8.76	5.16	6.41	1.43	-2.22	5.82	-1.21	-2.83	11.32	
	17.70		-1.35	-2.57	9.31	3.86	5.62	-2.49	4.39	0.14	-0.54	6.22	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	21.06		1.36	-1.05	10.67	6.34	12.16	6.71	-2.78	3.73	11.86	-1.58	
	15.39		7.92	6.14	10.21	0.75	11.90	5.59	0.32	8.39	12.25	0.07	
	-0.81		4.30	5.67	12.15	3.48	9.30	3.90	1.75	29.60	1.52	0.51	
	7.51		-0.11	-2.61	3.20	7.93	3.09	1.12	-1.88	-1.13	-8.74	8.55	
	0.51		4.66	-8.37	6.43	11.50	-0.35	-0.30	0.23	9.88	-4.90	0.57	
	1.02		9.13	0.61	-0.59	4.20	2.32	7.55	2.07	24.45	-6.22	-3.05	
	-2.13		1.68	5.96	0.46	0.60	10.62	6.95	1.48	5.54	6.89	-23.66	
	1.04		-6.73	0.92	5.92	5.42	9.01	1.39	5.28	8.90	8.36	-40.74	
	3.41		4.09	2.05	-2.98	-3.63	8.86	-2.57	7.73	22.86	3.53	-16.37	
	8.13		4.12	2.17	-1.15	-6.32	-0.48	-2.50	5.72	13.01	-2.86	-13.17	
	2.10		-12.08	2.85	13.13	6.66	0.12	-1.28	2.55	-1.95	1.91	-15.90	
	1.26		-14.01	-2.65	7.03	3.87	-3.12	-5.30	-0.83	4.23	-7.52	-7.16	
	4.26		-1.05	-1.81	0.05	2.16	-0.83	4.76	-4.53	-28.41	3.22	2.43	
	-8.37		-4.91	-9.18	-0.50	-1.20	3.72	2.67	-1.21	-10.66	23.66	9.53	
	-4.95		-10.05	0.59	-1.76	-0.89	3.09	0.92	-0.61	17.21	15.04	-0.98	
	-0.05		-17.03	-0.21	2.70	3.01	-1.18	-0.63	-2.47	-4.81	-13.09	-3.46	
	5.76		-7.47	3.39	18.00	3.86	-5.52	-2.34	-4.93	-3.96	-15.57	-2.98	
	0.13		-24.33	-6.85	10.75	-5.30	-11.31	-0.47	-6.44	6.43	-2.05	-1.61	
	1.83		-23.56	-3.77	-3.29	-3.41	17.78	-4.22	-4.08	-5.14	-10.80	-3.63	
	-0.54		-5.77	-17.27	-0.96	-4.07	28.30	-3.95	-4.84	-4.56	-7.86	5.57	
	-3.94		-34.15	-20.55	-3.07	-1.79	-11.85	-0.43	-13.68	-3.78	-10.01	-0.33	
	-0.22		-30.88	-13.65	-11.52	-7.29	-5.66	-7.81	-6.30	-10.93	-1.01	3.74	
	-16.47		-24.33	-13.48	-1.71	-7.07	-15.40	-2.82	-12.46	-12.78	1.75	2.26	
	-21.60		-22.33	-14.58	3.02	-4.31	-12.04	-8.01	-14.32	-15.70	-7.45	-1.50	
	-8.86		-37.09	-13.60	-1.84	-8.03	4.64	3.50	-11.52	-15.86	-3.29	-5.59	
	-5.72		-43.37	-30.47	-4.25	-8.59	-10.41	-14.56	-10.95	-36.22	-14.69	-26.39	
	-11.38		-16.96	-21.32	5.35	-5.75	-33.18	-19.19	-12.97	-18.91	-27.56	-27.41	
	-3.08		-12.94	-36.85	5.25	-43.14	-26.04	-5.17	-86.14	-22.45	-37.03	-26.69	
	-13.67		-17.29	-2.94	-0.78	-33.60	-17.34	-6.45	-46.46	-26.64	-25.22	-14.81	
	-13.06		-8.84	-30.93	0.32	-2.88	-20.17	-5.59	-15.74	-9.04	-29.15	-19.10	
	-12.95		-2.71	-0.76	-1.10	-9.18	-11.32	-45.12	5.53	-1.22	-12.50	-21.61	
	-10.04		8.95	-24.72	-1.04	18.69	-74.74	-37.64	5.60	-20.22	0.33	-5.81	
	-32.04		-3.95	-56.46	-5.47	-19.69	-29.68	4.73	-2.10	-25.39	-36.79	-14.14	
	-30.89		2.09	-20.87	-16.84	-12.82	0.65	6.61	-19.04	-31.47	-31.70	-15.91	
	2.17		-0.77	-32.16	-16.44	12.78	-11.11	-16.81	-38.57	-9.29	-19.06	-13.25	
	-16.96		7.99	-11.61	-15.52	4.11	-22.64	-9.71	-14.92	5.23	-65.30	-28.33	
	0.41		-0.88	-2.52	-28.01	-11.76	-12.86	-21.86	-0.75	-6.31	-33.33	-15.76	
	-6.43		9.97	-2.56	11.72	-14.68	-23.76	-22.27	-0.31	-17.29	-71.74	-26.69	
	-14.74		9.14	0.18	6.15	-28.04	-13.28	-19.11	-5.49	-14.81	-15.77	-5.81	
	-15.11		0.28	3.51	-7.34	-46.37	-21.64	-18.97	0.23	-49.70	-11.13	-21.21	
	9.76		4.35	7.29	-28.64	-7.13	-12.06	-3.48	-5.23	-18.63	-28.57	-14.28	
	0.80		-12.92	-23.00	-24.55	-9.02	-7.23	-8.73	10.14	-9.21	-2.59	-8.85	
	-15.06		46.73	-16.40	-18.26	-5.58	-14.72	-6.72	-1.96	-11.53	20.17	-29.42	
	-18.16		3.30	-8.35	30.45	-17.26	-18.21	-30.17	-5.56	-5.29	3.57	-7.81	
	20.13		6.43	-11.83	-34.71	-2.20	-16.82	-18.84	0.90	-16.55	-5.90	-8.94	
	-47.52		13.27	-12.60	-16.25	-12.81	7.82	-10.04	-1.36	-8.94	11.68	-14.65	
	-0.94		2.06	-0.92	-19.37	-5.92	-11.09	-6.21	-8.00	-4.77	10.69	-4.97	
	5.18		6.58	-5.32	-14.45	-2.88	-1.44	-5.91	2.01	11.84	7.09	-2.45	
	-5.94		-4.26	9.96	1.04	-4.42	-10.35	11.46	-5.46	3.36	6.62	-2.15	
	-3.18		4.89	49.43	15.85	-22.00	-6.64	34.58	3.91	5.03	-4.22	-9.14	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-13.38		1.52	0.15	7.22	-19.88	0.59	20.84	-11.43	-2.61	3.10	-17.47	
	5.08		-2.05	-16.59	-15.09	-3.86	0.01	-3.33	-3.43	0.69	34.11	-0.36	
	-5.69		13.32	-26.33	-11.92	-2.58	-5.76	-5.60	-3.64	1.36	48.71	-7.55	
	5.84		-4.47	-46.78	-9.61	2.67	-4.02	-3.85	2.02	-18.56	-19.56	-10.22	
	11.56		4.62	-10.38	-3.39	14.68	0.46	10.36	-3.11	0.11	-1.96	-20.70	
	24.06		-0.66	-13.94	3.32	-20.34	-0.13	38.02	-1.95	-3.00	4.52	-6.55	
	8.53		8.34	-6.27	-5.01	1.17	-6.25	18.48	3.04	10.47	8.84	0.65	
	-1.94		-4.06	-6.25	11.72	4.89	0.15	-22.70	-8.72	15.28	30.04	-7.47	
	3.27		5.65	9.23	-2.37	-1.83	0.92	-33.59	-4.85	-3.89	12.06	3.82	
	-3.23		6.92	1.36	-9.66	0.60	-0.53	-8.97	4.69	-0.47	2.01	-7.90	
	8.69		15.33	-4.56	4.36	0.77	0.94	-2.27	-3.98	3.82	3.91	8.55	
	-24.76		-1.96	3.21	2.96	4.38	9.18	3.27	0.25	4.89	-8.89	-5.35	
	10.47		1.57	-11.57	-1.70	6.67	13.57	-3.41	6.11	12.68	-10.12	6.22	
	20.00		13.73	-7.71	3.28	7.25	7.93	3.52	5.78	7.87	4.51	0.25	
	3.22		-3.45	4.20	8.81	-7.02	2.06	3.88	0.57	5.77	3.36	3.43	
	6.95		8.49	6.44	-3.89	10.64	14.69	-15.54	-2.07	14.03	-6.32	4.67	
	20.07		8.61	-2.61	-0.12	-0.36	-9.46	-7.69	-1.33	14.94	4.32	4.03	
	11.43		22.36	-5.73	16.73	-1.33	4.70	-5.34	2.44	6.20	-12.02	4.74	
	6.10		-8.53	3.88	21.68	27.94	-3.01	-3.38	-1.78	5.44	2.00	-2.93	
	-13.02		2.33	5.37	-2.32	4.13	5.48	-1.93	-0.60	-2.75	12.55	16.69	
	-13.25		2.25	-1.06	6.31	4.54	3.14	1.20	3.14	-2.14	15.41	12.06	
	5.16		3.44	-0.13	7.22	0.59	1.72	3.74	1.13	-9.67	6.49	4.04	
	3.17		5.20	16.09	3.96	11.07	1.33	14.57	2.09	6.92	2.19	22.15	
	0.88		-9.10	-3.01	13.81	8.66	-0.20	2.64	-2.72	21.41	4.24	-5.60	
	1.71		-0.62	-2.90	2.91	-3.20	-2.34	-3.18	2.57	-11.61	3.98	10.03	
	-1.00		-3.87	5.42	7.93	-3.36	5.41	0.41	-8.72	-4.78	6.42	11.79	
	1.67		-3.68	8.79	-0.58	16.69	2.14	8.67	2.71	0.65	11.23	0.82	
	-1.15		-5.38	8.90	-0.21	-2.37	19.33	-2.82	12.99	1.54	0.42	4.48	
	12.26		-3.56	1.05	5.28	6.64	19.12	-3.08	-3.50	22.12	-2.65	6.56	
	5.45		-12.52	-1.95	4.63	3.50	12.15	-4.42	-20.56	7.27	-7.74	-0.25	
	29.43		-0.64	-0.30	31.61	-2.57	-0.46	-6.33	-2.79	3.37	-1.69	3.16	
	-0.41		-2.14	-1.96	-11.55	-10.96	5.97	-2.70	-2.86	6.07	-4.49	-7.43	
	-14.44		-4.25	-0.24	-11.97	0.78	-6.21	1.34	-8.06	-4.06	1.60	-12.59	
	0.48		-8.32	-2.54	-2.34	13.15	6.85	5.05	-10.75	-2.03	-7.54	-4.65	
	-15.39		-4.71	-5.78	-7.01	8.74	6.05	-10.20	-8.50	-6.35	2.34	-7.24	
	-14.69		6.82	-7.18	-75.01	-6.71	-17.30	-14.47	-7.93	-5.38	-9.20	-9.98	
	-7.19		-22.97	-7.60	-43.19	-11.74	-6.49	-15.51	-1.91	-15.58	-1.74	-8.26	
	-14.73		-15.44	-20.31	-28.69	9.75	-4.10	-7.16	-8.71	-20.04	-6.59	-10.30	
	-48.69		30.85	-7.71	-23.79	18.25	-1.46	-5.10	-9.02	-31.02	-6.74	-41.65	
	-24.15		-15.43	1.06	19.57	-22.58	7.96	-12.02	0.87	-12.57	-1.60	-44.52	
	-24.30		4.00	4.22	-4.17	-10.82	-2.72	2.51	-1.38	-5.69	4.34	-20.25	
	-15.36		2.52	10.48	-4.07	-7.19	-11.90	-1.77	48.95	-11.32	-4.23	-41.88	
	-10.34		2.48	7.16	-2.79	4.76	14.18	1.26	16.50	-16.05	-27.36	-18.26	
	-19.57		-7.19	1.62	-2.18	-4.37	3.33	-15.22	-10.15	-13.46	-30.88	-19.11	
	-62.97		-6.35	8.75	2.86	7.61	19.94	-10.49	6.12	-11.60	-28.37	-12.11	
	-18.54		-28.39	10.85	15.01	16.99	5.15	5.92	3.13	-3.42	-22.25	0.66	
	-6.39		-10.09	58.44	-0.51	4.44	16.22	3.67	3.81	-14.66	-13.55	-4.31	
	1.29		-18.98	4.04	-1.05	1.00	37.56	38.09	3.53	-14.05	-34.65	9.39	
	-0.12		-8.22	8.78	2.13	2.35	10.51	48.15	8.98	-26.17	-2.13	-0.68	
	24.60		-15.00	20.94	-0.80	4.28	14.49	14.35	0.36	-13.71	-2.33	11.82	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	25.85		4.66	5.76	-2.56	9.61	16.15	0.67	9.91	2.47	7.05	2.41	
	11.77		-12.83	-6.01	3.35	8.30	1.44	-7.86	0.44	-0.88	10.22	6.17	
	15.52		-32.63	-38.80	-0.46	2.55	5.23	-0.91	-2.06	1.96	12.40	3.95	
	5.97		-25.33	-0.22	8.09	-14.95	18.98	0.96	-13.52	2.82	12.41	11.79	
	1.36		-8.06	18.77	-2.55	-8.83	6.21	-3.67	-16.38	1.45	22.17	4.31	
	4.66		-17.49	-22.32	2.74	-2.72	16.34	3.81	-7.25	-3.66	13.22	2.16	
	9.10		1.72	-11.62	5.36	-1.35	4.35	4.84	4.47	-10.15	18.95	21.70	
	2.44		-3.40	1.70	2.13	-5.68	10.25	2.16	3.13	30.81	12.17	-3.81	
	9.76		-12.89	-16.28	4.02	5.51	4.84	-1.88	-0.65	14.19	11.89	-2.54	
	-20.83		8.92	-8.12	-5.28	3.38	14.01	-4.97	-24.47	12.58	18.85	2.04	
	2.41		7.06	-3.52	-2.96	-4.01	2.40	-19.66	-6.56	12.36	4.60	4.13	
	11.73		19.18	2.61	-3.89	-3.11	8.81	-27.23	17.04	2.86	-4.58	11.22	
	6.02		7.87	-12.90	-8.78	2.90	-6.43	-12.92	14.74	16.57	1.76	-0.33	
	22.41		14.57	-25.16	-7.54	-15.43	-8.65	-15.96	30.74	6.33	13.58	4.88	
	3.07		28.48	1.28	-15.58	-40.88	-14.20	-17.30	22.63	-8.57	9.79	6.92	
	10.03		29.46	2.97	-8.80	6.24	-35.32	-4.06	21.15	19.63	14.66	14.90	
	5.74		31.00	12.41	-4.24	-7.01	-10.57	0.18	8.35	11.99	3.07	25.40	
	12.28		37.35	7.69	-10.80	-6.41	5.02	9.46	6.60	16.54	3.02	18.83	
	11.66		15.88	6.79	23.11	36.92	7.63	10.12	15.06	8.89	6.25	15.80	
	6.10		29.07	18.39	15.53	7.95	7.12	20.16	8.14	11.20	7.91	9.02	
	13.94		16.73	9.58	8.66	12.60	24.75	23.77	1.22	6.50	8.71	13.50	
	47.13		23.45	11.01	-2.65	70.37	59.53	15.77	-8.96	10.39	21.52	22.83	
	8.25		-13.91	7.27	43.30	23.94	65.91	20.36	8.40	22.42	33.91	36.45	
	10.30		3.86	20.07	19.73	18.14	12.56	21.60	31.63	21.70	14.53	5.57	
	9.02		5.91	8.34	17.25	13.81	-9.65	24.74	28.89	31.70	13.72	18.43	
	8.89		13.55	2.02	15.14	7.54	16.48	20.95	3.61	-0.30	26.31	27.11	
	22.51		20.38	18.63	29.26	10.58	12.89	16.47	20.84	7.43	16.37	10.10	
	9.92		12.90	19.96	27.76	-7.48	-43.43	-6.01	18.58	6.44	8.23	4.47	
	7.30		-4.15	9.16	8.50	-11.01	-15.82	-5.65	22.98	33.25	30.50	-4.51	
	6.67		-0.08	1.64	14.94	14.05	16.52	-1.82	20.36	11.62	17.12	19.84	
	4.31		8.74	12.53	14.35	38.93	19.96	0.95	11.61	1.92	20.96	13.87	
	15.55		19.97	10.81	22.78	23.59	19.56	11.01	19.33	9.75	10.54	12.17	
	8.37		-2.82	6.42	22.09	42.36	13.03	9.58	10.55	21.13	23.86	16.39	
	-1.91		2.44	16.28	4.69	28.85	14.03	11.95	4.07	0.55	26.91	16.00	
	-9.24		15.56	-0.35	4.72	24.86	1.98	7.04	11.48	14.88	-8.25	-23.02	
	0.68		11.78	22.78	7.08	16.21	8.00	5.78	12.25	19.79	-8.08	10.34	
	6.27		2.19	25.33	9.62	13.99	28.25	11.44	28.02	15.20	9.22	12.79	
	4.06		8.45	3.32	2.34	14.45	12.24	9.69	11.60	27.94	16.74	7.49	
	6.50		10.25	-7.39	1.24	7.76	14.84	14.05	5.53	27.69	39.20	11.13	
	8.86		6.93	-3.52	4.71	-2.19	12.14	0.22	3.57	9.53	23.48	0.38	
	2.76		2.96	7.30	28.28	-0.36	-4.07	-1.33	6.18	2.28	11.63	7.13	
	4.31		10.15	7.08	1.71	4.81	5.75	-6.33	1.22	1.29	14.08	8.30	
	15.19		8.00	9.37	7.86	4.38	11.62	10.42	6.76	0.02	2.55	11.45	
	0.79		-0.29	5.62	1.61	-1.09	1.91	3.28	11.27	6.51	-1.22	14.95	
	-4.56		-3.45	5.38	0.19	0.95	13.66	1.64	1.18	9.75	17.79	4.98	
	11.02		-6.40	-0.86	-0.63	4.84	2.17	-9.79	-3.04	18.74	23.95	4.90	
	6.14		-2.10	-1.90	-10.07	1.56	2.99	-9.12	1.03	13.77	13.05	0.55	
	45.09		-4.55	7.50	3.24	-4.32	-0.10	-0.55	3.57	-12.80	8.80	-0.91	
	15.03		-17.71	3.61	7.58	1.01	1.65	-2.10	-1.99	-24.31	4.45	11.10	
	-2.08		19.77	1.98	-0.17	4.18	0.31	3.85	5.04	30.54	3.06	13.28	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-3.32		-12.34	10.80	8.31	-4.71	3.27	4.67	9.79	-4.19	15.07	1.34	
	-20.61		-11.63	0.59	4.73	1.94	0.31	1.05	-0.29	5.39	4.06	-1.01	
	-5.65		0.01	-3.34	1.11	-1.31	0.92	-4.76	-2.13	13.68	0.16	-4.70	
	5.23		3.31	-1.18	2.67	-16.08	-3.42	-2.17	0.98	1.52	-2.05	-0.80	
	7.06		3.86	-2.89	-1.38	-44.52	-0.94	-3.38	5.79	-1.34	0.91	-4.71	
	-7.68		-1.06	-2.74	-0.77	-6.37	13.84	-5.79	6.19	2.91	4.55	2.34	
	-1.17		-1.50	-0.87	-4.32	2.52	1.75	5.35	4.88	8.30	6.27	0.11	
	2.55		-17.09	4.11	-8.69	-3.80	6.86	10.34	0.50	13.62	-3.00	13.05	
	-2.07		-2.38	1.51	-3.86	-0.65	0.41	-2.07	0.31	-2.76	-1.52	6.68	
	6.17		-3.49	15.39	-3.67	3.38	-4.28	-4.55	-1.90	-4.09	3.97	-5.28	
	-44.63		-20.28	-16.50	-2.33	-1.64	-2.77	-8.36	-0.36	-5.77	0.70	-3.93	
	-13.66		-11.14	1.85	-0.59	-5.94	-0.42	-7.37	-1.37	-7.56	2.86	1.67	
	-8.83		-17.54	-4.17	-6.36	-9.66	0.12	-16.64	-3.11	-8.83	0.55	-0.30	
	17.10		-49.90	-9.16	-5.60	-9.41	1.37	-28.42	-9.46	1.09	-1.19	-6.47	
	-4.94		-19.57	-7.04	-16.58	-4.56	15.34	-25.48	-3.84	-17.09	0.56	-20.95	
	-8.03		-20.58	2.55	-16.26	-15.75	8.23	-11.52	-10.99	-12.69	0.82	-6.89	
	-36.03		-20.14	0.35	-11.37	1.79	5.02	-8.54	-11.78	1.17	-3.51	-2.49	
	21.80		-43.91	5.04	-16.73	-5.01	5.46	-9.56	3.65	0.07	1.29	-23.75	
	-22.42		-24.27	-13.75	-12.49	-12.07	-4.71	-4.67	-10.58	-1.33	-0.78	-37.86	
	11.88		-35.69	-25.54	-30.11	-0.44	-1.62	10.43	-16.70	-0.27	3.88	-16.81	
	8.65		-18.58	-13.04	-44.41	-26.18	3.43	11.11	-33.37	1.04	-2.51	-31.60	
	0.68		-10.69	-18.44	-21.23	-25.06	2.15	-10.74	-38.25	2.70	1.16	-10.27	
	4.00		-19.30	6.23	-45.37	-21.64	4.03	-15.29	6.48	-3.29	-7.22	-13.14	
	-4.74		-5.62	5.18	-38.75	-18.86	-6.69	-29.97	-34.82	5.97	0.57	-5.39	
	-8.41		-4.72	6.53	-18.43	-43.79	-15.93	9.95	-22.36	9.94	-9.94	-8.38	
	-14.54		-8.61	-16.35	0.32	-56.60	4.98	-23.85	-7.78	-15.44	-51.91	-10.23	
	-14.25		12.59	-22.87	-15.24	-45.35	10.59	-33.42	-5.86	-6.39	-13.01	-7.26	
	-13.46		7.48	-27.48	-33.54	-30.77	-35.50	-11.50	-15.64	-9.99	-46.45	-11.20	
	-18.22		3.68	0.76	-21.38	-16.09	3.60	-8.69	-19.72	-14.25	-40.22	-16.51	
	-7.47		12.87	-11.77	24.02	-12.66	-4.80	-16.85	-18.97	-7.05	-33.29	-11.88	
	0.45		11.84	-12.85	-20.71	-6.30	-22.57	-9.72	-11.69	-10.15	-18.76	-7.21	
	-39.50		-0.54	-34.44	-36.75	34.67	-34.46	10.51	7.52	-21.50	-41.23	-26.55	
	-12.62		0.28	-5.00	-24.61	4.03	-25.06	4.09	-3.90	-14.12	-28.17	-15.66	
	-3.20		4.03	-24.32	-15.68	-3.23	-34.00	-15.44	-12.87	-27.25	-3.60	-3.87	
	-30.47		4.80	-5.68	-5.01	-0.77	-15.28	-14.63	-2.10	-17.91	-17.67	-6.74	
	-5.96		-11.08	-42.52	-15.89	-10.90	-9.66	-15.89	-10.75	-5.83	-7.71	-7.35	
	2.40		8.08	-9.35	-17.46	2.43	-14.09	-17.43	-35.07	-9.84	-9.41	-1.87	
	27.93		7.89	-14.48	-17.77	-7.24	-20.33	-3.47	21.93	-13.28	-14.20	-16.91	
	-29.33		9.41	-9.60	-9.15	-14.74	-28.28	-3.82	-4.03	-48.46	-2.64	-13.33	
	-35.98		-2.26	-17.24	6.10	-7.62	-19.77	-13.57	-51.07	-20.11	13.29	-7.55	
	1.71		5.25	-18.93	7.90	4.20	9.34	-10.76	-12.74	1.50	13.50	-0.09	
	-0.21		5.55	-18.61	-6.60	2.50	-6.30	-4.27	5.20	-3.09	14.51	-0.91	
	8.87		-3.42	11.59	-38.32	-8.68	8.14	-0.76	-3.30	-50.21	2.34	5.34	
	-1.00		-9.76	34.33	-93.86	-6.16	-8.67	1.06	-0.94	-23.37	4.01	-11.02	
	-8.57		-2.87	14.05	-24.51	6.91	4.80	27.12	3.16	-12.93	2.54	5.39	
	2.94		5.47	5.16	31.12	-12.06	-4.14	4.59	-3.81	-11.22	2.05	-17.09	
	2.75		19.57	-1.63	-8.41	-3.98	-13.57	13.27	-4.06	-6.38	4.22	-14.41	
	0.58		11.36	10.21	-6.19	-2.43	6.64	-4.24	-5.61	-10.98	1.52	4.49	
	10.00		-2.44	25.05	-3.24	2.20	-8.93	-0.15	-4.77	6.55	-5.84	-4.45	
	32.55		-14.59	13.05	-4.20	34.30	-4.74	-6.87	-6.28	37.94	11.78	-4.65	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	15.86		3.17	19.50	-4.25	8.52	4.82	-3.30	-8.36	20.85	10.91	2.21	
	15.99		11.15	6.43	-4.78	-7.82	-2.17	-3.55	3.75	-6.01	-4.22	-1.89	
	-1.95		-3.33	-5.28	-10.98	0.50	-0.83	-1.17	3.59	-1.91	1.41	3.86	
	-2.76		16.49	3.15	4.89	-2.09	-1.65	-1.93	-4.23	-2.48	9.06	-1.14	
	3.42		-0.18	12.59	14.94	6.77	15.40	1.25	2.42	-0.88	2.99	-8.96	
	2.55		13.33	3.45	-9.00	1.10	50.78	9.66	18.88	-13.81	-0.86	-6.34	
	11.69		10.44	7.31	-3.20	2.15	-19.10	5.60	7.24	0.92	-2.57	-0.63	
	-5.04		9.34	33.19	-10.55	6.40	0.23	19.70	6.87	6.47	-0.84	-6.69	
	0.36		-3.11	25.44	-6.55	4.94	6.14	5.53	10.11	2.78	6.93	1.93	
	-0.37		17.44	7.74	-1.95	-3.18	-34.88	-4.35	-11.47	1.06	0.61	9.09	
	0.11		6.22	-9.59	4.38	-3.17	-26.18	-0.41	-9.91	1.66	9.93	12.77	
	-24.96		8.07	-8.21	9.44	-35.54	-20.52	0.22	-2.20	-1.59	-0.88	1.95	
	-3.80		-0.33	4.35	7.30	-16.31	-37.67	3.09	-2.76	-4.83	2.01	2.13	
	-11.48		-2.46	18.21	3.87	-0.20	1.34	5.28	5.77	5.81	-1.33	1.08	
	-0.38		8.64	-0.06	1.06	-1.98	5.63	-13.37	7.46	-4.45	7.43	9.43	
	-0.26		11.50	6.62	5.90	4.19	-2.18	4.44	-1.37	5.21	-1.93	5.92	
	4.54		25.74	5.55	6.37	5.66	-3.71	-2.03	-6.13	5.58	-0.11	6.72	
	25.56		6.86	2.43	10.58	12.75	7.28	-2.19	16.72	46.38	-3.32	0.44	
	-1.61		4.63	-3.11	4.77	-5.30	-5.52	2.97	-0.33	-1.97	-1.25	-0.55	
	-10.07		-3.53	7.32	4.34	6.91	-9.10	2.22	-7.22	1.68	8.99	1.83	
	-7.16		-0.77	38.46	-5.02	-2.10	-0.33	4.76	14.32	17.92	-2.93	-1.94	
	-6.52		-7.31	-7.35	9.23	5.83	-0.28	0.84	-4.97	14.13	8.56	5.23	
	0.47		6.69	2.10	2.32	3.29	4.05	0.92	-6.60	17.05	-0.36	-4.66	
	-5.44		-0.12	12.48	8.69	1.37	12.11	0.75	-3.30	-15.48	-4.37	2.72	
	2.98		-9.05	5.64	4.77	-3.58	-4.31	1.38	-1.74	-17.71	-8.60	-1.82	
	2.66		8.06	-1.43	-9.54	-2.94	0.17	-0.20	6.75	-0.81	-14.39	-5.17	
	-13.50		-0.62	-11.80	-3.32	-7.00	-4.33	-5.05	-0.53	14.31	-3.31	-11.98	
	-10.84		-17.32	-1.26	0.43	-1.75	4.57	-0.73	-9.60	4.54	-4.06	-16.89	
	-8.40		-6.83	2.33	-8.16	0.81	2.38	-6.92	9.88	-4.02	8.50	-11.48	
	16.24		-9.01	-1.01	2.46	6.30	-5.87	3.93	-3.61	10.00	-15.98	-14.50	
	7.65		-2.26	-11.33	-7.61	9.95	-6.61	-1.68	-6.52	40.54	-2.66	-19.20	
	-23.72		2.56	-16.78	-8.75	-22.28	-13.15	-12.10	-6.71	-58.40	-6.25	-12.68	
	-12.79		6.01	-38.09	0.59	2.69	-24.96	-1.34	2.60	-17.53	-15.80	-4.87	
	-9.21		-5.55	0.20	-8.02	4.55	-9.31	-1.28	-14.79	-9.71	-10.57	-60.47	
	-9.55		-6.67	1.46	0.03	-1.06	-0.19	0.17	-2.51	-0.80	-17.09	-40.23	
	-1.23		4.40	8.42	1.50	3.95	10.69	-1.39	4.32	18.03	-6.01	-40.14	
	-2.53		-0.43	-5.40	-11.84	-12.48	4.75	-1.65	5.04	18.62	-30.50	-24.49	
	-27.64		4.89	1.91	-1.01	5.87	11.61	2.33	2.90	1.71	-22.84	-14.80	
	-39.67		3.24	4.15	2.11	8.72	-1.51	0.87	-2.75	2.24	-19.25	-10.85	
	9.15		1.21	1.61	5.36	16.16	-7.90	0.98	-10.02	-9.65	-16.55	-0.32	
	1.34		-6.00	32.38	15.02	7.45	28.33	-0.74	6.80	0.89	-16.23	0.65	
	5.11		-1.98	6.08	23.59	15.33	68.80	16.19	8.80	28.01	-5.26	2.23	
	-0.78		-14.70	5.09	6.83	10.20	33.07	40.40	-4.07	-12.29	-12.10	10.34	
	-2.44		-19.52	1.36	-1.15	0.15	10.35	32.68	8.27	-20.28	-2.79	1.19	
	3.59		-23.27	-4.96	2.22	10.05	-1.68	19.57	5.43	-24.76	1.94	4.64	
	7.89		-1.60	-7.88	3.14	15.94	0.26	1.48	-7.73	-41.39	4.13	4.43	
	-0.26		-23.42	4.05	6.57	36.06	2.71	9.61	-9.75	0.94	7.27	11.32	
	-24.71		-21.72	-1.59	14.26	15.52	20.99	5.10	-18.96	15.18	11.78	3.98	
	-11.70		-40.27	14.38	1.80	20.99	3.63	1.86	-17.31	8.84	4.60	1.72	
	7.24		-6.97	-22.73	8.32	16.17	-4.75	3.45	-13.70	8.64	14.78	17.69	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-3.87		-2.18	-27.73	3.59	34.48	2.28	1.73	-1.37	8.91	4.55	0.74	
	24.23		-3.89	-32.67	7.10	8.11	9.98	-3.77	14.10	16.06	18.12	1.66	
	38.03		-4.82	-3.20	3.57	-17.42	-3.07	-6.48	8.27	12.87	0.79	9.67	
	-14.43		13.45	-9.68	21.96	-7.76	-1.00	-14.88	7.84	3.25	6.57	7.46	
	-6.99		11.55	-18.26	22.25	-4.55	-6.24	-15.05	-1.52	0.27	5.10	4.53	
	11.93		11.85	-3.82	0.95	3.36	-6.19	-13.35	10.88	12.28	12.67	5.78	
	9.35		18.34	-0.48	-0.46	-3.15	-6.70	-7.49	10.12	5.67	-0.36	8.54	
	14.75		-0.32	0.05	-3.79	-45.48	-8.47	-3.57	9.09	10.54	14.98	3.14	
	22.43		21.16	2.29	-11.17	-10.72	-4.10	2.88	14.35	24.03	6.12	2.75	
	1.31		15.77	4.45	-20.19	-0.47	-24.93	-51.58	-6.47	29.77	11.24	13.33	
	13.18		15.39	21.02	-4.78	-0.83	-19.65	-24.26	9.11	13.22	3.51	21.16	
	24.02		12.51	20.17	-22.60	-1.31	-14.95	11.62	9.93	29.56	6.38	12.79	
	27.46		17.47	3.82	-14.84	-6.00	4.10	7.87	12.91	-0.77	6.98	4.56	
	23.38		21.59	10.78	-6.50	-17.44	15.53	6.90	22.79	13.96	11.54	27.85	
	19.31		17.00	1.21	11.89	-11.70	4.71	22.89	6.70	17.47	8.00	-2.74	
	3.47		27.33	12.80	59.56	-49.47	-17.92	-5.25	-31.24	-32.07	11.02	21.53	
	18.45		-13.33	7.46	14.11	3.82	14.28	-2.53	-0.89	9.14	24.77	11.76	
	22.30		9.17	24.45	3.17	12.23	11.57	34.28	4.42	14.96	20.73	19.16	
	6.50		15.82	23.49	6.36	19.92	8.32	6.38	12.73	6.40	5.82	25.58	
	10.32		19.07	-2.28	5.83	4.55	9.38	8.71	13.21	27.30	16.28	17.08	
	12.40		24.52	-13.25	41.05	18.26	-0.66	29.53	14.71	13.08	4.83	14.08	
	4.22		-6.80	13.92	54.63	15.19	-26.26	30.33	0.53	-7.58	6.68	-2.48	
	8.24		-9.39	10.12	25.52	41.04	-3.59	10.03	8.58	-7.26	9.29	2.07	
	20.99		-1.72	6.30	9.84	40.53	19.80	15.23	12.54	1.29	38.56	17.36	
	28.23		11.34	6.79	14.55	8.09	5.09	20.81	6.30	17.47	20.48	7.55	
	20.80		1.76	12.48	29.65	29.65	15.65	13.80	-2.54	20.84	24.01	13.31	
	9.72		10.98	9.77	33.07	-1.02	5.41	20.75	-9.00	18.83	5.62	6.61	
	20.06		2.50		35.30		7.72	-4.12		-15.82	1.80	11.04	
	6.03		4.13		16.36		2.58	6.62		-17.25	5.66	10.61	
	8.64		10.38		4.38		16.02	14.29		19.03	8.07	10.72	
	20.67		9.37		20.45		10.36	6.48		-0.75	26.28	10.16	
	31.32		-3.03		10.41		2.68	7.74		-0.22	16.11	9.25	
	-17.91		5.01		1.07		2.62	31.82		9.21	-2.52	6.30	
	-0.56		13.71		0.43		-0.29	27.70		6.86		9.55	
	3.00		9.56		10.38		5.20	8.23		1.63		7.74	
	3.79		-11.21		13.37		-1.75	42.19		0.50		-3.10	
	3.74		-3.21		17.79		17.40	19.30		-0.59		7.04	
	4.70		-4.99		-11.18		39.75	-5.42		-3.30		22.24	
	5.30		-4.21		0.06		16.10	-19.18		6.27		42.30	
	8.21		0.84		6.09		0.53	-22.14		10.05		41.65	
	6.49		-3.89		1.54		5.41	-7.98		15.27		32.07	
	-2.93		-3.37		0.80		0.66	-1.70		-8.21		13.06	
	-10.14		-6.01		2.35		-1.85	7.88		-1.63		5.04	
	2.13		-2.01		-2.91		-1.48	10.06		-0.29		2.15	
	39.02		-7.34		3.93		0.70	-5.08		2.06		15.07	
	-30.88		-5.79		-0.44		5.55	-9.20		1.18		10.06	
	-4.40		-10.22		7.83		2.67	-6.56		-0.92		-1.11	
	-9.15		-3.99		4.72		-1.31	-0.60		9.02		7.16	
	12.75		1.02		6.41		0.92	1.62		-2.19		12.77	
	-10.26		-8.86		3.68		0.56	-0.09		-3.14		2.89	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-5.16		0.62		-0.09		-1.95	1.27		-13.63		7.19	
	8.98		-14.56		-9.13		-3.01	4.48		3.19		-0.53	
	4.95		-16.71		-28.19		19.65	-2.68		1.54		5.09	
	-3.26		-11.08		7.79		6.64	-5.95		-5.85		2.20	
	-0.27		2.45		16.62		-0.92	0.86				-2.82	-1.39
	-3.58		-42.52		-5.09		2.95	0.44		-21.03		1.60	
	-3.95		-5.44		3.79		-1.95	1.42		-9.72		-1.46	
	-18.06		-42.86		-0.89		1.04	0.43		5.40		-0.27	
	-21.85		-41.33		-6.42		-1.90	3.88		-24.99		1.38	
	-3.00		-30.48		-4.57		3.69	-6.03		-6.30		21.59	
	-15.42		-27.64		31.64		22.89	-9.48		-17.09		19.85	
	-20.44		-36.52		-3.94		11.62	-10.81		-14.67		-4.01	
	-13.80		-25.82		-10.33		2.38	-14.86		-18.38		-37.71	
	16.19		-12.00		-17.83		-3.70	-21.55		-12.08		-34.60	
	-34.99		-15.05		-24.24		0.28	-42.65		-7.87		-16.19	
	-20.52		-19.91		-23.01		7.80	-12.14		-27.85		3.73	
	-23.13		-28.13		-36.69		-1.39	1.90		-52.74		2.60	
	-24.31		3.15		-26.49		-8.68	-14.44		-27.36		2.94	
	-49.01		8.02		-37.89		-10.72	-19.41		-31.99		2.10	
	-27.65		-8.42		-28.23		-20.56	-0.48		-9.72		-3.53	
	-28.25		-2.81		-18.66		-14.20	1.93		-25.10		-19.08	
	-17.38		10.86		-21.82		-18.51	-17.59		-29.81		-18.64	
	0.73		11.79		-32.52		-21.47	-33.18		-7.12		-16.25	
	-7.38		7.20		-10.55		-2.88	-40.45		-8.85		-7.82	
	-10.36		5.13		-7.24		-6.66	-7.62		-0.13		-9.22	
	2.78		4.79		-80.57		16.72	12.24		-5.50		-7.74	
	-14.66		6.56		-30.93		0.60	12.86		-2.26		-3.01	
	12.09		4.64		17.26		-15.42	-8.47		8.71		-4.79	
	-5.13		2.73		11.70		-17.66	-24.21		-11.86		-19.50	
	7.15		-5.90		7.09		-15.85	-16.75		-3.75		-22.14	
	11.31		17.45		1.78		3.53	-3.24		-6.50		-10.50	
	9.50		19.62		13.93		-15.43	-5.24		-0.38		0.37	
	4.46		8.07		7.24		-25.74	14.39		11.77		-25.92	
	-7.42		2.33		-11.09		-16.50	30.07		12.49		-9.61	
	-13.70		6.73		-5.87		-12.34	-3.43		-2.11		-12.81	
	10.23		10.19		-3.36		1.06	-2.35		-2.29		-4.52	
	5.90		7.79		-5.72		-5.41	0.33		13.09		-6.03	
	3.95		3.43		3.38		-12.55	18.25		-8.59		-8.29	
	4.35		6.94		8.01		-45.57	50.13		8.73		-5.88	
	6.85		6.71		6.22		-2.14	3.17		-2.38		-7.58	
	-1.60		1.41		-4.60		1.17	-9.79		1.04		-5.87	
	-2.43		6.29		-1.86		-2.47	-15.68		-3.96		-8.15	
	-2.86		0.41		-6.78		-13.41	-3.06		-3.44		-1.55	
	10.21		4.18		-3.08		-80.00	-0.62		28.17		-12.54	
	-2.24		9.29		-2.66		-30.39	-18.43		5.56		-20.63	
	3.25		8.72		5.36		-9.52	0.05		7.82		10.93	
	4.32		3.86		5.69		6.04	5.19		-13.44		-3.92	
	5.94		6.58		0.61		-4.78	2.90		-11.83		-9.50	
	3.95		15.57		0.08		0.11	2.82		22.85		-1.94	
	-12.11		-0.93		2.34		-2.57	-2.35		2.09		-5.73	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	-11.47		-4.15		-7.06		-5.75	2.37		-10.76		4.91	
	0.66		9.62		6.76		5.57	-3.25		6.16		0.49	
	7.75		12.63		-2.44		4.15	-0.67		4.46		14.05	
	15.03		5.32		3.54		5.65	15.55		6.32		19.49	
	1.50		4.45		4.11		6.88	14.66		-5.58		-2.98	
	3.62		-3.84		-10.79		4.53	-5.77		-20.24		5.15	
	3.65		5.29		-17.51		-2.47	-3.04		-13.73		21.14	
	7.79		3.49		-0.77		3.24	0.94		11.48		-0.54	
	7.51		5.79		-1.06		4.32	1.32		6.17		-0.25	
	7.51		10.32		-5.34		5.10	5.26		3.11		7.58	
	1.48		5.46		2.50		3.05	1.92		-3.91		13.42	
	-5.98		1.35		9.19		1.21	-7.53		6.27		12.40	
	9.37		-0.69		-6.63		4.93	-12.65		8.13		1.80	
	3.96		-1.28		-2.11		14.26	-10.42		-2.44		-4.82	
	15.86		-1.68		11.61		8.89	3.21		-5.55		7.38	
	-20.83		-4.13		11.31		-0.31	9.13		5.35		7.19	
	0.48		-1.65		1.24		-2.30	-2.05		6.13		-7.54	
	20.79		-3.97		-3.43		0.33	-1.86		-7.73		-8.05	
	-21.83		-3.65		-9.52		-8.03	1.90		5.66		-3.26	
	17.19		-1.74		-14.17		-7.69	3.83		-3.71		-10.12	
	11.26		3.28		7.57		5.57	3.33		-5.28		2.51	
	-5.26		-1.38		-5.81		17.68	-2.56		-7.66		1.00	
	-8.14		-4.77		-8.13		7.85	-0.28		-7.20		3.59	
	5.89		0.76		7.84		15.29	2.13		-5.28		-8.07	
	-40.60		-7.77		5.86		-1.29	-0.37		0.77		-2.72	
	11.49		4.93		-18.33		-3.97	1.94		-2.54		-45.32	
	-7.76		6.37		-10.87		3.46	1.06		-5.24		-29.16	
	-30.19		-0.59		-1.31		2.58	-0.65		-0.37		-33.36	
	-21.79		-0.27		-15.95		-7.41	4.16		0.48		-17.66	
	-24.43		3.29		-6.18		3.78	13.37		16.96		-0.03	
	-12.80		5.89		-5.15		13.62	-16.14		0.96		-12.14	
	-14.94		3.20		-3.79		0.88	3.97		1.26		-5.45	
	-21.68		0.87		1.64		-2.62	-7.88		-10.91		-3.85	
	-32.73		-1.71		22.85		-7.18	3.07		-10.07		9.83	
	-33.00		-1.50		3.04		0.51	0.95		-25.08		20.26	
	7.03		-1.62		9.06		3.43	9.83		-5.13		25.60	
	4.80		-15.54		10.59		3.30	12.64		-4.24		2.95	
	-0.09		-21.04		10.57		-5.09	5.61		8.93		-6.15	
	12.95		-8.44		-0.72		0.33	5.40		-7.82		14.57	
	18.70		-26.37		9.83		-0.62	5.45		-2.53		10.91	
	-8.64		-24.57		-24.86		-2.02	-4.43		-5.22		38.29	
	6.69		-17.37		-10.24		2.00	-46.74		-0.71		25.61	
	2.97		-9.24		-4.64		5.75	-20.72		-11.88		6.83	
	-17.49		-6.01		7.39		4.32	-34.42		0.70		6.12	
	13.95		-4.45		-13.32		7.10	-6.03		-0.77		13.71	
	5.26		0.11		2.68		-12.14	-12.22		-3.75		12.61	
	11.69		3.73		-4.97		4.26	-8.76		-10.20		14.66	
	24.44		6.40		-4.10		2.18	17.55		-28.03		14.79	
	-14.16		16.86		1.96		-21.65	-9.46		-10.64		24.32	
	4.50		11.27		-8.63		-48.14	-14.66		2.53		19.15	

10-minute deviations	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-month Average
	0.54		11.59		-3.72		-11.33	-4.00		0.60		25.25	
	5.99		14.62		-12.44		-12.17	0.92		8.78		9.29	
	3.30		10.50		6.78		-11.97	12.29		7.49		10.63	
	-0.37		9.66		6.98		-20.53	27.32		8.91		16.36	
	7.67		15.44		4.23		-13.12	8.43		27.92		10.66	
	-37.88		16.80		-32.07		24.82	7.18		15.95		7.37	
	-7.54		36.68		7.74		9.78	9.14		-5.37		9.32	
	12.40		9.06		5.79		-11.20	9.54		-0.35		7.02	
	19.67		10.88		0.98		13.86	-6.37		16.37		4.61	
	-12.94		7.16		14.54		-5.04	-9.72		-11.77		22.67	
	6.95		2.39		17.74		-5.26	3.43		-6.02		3.23	
	-1.38		22.02		29.40		10.77	9.41		21.05		6.81	
	15.93		19.24		11.30		32.66	49.20		9.53		10.78	
	19.07		21.94		33.16		8.91	-0.96		13.43		3.28	
	22.72		69.86		16.77		19.00	-2.76		17.13		11.00	
	-4.13				58.43		5.40	4.26		10.50		-0.65	
	-12.92				11.01		16.61	3.64		-7.25		3.79	
	4.37				2.16		13.63	18.91		7.22		11.37	
	7.09				16.44		8.07	12.33		23.55		14.13	
	22.80				14.08		22.63	17.07		-14.63		6.48	
	26.15				3.30		10.85	12.52		24.74		5.98	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
Std. Deviation δ	63.48	62.64	61.18	58.40	58.95	59.40	55.85	57.30	49.53	58.45	64.77	72.16	60.2
Monthly 3 σ	190.45	187.91	183.54	175.20	176.84	178.21	167.55	171.89	148.59	175.34	194.30	216.47	180.5
Monthly 99.7 Percentile	162.02	141.98	141.99	145.34	147.60	170.23	131.99	170.51	141.25	132.98	155.00	169.66	150.9
Monthly Max Deviation	219.60	178.92	192.58	162.24	191.57	209.90	172.61	221.47	146.46	141.04	210.05	201.86	187.4
Monthly Min Deviation	-283.92	-201.50	-233.61	-200.12	-237.67	-220.76	-195.27	-184.98	-185.67	-180.97	-245.10	-241.74	-217.6
Net Wind - Load Deviation for Hour:													
1	18.65	-27.99	-7.97	-37.70	-5.96	-48.90	-42.81	11.70	-20.90	8.05	55.44	-40.14	
2	85.92	58.92	73.85	95.67	33.20	101.44	89.10	78.11	48.80	62.86	94.42	84.74	
3	45.00	27.89	-12.73	5.05	-31.88	22.45	7.98	-2.33	12.06	-22.66	0.41	-54.15	
4	31.82	7.54	-27.65	-2.06	16.04	8.45	14.45	8.95	1.77	-26.12	-4.08	-39.09	
5	-28.44	-25.04	-56.69	-36.82	-21.43	-61.73	59.59	-24.44	6.32	-19.02	19.86	-66.42	
6	-50.49	-149.55	-144.32	-125.95	-61.84	-122.47	-4.90	-17.42	-79.09	-35.83	-70.12	-134.35	
7	-45.40	-168.94	-126.55	-125.69	-14.44	-84.22	-75.43	-78.53	-52.08	-35.66	-161.22	-130.97	
8	-19.83	11.60	-46.99	-40.55	-56.06	8.14	-104.66	-109.20	-73.69	-53.10	-32.01	-69.24	
9	-62.21	-15.72	-0.85	-3.21	-145.27	53.46	-81.39	-82.47	-34.82	-34.79	25.06	-36.28	
10	-59.56	61.09	0.83	20.85	-89.87	-6.86	8.99	-69.20	38.43	-33.65	40.75	9.88	
11	-51.11	121.31	-13.22	9.40	-6.26	-25.33	-13.39	-41.57	-17.36	-101.46	-70.71	26.58	
12	-25.66	-18.90	16.29	3.94	15.32	33.17	3.43	16.58	4.44	-2.10	123.59	2.75	
13	8.48	-45.40	21.68	16.68	81.76	46.06	75.77	30.65	-15.96	18.77	41.99	8.01	
14	4.93	-2.02	10.63	1.90	29.29	27.02	23.38	20.96	15.55	62.11	-1.05	15.04	
15	49.96	89.07	3.40	-9.91	-10.25	-2.20	11.57	68.52	34.88	-0.32	-58.76	-7.69	
16	-35.09	-37.66	-8.84	-49.03	-35.05	-12.37	5.66	-22.51	48.13	-3.00	-22.98	-21.42	
17	-39.76	-163.62	-98.81	12.50	-24.15	-7.86	8.66	4.44	-2.14	3.72	-91.48	-114.61	
18	1.29	20.36	-94.59	33.90	8.61	34.69	66.69	22.87	0.51	16.17	-93.84	46.21	
19	31.23	66.59	8.01	-23.04	-9.11	51.22	27.23	13.17	-51.54	-38.92	-10.34	54.23	
20	0.95	34.34	1.93	9.01	-23.22	12.90	15.67	26.64	-52.28	68.41	-1.10	-30.31	
21	-2.13	24.12	59.93	78.93	9.25	-26.91	-48.28	-18.07	41.22	55.77	-8.99	76.17	
22	64.11	53.02	49.02	124.83	102.85	52.18	-72.28	81.50	50.64	44.32	106.88	111.81	
23	79.51	50.29	38.70	58.79	102.01	188.42	-7.27	115.16	62.23	52.63	80.89	72.18	
24	103.47	41.89	72.91	47.13	74.94	209.90	52.55	105.73	82.96	37.46	34.35	54.21	
25	33.74	6.76	45.07	31.89	107.38	40.08	54.07	62.50	15.25	25.16	20.57	51.76	
26	-52.84	116.40	-11.95	32.23	-14.19	-46.37	25.36	-24.31	-19.55	24.84	21.13	-31.99	
27	-8.14	-47.34	4.18	39.62	7.11	30.53	8.93	7.78	5.13	11.52	0.73	62.89	
28	-5.81	-45.27	-90.15	36.80	0.75	-21.84	7.40	-17.15	-5.93	-1.90	16.62	-36.29	
29	-26.79	-8.32	27.79	15.48	-99.75	-53.74	20.31	10.41	-16.40	-21.12	-34.01	-89.38	
30	15.15	-32.14	-233.61	-56.47	-150.26	-196.11	-37.28	-60.30	-51.18	-17.23	-71.16	-138.40	
31	-42.82	-60.78	-80.91	-97.58	-104.04	-150.73	-40.43	-99.20	-43.50	-47.52	-142.56	-185.26	
32	-53.38	7.99	146.45	-160.50	-45.47	-36.51	-104.08	-73.39	-52.17	-80.65	-20.77	32.59	
33	-78.49	-106.47	30.65	-84.29	31.20	-42.37	-105.17	-49.38	-22.45	-74.73	63.41	44.54	
34	-59.88	-45.16	12.48	-15.56	17.14	-30.14	28.56	-28.23	-1.97	-128.26	31.53	-0.40	
35	-33.18	90.03	72.19	-6.59	6.25	-26.98	-13.93	-35.37	-12.45	-29.48	62.56	-15.80	
36	18.01	-39.91	17.48	22.91	-11.77	1.88	-0.17	59.76	3.80	-16.16	84.06	-37.22	
37	-22.64	-24.88	7.17	30.94	36.81	71.93	3.89	67.62	6.92	8.19	21.67	21.04	
38	73.43	86.97	29.31	46.44	7.86	-2.06	19.18	22.24	9.37	18.15	-22.85	23.85	
39	-48.29	-2.08	3.53	9.03	-10.14	6.43	24.06	-12.04	13.83	2.74	25.64	-11.50	
40	72.93	-47.46	-53.87	-20.75	-46.68	-8.25	-21.40	-43.11	62.65	0.17	-69.31	-121.92	
41	35.79	-3.97	-74.56	-13.70	26.52	-31.15	2.39	46.53	23.00	-6.43	-187.97	-112.29	
42	7.93	10.35	4.81	31.18	-27.88	32.26	68.41	51.43	-16.50	18.38	31.53	107.36	
43	-100.45	40.96	-1.08	-7.98	20.63	16.40	22.94	41.37	25.02	-16.61	-42.97	-3.33	
44	7.79	9.87	-26.96	-22.73	-34.48	7.38	15.51	-2.91	-105.72	50.11	47.95	13.81	
45	-7.48	85.60	106.46	36.38	-34.33	-23.19	-17.46	-13.87	38.27	80.60	23.79	77.96	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
46	63.62	113.27	107.56	84.77	63.20	25.76	-7.07	53.38	54.75	121.97	109.44	19.72	
47	76.33	31.92	54.29	91.43	104.78	110.98	44.76	62.35	18.95	103.67	91.64	58.74	
48	84.79	9.61	34.36	70.98	129.06	83.18	63.89	55.44	90.30	60.05	39.90	120.99	
49	63.38	13.32	-5.24	46.99	40.50	41.70	38.18	62.31	30.15	37.11	12.17	48.00	
50	27.57	8.39	-9.34	23.89	-7.29	32.25	69.81	59.15	1.01	11.18	14.45	43.88	
51	9.27	10.58	-3.80	-15.02	32.86	14.59	34.14	2.35	8.97	-0.30	-4.74	29.08	
52	5.67	-0.88	19.87	-23.99	20.95	1.21	11.04	-30.28	-1.25	-16.42	1.00	-4.39	
53	-19.78	-49.01	-51.12	-39.09	-61.32	-44.51	6.45	-59.62	-12.49	-26.22	-29.76	0.85	
54	-54.04	-104.50	-155.41	-73.17	-160.69	-48.77	9.13	-104.65	-29.29	-162.75	-148.22	5.51	
55	-116.04	-8.40	-157.65	-41.88	-105.34	-195.54	-67.91	-112.21	-61.44	-164.82	-102.46	-160.87	
56	-78.24	-38.78	28.95	-85.85	-50.18	-136.09	-193.57	-124.34	25.47	-74.27	-16.50	-157.21	
57	-58.45	46.71	39.67	-66.55	27.77	49.43	-22.06	8.76	-84.98	-23.11	70.79	-30.87	
58	-34.48	0.70	-7.83	-54.30	-15.08	-79.34	-83.46	-5.27	-36.90	-31.69	61.68	-7.80	
59	-55.25	-31.85	10.10	1.52	-4.83	-8.26	-33.98	-89.18	-19.93	-14.20	-50.82	-26.84	
60	-5.44	-21.85	24.26	25.32	-0.83	19.73	49.15	70.88	35.15	-0.35	3.41	54.90	
61	-1.66	33.17	51.93	35.91	8.94	14.71	52.15	2.46	41.18	11.72	52.52	21.14	
62	13.05	15.83	-6.31	59.31	31.29	8.56	120.88	50.67	38.44	16.34	20.79	92.73	
63	-12.10	-23.51	-34.35	29.98	2.05	30.56	-34.31	-50.96	-61.37	-3.72	8.31	-34.79	
64	-76.74	-52.09	-38.92	-34.50	-76.89	-44.25	-47.61	-28.08	-2.71	-29.22	-28.59	-126.41	
65	-34.85	-74.08	-65.09	-26.87	-29.77	8.36	-59.38	-0.75	-7.52	-2.13	-55.43	-117.00	
66	31.78	-74.70	-50.78	-0.90	-7.40	45.23	15.83	-22.98	40.35	25.35	-64.69	-8.82	
67	5.83	-77.29	-77.52	-60.26	-37.97	11.12	21.38	-49.05	16.08	-39.62	13.97	33.73	
68	22.13	104.91	28.85	-82.53	10.45	1.14	-10.45	-41.75	-38.51	22.38	42.83	40.38	
69	25.88	39.53	109.10	21.64	21.34	-1.73	-25.23	-2.39	64.23	73.16	65.30	63.23	
70	127.24	61.35	85.00	92.76	72.43	16.30	91.78	105.04	28.44	119.37	97.09	44.28	
71	103.11	51.95	-14.17	76.14	100.26	73.93	69.18	77.44	47.16	92.71	89.21	86.34	
72	89.40	61.63	112.88	54.83	96.24	12.99	77.62	87.20	38.37	78.97	63.83	78.98	
73	-18.60	49.85	3.37	18.07	73.95	20.23	57.62	47.95	11.69	39.06	46.45	43.91	
74	84.17	15.42	31.85	1.50	26.36	23.57	19.59	31.61	12.40	26.53	27.20	37.34	
75	-41.83	-17.12	41.33	-19.51	22.56	64.43	-0.89	39.42	-7.77	6.57	-8.09	9.66	
76	-36.91	-19.62	10.25	-30.08	28.96	3.99	5.57	-21.75	-6.22	15.25	-16.18	9.60	
77	-59.99	54.96	-103.02	-0.42	9.44	-6.64	-13.13	-6.59	-18.27	-39.22	-0.28	-15.04	
78	-159.38	-117.29	-204.58	-153.54	-139.08	-61.80	-92.44	-41.57	-14.05	-130.32	-94.14	-32.35	
79	-130.13	-122.89	-54.07	-89.00	14.29	-119.00	-105.48	-100.07	-41.01	-148.56	-87.51	-56.23	
80	-41.53	44.41	1.07	-23.01	-2.88	-37.04	-81.13	-67.33	-98.19	-34.90	-60.70	-77.11	
81	96.69	43.40	112.25	46.33	2.88	-21.31	-103.33	-44.19	-45.35	-12.30	7.99	-45.29	
82	12.32	-17.26	-13.66	95.01	-41.51	-38.51	5.98	2.30	-46.47	-5.85	-52.48	-27.90	
83	-22.50	7.13	-9.79	24.10	10.07	4.26	-50.00	-80.72	63.64	3.68	-31.80	-7.47	
84	-2.89	36.22	13.27	-38.79	-9.30	8.35	20.09	-68.33	-25.91	-4.68	-0.45	22.83	
85	21.87	37.11	63.68	-10.93	26.97	22.03	-1.95	-3.29	8.96	9.01	-35.39	53.28	
86	3.41	-42.61	27.43	22.19	18.38	26.63	1.37	33.40	-13.31	8.60	9.75	44.96	
87	-18.32	42.46	-58.01	-16.65	37.10	7.45	-3.12	-0.74	-1.58	-20.14	21.00	29.90	
88	-18.59	-53.25	-2.30	-47.62	-31.15	-21.30	0.00	-11.38	-10.71	-50.70	13.70	-115.99	
89	-40.77	-87.86	-102.75	-23.91	-28.45	-21.22	5.31	2.73	-36.77	-22.53	-43.80	-141.20	
90	36.82	-44.08	-95.89	56.93	24.91	27.05	61.97	38.26	-79.27	17.63	-44.29	-2.04	
91	-10.92	24.73	-31.68	23.85	-3.54	20.29	47.96	37.81	65.27	-3.01	34.14	35.36	
92	116.88	61.08	28.14	1.59	-61.76	-0.31	-77.00	-12.83	-11.36	37.74	-1.44	63.73	
93	94.06	67.29	57.67	69.72	33.95	-20.60	-54.87	-50.36	122.32	78.79	59.25	92.37	
94	33.11	76.78	192.58	162.24	56.53	4.88	104.58	60.95	60.31	126.07	76.64	138.61	
95	29.27	31.12	98.99	90.15	73.61	81.40	105.87	90.52	12.33	88.57	68.34	137.49	
96	0.82	3.56	-26.85	67.33	86.18	63.43	59.15	104.19	45.40	112.88	63.10	96.24	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
97	-27.50	13.67	8.71	30.38	51.35	51.91	20.82	43.15	55.56	53.86	30.39	40.47	
98	-32.89	81.49	-22.77	58.79	44.44	38.74	59.79	16.71	59.15	-7.57	3.88	25.34	
99	20.79	8.63	142.49	6.24	16.65	4.56	-4.70	15.16	22.29	1.96	47.04	9.32	
100	54.01	-52.53	4.64	-17.60	-34.79	3.90	-1.21	5.71	-16.27	27.53	9.35	-35.42	
101	-22.62	-56.69	-102.99	-40.82	-38.02	1.39	17.19	-21.73	-21.84	-13.85	16.07	-73.26	
102	-125.87	-63.62	43.14	-164.47	-142.42	-4.37	-62.72	-45.16	-14.53	-45.45	-7.37	-195.75	
103	-247.22	-78.94	-37.11	-31.23	-160.65	-27.03	-180.22	-117.70	-17.48	-119.11	-30.34	-127.79	
104	74.39	-77.00	-116.98	-22.12	-72.38	-78.95	-100.61	-74.51	-86.94	-72.61	-141.23	-24.03	
105	219.60	9.93	59.55	-36.03	-2.05	-167.62	-44.12	-43.98	-7.58	-35.66	-167.90	11.74	
106	-22.22	25.01	-36.54	-0.31	13.29	-28.85	7.43	-22.27	-29.50	-15.54	-18.18	-1.05	
107	-31.18	25.99	55.05	12.50	-25.29	-16.95	-2.68	12.52	43.52	-30.03	7.82	-0.63	
108	-55.40	35.98	62.24	6.74	-9.83	12.47	35.42	48.19	-67.15	46.56	0.07	16.75	
109	-33.10	35.36	129.90	61.52	0.36	22.69	5.95	-17.18	-25.32	77.00	17.42	64.64	
110	40.21	38.93	26.20	28.41	55.27	12.82	-3.90	-25.78	-0.40	50.09	19.43	14.01	
111	34.16	21.31	6.47	-23.52	14.86	-0.46	-21.16	-7.64	-37.64	6.71	-11.23	-13.23	
112	-19.82	-24.05	-6.69	-38.92	-50.29	-22.89	-20.52	3.48	-37.61	-93.87	-51.77	-98.35	
113	-94.48	-141.21	-20.02	-28.13	-20.63	-17.70	-15.85	19.55	40.87	-42.59	-69.76	-127.13	
114	26.81	-41.95	-14.70	37.62	17.15	1.32	7.31	41.32	33.29	-51.57	-44.74	39.48	
115	-170.32	60.67	2.51	7.28	11.96	-37.05	-23.17	21.24	8.09	-45.15	-2.29	48.66	
116	166.27	73.45	-18.20	6.58	-9.66	-17.64	47.21	-39.78	-93.32	22.77	9.45	13.93	
117	145.24	42.36	20.21	47.73	18.15	0.84	1.86	-24.56	29.25	71.27	31.30	87.37	
118	14.77	80.45	42.37	109.89	84.69	73.31	76.12	55.78	96.22	110.36	49.36	79.46	
119	26.42	82.05	47.79	94.42	92.87	98.32	97.34	71.80	122.95	93.90	55.69	92.53	
120	-31.89	71.84	71.82	45.49	36.32	93.13	79.94	78.62	88.65	61.57	51.96	54.72	
121	16.83	67.87	57.76	60.84	48.35	69.88	52.83	49.73	-12.25	14.67	20.69	37.40	
122	41.52	25.54	87.95	79.10	28.91	28.87	27.68	33.18	-15.34	8.27	24.82	61.52	
123	-23.64	-61.17	-26.96	-39.79	7.75	-34.46	87.53	33.07	30.31	17.82	21.46	12.54	
124	-44.30	11.62	-19.79	-90.63	-17.83	10.95	-41.16	11.16	-10.20	0.37	22.99	-10.39	
125	-33.38	-7.94	-11.63	-82.88	-79.61	-10.74	-44.41	-19.54	-34.10	-62.49	10.92	-53.56	
126	-27.18	-24.22	-29.21	-171.10	-74.20	-108.98	-112.51	-3.87	-146.32	-122.59	-49.41	-107.54	
127	-121.31	-20.82	-52.51	-90.03	-147.78	-156.91	-89.39	-83.37	-57.55	-162.39	-60.12	-167.01	
128	134.09	-106.27	-56.18	-66.23	-181.10	-59.73	-106.40	-110.51	6.20	-55.16	-48.76	-4.19	
129	79.89	-110.51	-32.71	8.55	31.35	-13.82	-26.04	-93.10	-39.98	-15.40	-61.37	48.59	
130	18.72	-88.74	-55.37	18.26	23.70	-22.71	31.59	-42.26	28.38	42.83	33.24	20.44	
131	-9.21	-2.29	6.16	30.79	33.84	-8.27	20.86	-13.92	-2.01	68.19	35.09	6.09	
132	-41.25	39.30	17.73	38.53	122.27	-5.14	16.06	15.34	27.60	2.19	32.10	-3.25	
133	-4.91	41.64	51.68	24.80	70.39	8.49	33.88	20.10	-85.96	36.95	86.37	17.63	
134	13.99	59.04	5.09	20.06	35.55	22.58	-43.66	-10.29	-105.08	19.09	54.01	-14.24	
135	30.44	139.63	-27.29	6.38	-22.95	2.97	-36.75	-37.50	-4.43	-2.37	47.63	-46.84	
136	-26.81	-72.07	-55.25	-18.28	-43.13	-37.64	2.32	-14.48	-6.52	-87.79	-16.83	-116.65	
137	-143.45	-62.21	-51.18	-17.28	20.73	-36.52	-0.57	11.44	140.56	14.36	-103.14	-83.03	
138	-40.91	-33.22	-56.78	27.24	56.91	55.60	56.65	61.21	80.37	-58.61	-167.70	39.08	
139	68.36	-22.87	-13.60	-45.85	13.48	108.87	44.95	29.45	41.70	-105.38	21.92	53.82	
140	-42.31	-15.06	26.79	-91.65	-36.33	-54.44	20.79	-11.09	-6.25	-42.10	71.60	38.70	
141	79.99	65.85	59.31	-8.38	-70.66	-27.26	-40.96	-18.21	27.28	63.44	61.24	57.57	
142	8.67	67.41	117.87	39.69	47.73	94.67	-43.92	55.09	5.32	93.95	40.34	133.20	
143	-44.57	60.49	120.19	74.26	68.87	122.13	22.67	83.22	2.76	98.81	96.54	67.09	
144	28.34	70.41	65.51	85.64	70.91	73.36	99.25	78.03	27.42	87.02	71.82	43.65	
145	40.84	30.31	29.05	4.03	56.75	116.06	57.84	56.53	49.07	-7.02	29.86	-7.13	
146	43.09	-7.74	11.63	16.61	59.97	22.89	42.29	23.45	5.88	9.24	16.36	22.54	
147	25.69	-9.14	6.39	49.14	15.37	-8.07	0.50	22.31	18.98	3.88	-8.14	15.33	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
148	-2.20	-15.79	-16.39	-6.17	0.22	95.63	-19.99	9.76	-17.04	-33.73	-17.59	-12.59	
149	-47.20	-77.13	-60.87	-100.67	-25.53	-55.61	-22.16	-0.83	-33.20	-44.92	-51.38	-74.60	
150	-138.54	-169.98	-154.99	-125.49	-52.69	-177.02	-57.75	-5.60	-87.96	-153.36	-72.23	-143.65	
151	-28.60	-201.50	-141.75	-38.08	-83.89	-108.63	-104.26	-48.76	-71.01	-163.51	-185.02	-171.58	
152	-12.16	-32.06	-63.13	-32.41	-76.53	-19.08	-114.39	-91.22	-3.63	133.65	-145.44	-43.08	
153	-69.37	30.94	80.51	-18.95	-1.13	-17.65	-32.08	-96.31	-29.49	16.35	-23.69	-1.94	
154	61.85	51.93	-2.01	42.51	-33.82	17.31	4.70	-66.46	-34.86	12.83	6.34	2.90	
155	-9.34	36.44	-10.44	53.49	39.84	10.64	39.60	-32.10	1.75	35.63	27.91	1.54	
156	11.68	178.92	-32.16	11.78	84.74	31.01	5.90	-41.68	12.34	-7.44	7.34	-8.79	
157	31.19	67.39	51.27	0.70	45.57	31.25	0.58	11.95	-10.58	-33.39	32.90	8.16	
158	37.15	37.45	11.00	78.88	38.52	-33.94	6.00	7.41	27.22	-2.25	57.99	1.72	
159	-17.84	-51.02	-41.30	9.92	7.83	1.32	-22.24	-5.88	-41.22	15.23	35.04	-22.35	
160	-5.39	-78.71	-32.15	-28.06	-11.67	3.62	-39.14	-16.06	-10.54	36.94	-16.79	-115.10	
161	-32.26	-168.76	-54.27	-34.51	-37.63	-12.76	16.53	-12.38	8.53	-23.36	-37.92	-72.08	
162	52.34	-95.28	-14.15	58.84	-22.47	33.87	30.17	25.47	4.61	6.94	-114.85	-5.24	
163	-35.29	5.56	-12.93	-45.95	15.33	14.67	-25.82	22.14	-8.10	-51.09	40.76	17.50	
164	9.74	75.00	88.40	-136.69	-12.01	-7.66	-75.18	-19.81	-44.56	-1.87	97.95	101.78	
165	74.32	88.48	84.77	-43.64	-14.56	-94.60	-24.56	-22.92	72.51	-12.98	48.29	70.44	
166	105.00	117.06	104.37	16.09	-29.20	-82.67	12.05	8.19	51.00	78.52	68.74	173.08	
167	19.18	53.31	75.94	58.07	71.44	24.30	94.45	35.18	53.17	61.31	77.59	134.03	
168	34.97	71.62	44.37	10.97	78.54	123.79	98.73	176.84	34.60	-17.60	54.30	20.06	
169	53.11	15.14	90.96	-9.82	51.74	64.93	72.76	95.29	-9.10	48.99	40.35	90.66	
170	41.73	54.30	23.88	6.06	-30.89	37.81	29.31	25.66	0.03	73.33	26.26	-76.36	
171	4.57	16.41	-17.69	122.66	-13.76	-54.68	6.22	16.16	4.93	95.21	28.23	26.63	
172	-6.33	-7.24	-40.53	-9.01	51.87	-2.31	6.45	44.80	-2.32	12.97	20.16	15.08	
173	-23.24	-57.10	-32.60	-84.78	-22.80	42.90	-26.05	-54.41	-8.16	3.40	-4.48	133.11	
174	-26.54	-169.16	-203.84	-141.36	-24.46	-86.77	-86.87	-66.87	-117.80	-21.79	-74.09	-88.98	
175	-49.48	-149.95	-143.20	-88.16	-46.54	-88.12	-128.70	-112.63	-96.12	-58.65	-139.50	-185.30	
176	-93.26	-26.55	-74.22	31.50	-92.48	74.56	-34.93	-77.24	-12.98	-24.01	-132.96	-21.49	
177	-80.88	-17.55	4.16	106.72	-77.17	-8.20	-59.21	-15.68	16.44	-46.94	11.06	2.47	
178	-0.60	-19.91	22.02	23.56	-56.33	-101.65	-38.39	-27.06	25.22	-8.97	-3.38	35.62	
179	-79.19	-29.57	-28.15	-59.80	-29.95	-96.52	-91.26	-68.51	14.86	-81.58	8.34	-17.85	
180	-4.80	-19.53	-15.33	15.46	-84.03	-8.24	21.27	-88.83	-15.90	14.63	-11.27	-23.91	
181	25.31	117.36	62.56	41.97	8.51	-31.07	-7.40	4.62	22.74	105.40	30.66	8.86	
182	44.38	115.34	9.06	-0.47	53.32	32.48	39.78	13.96	18.53	18.87	33.99	53.77	
183	-18.37	12.73	-2.07	8.97	17.70	-23.34	91.68	-43.69	-5.09	6.10	6.87	-31.57	
184	79.02	-97.17	-28.78	-15.76	-1.26	-22.75	7.67	6.89	-41.24	-4.78	-15.78	-89.11	
185	-160.47	-173.64	-117.24	-20.35	13.05	43.47	20.73	26.87	-15.17	-20.99	-121.12	-179.62	
186	124.31	-8.21	-125.09	12.25	14.03	20.38	42.02	20.86	51.40	-17.28	-125.22	16.08	
187	4.56	46.34	-0.86	-38.82	-10.23	17.43	55.24	19.66	17.14	-23.55	1.56	44.13	
188	-47.08	113.73	8.84	-88.98	-57.23	5.02	56.97	57.55	-52.27	55.40	112.84	40.49	
189	-18.51	95.91	140.36	5.07	19.10	-29.72	-2.90	22.02	55.90	47.43	2.39	55.31	
190	70.93	39.30	102.34	58.42	68.31	86.23	-6.23	110.89	62.21	45.90	42.56	97.71	
191	78.59	74.71	82.11	43.32	111.39	95.90	4.56	109.93	88.56	-15.10	106.52	100.54	
192	82.16	60.47	27.95	18.38	101.52	71.91	63.46	67.79	78.36	67.29	73.10	38.58	
193	56.26	59.55	20.60	19.35	33.14	67.16	98.49	24.44	34.28	14.40	19.72	20.89	
194	6.82	18.37	-12.86	20.46	1.51	101.95	42.14	-7.54	22.83	10.66	14.69	17.17	
195	17.40	14.47	29.50	22.06	1.84	13.17	38.54	-6.05	14.69	18.35	15.61	12.34	
196	9.21	16.51	6.75	-2.64	2.92	43.25	21.52	7.61	-0.79	-7.01	-23.47	28.14	
197	-9.03	-0.22	-87.66	-15.33	-31.53	39.14	18.85	-11.16	-22.54	-35.42	-37.38	-65.80	
198	-47.42	-127.20	-175.86	-61.07	-121.29	-12.47	17.59	-65.09	-70.80	-23.72	-77.25	-90.37	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
199	-79.37	-85.92	-90.17	-72.79	-149.56	-220.76	-25.43	-102.36	-108.76	26.25	-128.48	-191.19	
200	-87.21	-58.06	-24.71	-67.82	-17.68	-57.22	-128.49	-59.26	-10.99	-73.95	-124.38	-4.60	
201	-82.11	28.23	15.61	-11.92	20.97	12.36	-183.30	-73.09	-13.55	-112.71	-18.53	-0.52	
202	5.19	22.77	33.66	11.00	-91.01	-68.02	-41.96	-34.39	-46.73	-12.82	54.65	-28.34	
203	-15.47	4.10	12.30	27.15	-27.06	1.73	-16.00	-21.94	-29.76	31.04	-8.89	-15.99	
204	44.59	7.72	45.81	68.79	52.45	26.72	-8.44	124.57	18.02	3.47	16.97	13.29	
205	-8.69	14.33	52.76	39.80	15.24	-24.35	16.40	28.98	-17.63	21.22	32.66	43.01	
206	-4.72	8.02	19.89	49.38	24.18	-3.78	-13.30	20.56	-16.41	22.90	11.65	24.13	
207	-3.14	5.80	-1.47	13.55	-55.14	11.97	0.75	-20.23	8.24	-3.69	51.40	-32.62	
208	-37.61	-97.10	-32.74	-19.43	-35.91	-16.70	-34.61	-29.47	-15.01	-45.19	68.32	-97.10	
209	6.59	-131.95	-60.62	-15.64	-30.98	83.65	-24.21	-18.18	6.70	28.17	-10.93	-140.90	
210	-2.47	-28.74	-43.95	-1.44	31.90	-62.88	24.50	31.13	30.51	15.62	-81.03	0.09	
211	-7.10	-8.59	-82.80	-3.52	29.44	-7.72	62.85	-2.24	12.95	-65.57	-19.51	89.98	
212	147.96	31.65	-14.12	-38.87	4.08	-68.24	36.19	-16.10	-17.86	37.50	-22.58	120.25	
213	46.17	43.27	58.12	8.68	91.78	-21.78	5.63	-19.47	115.77	90.35	-43.86	52.39	
214	47.29	68.25	95.61	73.64	79.91	158.50	37.29	96.26	67.46	87.57	81.89	162.14	
215	55.97	60.64	49.69	74.10	101.20	103.79	63.45	105.92	80.85	20.84	81.48	81.53	
216	68.43	35.37	29.82	51.39	61.66	85.97	75.90	53.42	1.73	13.05	120.82	72.70	
217	44.46	12.07	50.26	14.75	31.23	54.59	97.49	22.79	55.12	45.47	47.98	53.97	
218	11.51	44.82	16.10	0.17	20.78	13.83	51.70	18.59	4.48	0.63	55.94	44.27	
219	-2.42	23.04	16.99	30.83	23.51	-41.92	21.55	43.64	20.71	-19.92	44.77	14.59	
220	-11.16	-26.00	-19.82	14.62	0.20	-46.74	25.25	11.41	6.91	-4.79	35.36	13.07	
221	-64.11	-77.38	-54.95	-66.29	-63.56	-97.10	7.90	31.68	19.97	1.86	4.34	15.38	
222	-155.88	-149.17	-148.54	-57.57	-127.71	-40.97	-27.10	1.04	1.04	-34.58	0.77	-41.42	
223	-141.33	-133.51	-114.26	-48.11	-70.93	-136.72	-56.50	-98.81	-48.01	-61.02	-55.61	-114.66	
224	-37.64	64.49	-65.46	-29.31	-62.31	-22.22	-117.64	-108.16	-11.45	-92.53	-87.79	-80.68	
225	130.89	-117.48	17.08	-69.11	-3.73	-0.78	-90.24	-38.33	-61.65	-95.43	-42.51	-19.49	
226	26.48	16.51	34.87	-27.28	2.12	38.56	-47.34	-17.40	-16.29	-90.79	0.80	-42.59	
227	-60.42	32.11	29.31	18.38	-73.68	-75.46	-26.37	-36.93	0.98	40.48	-0.87	-11.85	
228	5.72	118.17	14.65	13.00	-6.54	20.58	-34.55	7.83	11.37	84.52	-33.72	15.69	
229	21.02	19.44	35.13	50.81	27.54	19.87	66.80	24.40	38.04	-39.87	-5.63	6.26	
230	7.77	117.27	44.77	40.95	45.15	16.40	34.13	-16.99	28.78	-31.84	49.79	-25.46	
231	52.66	-8.99	-7.23	29.20	-26.13	31.62	2.97	-23.22	-3.51	15.65	9.65	-39.64	
232	-38.43	-111.84	-44.25	-10.04	-32.87	-13.21	-37.01	-81.53	-20.12	-34.87	-12.33	-241.74	
233	-83.08	-99.49	-25.80	-0.12	-79.17	21.77	2.17	-16.71	-23.94	4.74	30.59	81.78	
234	33.38	46.53	-36.01	52.69	40.49	47.95	59.04	29.23	8.35	30.92	-26.21	13.55	
235	3.76	50.27	2.03	-39.04	17.86	32.11	-54.11	-52.28	-28.88	-97.23	14.41	22.34	
236	41.01	0.46	7.54	-72.96	-4.48	-8.40	-42.44	-18.05	-50.63	-5.34	-5.19	69.83	
237	4.13	113.10	132.91	24.08	21.38	-85.40	-37.90	63.22	-3.66	111.72	68.26	55.10	
238	7.86	32.76	92.04	111.22	101.82	-60.91	-3.80	114.00	106.80	41.28	15.90	109.58	
239	57.88	-32.91	104.52	118.41	102.20	87.19	118.41	94.75	24.87	109.20	61.14	44.11	
240	66.09	-26.41	70.00	63.60	52.92	91.36	110.28	77.16	-6.67	61.14	69.46	37.22	
241	27.66	52.22	85.70	35.95	64.30	13.25	55.70	54.62	59.35	19.85	65.74	10.66	
242	17.75	62.99	16.63	22.13	47.62	93.62	37.85	1.18	-24.02	34.28	65.36	-2.47	
243	25.65	-24.74	3.17	26.57	-5.32	20.65	12.69	-19.98	4.66	12.06	-24.92	21.60	
244	-27.67	64.24	11.01	-26.90	-16.06	29.17	4.12	10.17	-5.21	-25.89	15.76	-3.70	
245	-63.89	-62.90	-35.81	-56.39	-61.08	51.84	2.67	-11.82	-51.12	-66.33	2.90	-47.04	
246	-45.07	-155.55	-132.51	-139.90	-110.87	-38.95	-82.29	-64.29	-77.34	-96.08	21.04	-54.24	
247	-112.52	-181.03	-126.83	-134.27	-115.37	-105.55	-122.85	-64.31	27.62	-161.53	-17.48	-73.37	
248	-33.23	12.17	-52.20	-43.82	-46.46	-82.94	-112.52	-43.58	-23.48	-48.35	-55.93	-38.05	
249	44.60	36.93	24.33	-15.46	13.46	-33.92	-52.21	-39.32	-27.07	-25.12	-5.53	-49.22	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
250	-59.78	5.62	64.31	16.09	-30.83	76.26	-41.09	-41.35	-40.14	-3.47	-70.55	-36.99	
251	49.48	-6.89	15.15	16.24	-10.15	-36.34	-76.93	-36.24	44.64	93.90	-26.79	-71.39	
252	22.71	107.91	32.29	25.39	39.73	25.40	-12.84	10.98	9.30	26.94	-20.19	-13.09	
253	-16.63	10.37	18.99	25.04	57.25	42.84	36.49	8.78	-0.18	20.04	-101.72	17.02	
254	0.05	-12.29	16.34	27.70	42.15	-5.67	18.24	30.51	-0.10	14.83	19.13	42.07	
255	11.11	-51.09	-50.04	-22.55	5.04	-53.95	-1.88	24.46	13.39	-0.37	57.29	1.90	
256	19.81	-72.97	-2.69	-34.08	-131.40	-49.57	-9.87	-65.20	-22.69	-37.60	14.38	-92.61	
257	-141.66	17.82	-32.03	-18.98	-13.58	-24.50	7.97	-60.48	-23.44	-33.43	-16.25	-173.05	
258	81.39	9.28	-3.41	35.27	18.90	-10.88	31.65	-10.79	32.70	-169.38	-9.34	-76.27	
259	1.47	32.20	15.44	5.85	13.44	2.71	41.37	27.03	-4.26	72.14	53.89	49.75	
260	-64.75	9.66	37.57	2.84	-59.86	-19.96	8.49	-13.44	-34.77	3.86	8.39	13.84	
261	-5.42	19.69	80.30	52.72	21.57	1.07	13.95	59.84	91.67	20.89	-21.71	37.72	
262	8.01	-13.98	85.76	87.46	147.07	62.18	103.50	64.56	77.44	113.90	108.12	116.51	
263	19.17	32.82	79.27	136.25	53.42	97.00	127.54	27.97	23.83	-22.81	-87.67	171.93	
264	82.37	58.55	61.64	72.72	39.99	50.56	90.38	-3.72	25.97	63.80	52.41	110.00	
265	11.43	39.46	70.50	41.82	55.32	46.14	65.45	67.38	25.41	71.08	76.19	64.89	
266	14.02	73.03	38.01	31.87	22.54	53.73	41.19	136.59	19.19	20.10	9.95	27.97	
267	29.82	13.70	3.29	0.66	17.93	0.64	18.17	49.23	17.08	-20.13	16.59	16.75	
268	6.89	-25.60	-2.94	-8.43	16.16	16.07	-0.69	-4.22	-31.50	-43.19	-2.87	13.73	
269	-79.52	-14.63	-6.30	-54.66	-49.94	13.88	0.11	-64.00	-49.11	-5.06	-17.48	-65.44	
270	-89.71	-16.88	-68.99	-129.80	-109.49	-57.89	-52.96	-75.18	-72.86	-24.57	-48.42	-162.52	
271	-65.99	-126.04	-92.61	-122.35	-141.48	17.20	-132.11	-84.09	-78.80	-132.68	-79.70	-125.69	
272	22.13	-82.50	-106.91	-76.57	-70.94	-89.35	-62.69	-13.76	12.03	29.95	-100.06	-0.91	
273	69.54	116.21	-58.50	23.52	-18.11	-67.76	-5.20	-17.36	6.96	32.91	-103.40	34.04	
274	24.78	-6.72	-22.38	41.34	44.18	-65.55	-93.01	-36.75	28.66	34.69	-67.03	111.57	
275	4.81	-78.76	-12.49	117.85	16.29	-74.33	-37.72	-21.19	-94.25	-29.32	-34.57	32.33	
276	-38.55	101.88	50.14	4.75	47.87	-4.86	-50.36	24.93	19.43	-36.54	82.05	42.68	
277	-19.99	39.54	44.23	-38.37	-14.12	14.33	-71.64	-4.45	-42.96	25.31	39.63	7.99	
278	0.77	18.96	37.11	21.40	66.66	10.00	40.98	6.67	-17.65	18.92	-37.31	44.85	
279	57.23	-17.46	-12.21	-21.21	-5.37	-1.96	44.14	16.69	-14.99	-13.94	26.10	-27.81	
280	-16.58	-11.15	5.28	29.38	-71.56	-55.34	-8.39	3.19	-29.59	-81.51	13.32	-123.36	
281	-37.46	-52.98	-37.31	-62.66	-83.45	-45.83	-19.60	9.61	-9.89	-35.78	-88.20	-201.23	
282	43.26	-39.85	-38.74	28.81	22.98	-2.43	-3.66	-20.67	81.16	-27.93	-153.28	20.92	
283	36.61	-90.38	-20.10	6.56	-22.92	34.41	-19.23	12.56	-5.97	-102.81	-39.49	36.58	
284	55.56	127.49	21.23	-87.61	-51.54	-30.13	-20.42	42.03	-42.46	34.22	27.18	31.50	
285	-55.61	38.53	43.73	2.49	17.29	4.35	-34.10	0.24	60.94	58.51	68.09	-74.86	
286	83.70	34.55	45.43	60.27	128.71	162.98	77.85	84.56	79.91	113.12	44.97	119.23	
287	62.06	80.03	71.33	3.37	95.03	90.02	94.21	-6.69	51.06	57.49	86.21	108.81	
288	53.02	68.98	47.33	23.81	53.11	85.19	94.88	41.08	2.82	70.41	79.88	73.26	
289	31.81	42.83	22.43	-25.06	-15.35	89.82	56.34	46.04	25.89	47.52	55.00	22.74	
290	36.15	61.41	29.99	15.63	29.91	15.52	24.12	17.22	-26.34	53.41	29.99	31.79	
291	77.25	25.69	-31.31	16.96	2.37	-2.30	60.43	-28.75	-26.79	-12.97	23.64	28.25	
292	-16.01	-45.91	-32.60	-21.80	32.78	3.55	-40.72	-9.97	-9.75	-22.71	7.13	20.58	
293	-74.50	-20.07	-32.31	-100.92	-50.63	-46.06	-44.70	36.11	4.07	-43.23	-31.06	-52.32	
294	-147.55	-22.81	-26.56	-151.65	-122.95	-31.77	-52.95	16.19	-68.49	-72.98	-39.70	-133.17	
295	-135.87	-76.21	-64.13	-25.73	-115.58	-179.52	-119.89	-99.05	-185.67	-130.67	-27.97	-223.28	
296	-28.34	-97.31	-48.86	-52.38	-18.80	-109.39	-106.71	-44.84	-57.50	-59.27	-59.86	-54.47	
297	-4.66	32.37	-45.10	30.66	-9.41	-41.10	10.14	-88.23	-62.97	-27.69	-86.66	64.00	
298	-11.57	20.35	-12.89	-5.07	7.32	-11.61	-16.95	-139.08	-73.60	-36.52	-44.61	-8.77	
299	-8.42	-86.19	-3.10	-24.22	37.79	-87.51	-67.10	-87.78	-11.12	6.41	-6.07	51.44	
300	7.41	49.23	26.20	57.55	46.02	51.81	23.20	21.42	3.98	-10.45	-3.41	44.73	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
301	40.90	29.13	42.49	9.67	16.57	18.73	80.53	67.33	4.35	28.37	5.61	24.35	
302	32.28	38.00	5.54	-13.02	19.91	-30.02	24.77	41.93	16.23	7.70	42.16	28.97	
303	85.31	18.38	-57.93	43.37	6.04	-111.33	-35.89	85.42	39.24	-2.66	24.89	-1.78	
304	-64.01	-43.86	-33.20	-88.57	-32.18	-13.61	5.76	-4.45	-16.80	10.12	23.69	-98.63	
305	-31.74	-66.15	-52.27	-11.47	-8.40	141.91	30.18	-15.23	11.20	-25.69	-91.30	-142.82	
306	33.75	14.18	-86.37	66.89	-6.28	68.79	37.20	75.45	51.66	-70.24	-158.07	19.74	
307	-33.81	-121.78	11.29	0.88	-0.45	-36.53	-10.13	3.68	4.28	-25.11	33.89	49.89	
308	34.14	32.71	75.88	-27.42	-65.05	12.33	-14.63	-13.18	-61.72	65.79	77.43	23.50	
309	9.45	-19.19	113.56	-14.80	50.58	27.78	5.45	-23.09	87.31	76.14	95.61	63.99	
310	95.45	25.56	118.86	143.18	131.80	13.28	108.07	51.55	120.24	117.00	103.49	80.91	
311	60.74	63.84	82.98	139.65	63.53	44.20	80.01	18.69	146.46	89.39	79.25	49.53	
312	38.57	70.87	52.12	74.13	13.34	62.81	54.94	71.13	86.90	99.10	52.94	63.75	
313	28.00	71.88	15.14	19.60	8.38	103.31	38.53	53.66	53.90	51.81	31.15	46.46	
314	20.34	18.56	-1.43	44.12	94.52	22.71	1.59	32.71	31.17	7.90	78.38	47.32	
315	1.97	26.64	-17.38	42.63	24.50	28.04	26.10	24.76	-9.12	-14.53	13.79	55.78	
316	-16.30	-3.49	-62.09	32.15	-39.05	23.96	63.78	19.30	14.09	3.83	23.42	15.25	
317	-72.89	-53.76	-162.26	-39.36	-35.03	-1.46	-25.86	3.82	-32.11	-2.71	4.37	-54.58	
318	-161.23	-117.51	-156.82	-153.17	-25.79	-66.82	-132.46	14.17	-114.56	-129.89	9.53	-172.27	
319	-136.66	-60.02	-78.67	-78.23	-98.75	-77.60	-41.72	-23.28	-75.92	-144.59	-60.76	-172.37	
320	-38.83	-31.03	-49.13	-5.51	-104.90	-46.49	-24.15	-103.79	-84.41	-7.21	-151.89	-77.73	
321	92.04	-5.35	-5.27	-19.62	-81.00	-18.48	-49.03	-103.49	7.17	-9.44	-47.40	-26.11	
322	28.26	5.87	-19.95	-77.57	-27.09	-94.62	-0.01	-83.12	23.83	-11.38	-14.73	75.52	
323	-4.70	41.81	5.58	0.57	-60.12	62.04	-52.31	-41.77	-5.23	-28.55	10.44	80.24	
324	-58.09	-11.77	13.97	72.18	45.67	-8.30	-7.46	-7.78	-28.61	4.25	22.38	42.92	
325	-22.44	61.27	12.64	30.84	100.49	-9.93	12.66	27.00	73.76	1.79	13.78	45.94	
326	7.50	5.62	14.37	23.45	-1.75	10.40	-24.65	31.16	-3.74	56.61	18.52	1.68	
327	-43.71	-33.84	-32.09	-34.49	3.90	-21.06	9.49	15.51	-6.13	-20.57	-8.33	-64.32	
328	-23.39	-36.27	-29.79	-89.07	-14.61	-53.18	-10.56	-34.74	-64.28	-24.39	-4.97	-215.14	
329	28.71	-17.77	-4.89	-24.89	5.49	-48.21	-13.42	-27.87	-29.20	-43.21	-60.24	-88.66	
330	30.87	1.90	-42.12	60.08	15.19	-18.34	-35.97	5.16	24.54	-7.55	-104.10	60.61	
331	44.71	53.69	-18.71	15.20	4.29	14.65	14.62	-29.02	-4.68	13.54	31.71	16.30	
332	52.23	46.78	50.17	-68.50	-29.23	-20.72	11.93	-64.27	-116.64	46.03	52.76	71.77	
333	-35.07	78.86	87.93	-16.56	-39.22	-105.56	-1.81	-51.51	79.21	18.44	55.21	65.86	
334	9.03	39.22	51.85	94.69	26.71	170.19	73.94	144.31	130.01	65.81	67.92	48.20	
335	44.38	22.22	10.88	47.56	67.89	135.00	63.12	66.07	93.63	118.51	94.06	11.23	
336	22.59	10.04	31.53	67.22	100.72	13.71	51.43	82.94	50.25	95.91	31.62	21.65	
337	31.48	17.30	33.32	89.87	49.92	86.98	8.11	21.32	-1.31	54.52	0.65	44.43	
338	34.97	11.41	4.11	56.40	17.37	-22.23	55.41	22.09	19.97	48.86	36.85	93.81	
339	11.48	55.15	-29.94	24.84	31.76	-1.91	36.22	1.76	23.02	25.38	4.12	39.91	
340	1.80	-0.64	-55.24	-20.08	33.49	-7.61	21.83	-11.29	-12.34	28.49	-41.79	38.73	
341	7.07	-25.41	-150.28	-78.71	-29.12	-27.28	-25.64	-16.86	-50.23	15.40	10.13	-88.39	
342	-18.94	-117.54	-132.44	-155.03	-31.93	-99.38	-78.77	-54.76	-136.34	-33.56	4.20	-146.74	
343	-43.30	-144.42	-27.76	-140.36	-78.34	-110.41	-107.49	-78.90	-143.69	-61.01	-52.80	-59.34	
344	-167.93	-42.44	45.14	-59.22	-0.46	-51.50	-93.56	-29.34	-66.18	-78.72	-126.02	-15.43	
345	-43.61	-40.94	47.65	34.24	-80.82	2.16	-30.16	-60.42	62.83	-93.86	-47.70	22.47	
346	3.08	3.03	24.92	16.45	-65.92	-68.05	-36.99	-78.41	57.93	5.20	-6.46	-61.74	
347	-26.06	48.94	24.36	5.13	-91.76	32.75	-3.58	-96.86	43.03	6.43	24.92	-31.72	
348	3.22	32.58	55.61	-16.13	64.45	3.54	26.37	-47.82	-52.93	12.14	-9.70	52.99	
349	11.18	8.14	62.85	10.41	45.55	16.32	-12.79	80.26	40.90	2.25	30.65	131.11	
350	21.78	4.96	12.11	9.74	12.31	51.44	-4.00	35.59	32.57	16.20	2.35	62.61	
351	55.13	-18.16	-4.15	-17.20	-0.49	-29.77	5.22	49.77	-26.83	39.35	28.67	-48.52	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
352	-77.65	-85.47	-5.36	-15.84	-34.74	30.37	11.94	-44.80	-17.62	-43.25	-27.12	-94.89	
353	-133.39	-52.48	33.91	9.35	-78.04	-55.86	15.50	2.26	-12.81	-34.43	-114.12	-120.64	
354	52.06	-37.34	-61.31	17.74	19.41	47.60	26.44	-7.79	46.70	4.83	-94.88	11.71	
355	77.18	-53.80	-40.19	-23.27	41.26	0.39	21.64	36.58	-38.47	-70.54	10.31	120.64	
356	-30.69	19.93	57.94	-72.37	-38.07	-56.88	-2.08	-1.83	-32.31	-16.47	17.25	39.71	
357	54.31	61.08	137.52	-34.88	-0.43	2.36	21.22	51.41	36.53	20.15	29.60	18.14	
358	13.96	90.06	92.86	61.24	80.22	102.94	76.37	221.47	56.34	111.92	66.90	120.00	
359	92.28	25.83	40.00	40.44	118.83	112.50	90.88	105.81	-0.50	44.27	95.06	110.01	
360	103.18	52.30	38.80	16.99	78.03	54.69	61.56	26.14	22.47	68.39	89.86	19.70	
361	44.99	12.07	44.49	27.71	52.81	47.36	53.08	13.98	33.72	45.44	60.24	63.03	
362	23.47	3.52	21.15	10.06	23.60	22.96	32.84	15.25	20.55	-10.50	-40.24	57.82	
363	23.07	53.99	-8.83	2.67	-12.56	-9.40	13.80	24.18	3.89	7.16	17.37	30.34	
364	16.04	-2.87	0.65	-7.74	-34.31	-10.48	3.05	-37.06	31.28	26.30	37.30	19.29	
365	-10.59	-116.35	-160.31	-25.93	-30.36	-45.57	-9.71	-37.69	86.15	2.98	-36.07	44.79	
366	-33.76	-158.99	-126.52	-61.65	-95.23	-111.37	-13.46	-128.19	-72.61	-2.41	33.11	-140.39	
367	-1.74	-16.54	-21.23	-75.86	-141.50	-123.89	-75.95	-116.78	-113.62	-49.58	-172.72	-156.29	
368	-3.34	-9.84	47.63	-76.47	-81.80	2.64	-113.86	-41.70	-19.89	-89.98	-161.74	-88.28	
369	-40.23	-2.91	75.09	21.79	-25.71	-3.91	-88.50	-98.51	63.07	-97.31	-84.54	-1.11	
370	19.75	39.88	39.43	-33.17	-29.01	-12.08	-38.38	-10.54	30.85	8.51	12.74	68.69	
371	3.68	47.88	1.08	-50.37	-10.72	82.74	-25.44	-52.32	-5.87	6.79	35.19	17.87	
372	0.74	31.81	24.35	105.28	-6.16	16.54	15.82	78.53	5.31	-13.35	27.69	22.08	
373	89.69	43.73	42.14	105.28	28.86	-43.60	8.83	-74.77	-6.50	9.59	39.82	-0.78	
374	32.69	37.03	25.12	-47.51	-20.47	79.65	4.37	150.59	-9.49	-16.56	10.88	23.28	
375	-22.22	-24.87	-32.45	11.43	-24.49	51.26	2.02	-0.37	-14.50	-30.67	16.92	-20.64	
376	-183.74	-61.11	-45.94	20.40	-32.75	17.84	-26.52	74.59	-4.11	18.90	-33.66	-74.55	
377	-168.48	-85.09	7.80	-12.13	-1.17	-8.03	-16.53	-181.41	25.97	-29.16	-92.58	-71.44	
378	55.27	-57.15	-7.33	-5.89	64.40	-122.41	13.09	142.20	23.12	-61.53	-116.83	36.73	
379	29.52	-55.60	-51.33	-1.09	39.57	-55.59	4.45	65.62	11.81	-68.54	46.00	-25.02	
380	38.80	76.00	77.86	-8.80	-14.30	27.97	-29.45	-25.36	-83.47	-15.16	63.11	-7.96	
381	93.75	77.98	76.13	102.87	46.33	-20.39	-55.95	-81.00	12.44	10.76	24.05	51.43	
382	-2.53	107.61	86.54	115.93	124.02	23.97	29.57	37.83	95.43	78.19	88.43	67.05	
383	24.50	81.25	26.03	105.64	98.43	72.43	90.67	114.13	70.65	133.21	122.81	56.09	
384	18.41	43.65	82.38	72.13	93.87	90.42	92.25	53.05	92.05	85.22	45.64	38.57	
385	11.18	55.55	-5.43	34.23	59.19	21.14	73.28	13.83	84.38	25.68	51.50	-30.69	
386	-25.42	49.02	-34.78	-55.53	35.61	23.77	-0.46	3.18	-25.99	29.03	11.04	80.26	
387	13.85	16.38	-9.72	12.87	-2.78	14.31	-13.29	44.51	-37.13	6.10	17.83	-34.61	
388	18.76	-2.17	-60.90	-0.98	-15.82	30.41	-2.39	23.04	-22.03	-5.07	-1.88	-9.18	
389	-85.57	-31.73	-132.48	-4.56	-74.00	14.85	-11.28	-42.26	34.27	-56.77	22.94	-69.74	
390	-211.10	-144.26	-109.18	-40.08	-126.80	-129.20	-9.91	-101.69	-43.83	-144.88	-29.07	-98.18	
391	-176.60	-120.58	-75.37	-33.36	-32.34	-182.29	-39.27	-80.22	-63.43	-118.89	-146.01	-91.39	
392	49.45	-37.52	-20.59	-68.68	22.92	-69.14	-49.79	-50.78	-127.62	-22.61	-153.66	-145.94	
393	110.85	26.58	24.72	-93.15	-22.92	21.42	-72.31	-59.64	15.27	14.60	-57.92	-68.40	
394	13.40	26.74	2.09	-42.36	-113.38	-5.07	-54.72	4.98	36.98	-14.05	19.18	-2.11	
395	-36.44	36.89	-12.28	12.55	-36.28	-126.52	-62.34	-16.54	13.82	-22.14	49.31	42.20	
396	107.49	44.52	32.42	1.23	49.12	45.02	-10.38	32.46	31.28	20.75	24.10	98.97	
397	14.51	61.50	40.06	0.65	13.37	21.98	31.17	-5.50	23.42	-10.02	18.66	54.06	
398	23.45	32.45	13.72	39.66	17.39	-23.54	29.71	-4.23	16.15	42.25	59.40	15.80	
399	50.77	20.06	-3.00	16.87	-32.13	85.33	19.55	-15.48	9.09	-8.25	-5.50	-0.09	
400	-67.39	-12.78	1.68	-2.01	-37.51	-3.34	-22.28	6.02	1.62	-41.16	-47.34	-114.01	
401	-203.13	-81.40	7.07	-23.31	-31.46	-19.47	26.72	-2.01	-40.05	-21.91	-129.11	-77.21	
402	49.06	-68.97	-63.77	58.20	3.71	20.49	39.36	69.39	-17.00	-4.33	-100.12	-30.27	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
403	31.14	-20.61	-63.14	24.54	23.75	-11.80	-15.59	36.37	-52.39	-40.66	24.10	1.87	
404	-14.17	84.96	45.05	-14.67	27.63	7.63	-21.68	-91.95	-47.56	-5.10	49.42	22.87	
405	45.49	87.27	111.99	11.62	5.72	23.64	-64.46	-17.59	12.06	70.68	34.85	3.89	
406	70.26	72.23	85.83	98.61	86.54	125.95	71.40	108.14	-0.67	107.33	70.71	86.78	
407	13.80	43.30	45.41	126.77	45.95	50.22	131.65	26.72	-8.84	89.60	94.10	109.53	
408	-34.50	38.16	34.05	42.52	78.81	61.79	98.04	62.57	67.79	55.54	93.80	114.90	
409	84.61	30.51	62.93	8.38	121.97	48.46	49.93	101.91	13.08	30.80	70.40	50.38	
410	85.44	5.47	103.31	19.57	17.66	56.15	41.67	102.18	-14.27	30.77	-5.83	34.93	
411	-0.12	-37.91	22.72	-25.41	-10.43	42.62	57.04	31.86	-0.05	20.60	52.67	50.07	
412	-16.18	-52.97	-59.69	-63.31	-12.75	-8.95	-6.72	-11.24	49.88	-0.17	-1.74	-8.88	
413	-73.72	-90.24	-111.21	-21.50	-68.41	-28.41	-47.02	-18.78	37.98	-40.25	9.26	5.50	
414	-177.50	-150.06	-104.26	-157.19	-83.20	-25.23	-97.70	-58.66	-40.61	-136.00	9.67	-47.94	
415	-148.96	-112.86	-60.42	-149.59	-160.46	-40.61	-130.05	-165.97	-26.99	-159.27	-140.03	13.71	
416	28.58	-45.89	-5.08	-41.38	-55.66	-118.84	-89.62	-98.83	-30.97	-10.36	-146.38	-60.56	
417	61.37	6.63	8.17	8.98	6.64	-70.75	-51.88	35.59	-25.96	5.27	-37.49	-64.84	
418	52.79	31.94	-5.19	2.98	13.27	70.08	-50.71	-58.95	-45.45	-8.27	15.71	-66.22	
419	19.55	8.48	29.33	19.75	1.99	59.34	-66.23	-103.38	-4.80	1.91	23.04	-112.55	
420	4.84	72.39	20.60	69.12	12.93	-48.28	-32.97	-0.51	21.88	-21.37	-8.75	-89.82	
421	21.46	-34.62	8.40	48.28	19.92	25.17	-2.90	51.00	8.67	-1.31	5.72	-27.71	
422	44.70	33.74	-57.30	31.49	23.85	41.13	36.59	63.35	19.75	4.68	15.93	11.39	
423	79.75	-8.28	23.67	9.10	-2.25	-8.43	-13.81	5.89	17.76	-21.48	0.09	50.16	
424	-97.97	-19.89	38.16	-7.55	-19.26	-64.19	16.07	-95.61	-26.36	-57.89	-30.11	-65.80	
425	-127.38	-33.66	36.70	4.34	0.52	41.36	5.83	-37.02	-11.19	-20.18	-77.03	-81.55	
426	48.18	3.40	-29.00	9.75	36.44	25.53	24.85	-0.63	10.68	24.49	-115.88	116.08	
427	50.54	43.87	-38.48	-27.30	16.12	-12.25	18.68	28.99	-57.66	-49.74	4.88	28.41	
428	59.22	68.97	40.92	-93.75	-33.00	-26.25	5.97	-15.50	-37.24	-7.58	53.98	-59.20	
429	-0.82	81.64	67.15	7.95	-45.38	-5.22	-19.21	50.58	61.86	90.75	41.33	-23.39	
430	129.83	100.06	34.94	124.82	105.52	50.67	86.65	114.37	64.42	120.14	55.35	153.81	
431	112.85	31.27	18.91	55.41	127.32	62.25	99.59	92.04	91.11	101.20	93.45	201.86	
432	46.40	-0.41	37.37	48.82	136.14	47.21	93.49	107.35	70.16	59.63	50.49	80.97	
433	39.91	55.66	29.82	58.81	-19.26	16.29	46.20	18.45	22.06	72.10	54.08	30.78	
434	49.35	33.85	-5.21	9.24	41.95	44.25	20.08	13.15	14.17	16.18	-16.40	13.79	
435	8.23	36.33	-24.87	-8.29	58.46	-54.63	4.47	4.95	-1.64	-3.23	26.86	-24.28	
436	-6.67	1.39	-32.49	-34.37	-4.65	60.98	-11.16	-1.20	-8.38	-48.20	-1.53	-34.63	
437	-37.57	-35.07	-71.13	-69.27	-72.37	24.16	-45.21	-41.34	-50.48	-49.21	-19.49	-79.43	
438	-143.85	-55.06	-88.36	-122.44	-117.35	-47.73	-71.23	-132.39	-144.72	-123.89	-23.10	-171.76	
439	-170.69	-79.97	-138.10	-162.10	-143.24	-59.01	-121.61	-66.56	-145.39	-136.62	-14.94	-199.72	
440	-44.47	-107.03	-103.49	-57.83	-85.27	-81.57	-116.30	-12.67	-58.28	-30.18	-70.98	53.55	
441	38.22	-75.40	-33.89	2.75	-29.62	-63.05	-63.20	-64.74	35.50	50.10	-90.13	-45.11	
442	33.74	-25.40	10.98	10.94	-3.87	-54.61	70.22	-40.45	50.37	48.01	-34.43	102.89	
443	-3.49	-3.57	40.52	-51.43	-35.88	-1.08	-20.75	-29.84	-44.07	-91.55	-0.77	-89.24	
444	-13.66	14.74	35.50	-19.99	-24.12	20.92	-9.54	12.46	3.83	71.58	23.97	8.57	
445	12.98	34.37	39.65	11.10	-1.62	113.76	-2.12	-0.40	9.25	22.24	72.71	95.26	
446	-3.91	20.52	14.95	12.41	54.68	71.06	-16.71	5.34	7.04	7.80	75.79	95.70	
447	16.59	9.15	-10.38	10.45	-5.84	-33.38	36.52	-10.36	-1.77	-33.90	52.18	71.24	
448	-67.65	-56.85	-34.22	-1.04	10.34	31.04	2.28	-36.72	-52.90	-2.81	-8.86	-130.77	
449	-55.93	-54.16	7.91	114.91	5.63	-24.12	-1.40	-18.27	-14.23	-16.51	-79.33	-181.50	
450	32.16	-45.25	-43.95	47.26	115.57	46.94	10.52	-19.01	33.93	-0.03	-94.35	31.01	
451	24.43	33.97	-38.68	90.26	-3.01	-23.04	-2.36	46.61	30.31	-35.51	32.06	93.94	
452	44.09	55.45	33.27	-94.85	-45.51	-64.26	-16.63	-4.43	-34.96	-37.91	58.85	30.25	
453	8.80	56.11	69.33	-8.81	-24.58	-53.34	-18.48	-11.89	61.01	31.19	36.93	0.83	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
454	47.50	69.04	101.03	38.49	71.58	56.34	53.10	84.53	141.38	86.79	59.95	124.88	
455	41.44	87.68	73.34	67.38	191.57	39.42	130.50	65.60	70.10	132.21	77.74	106.51	
456	47.42	65.78	53.57	52.96	53.32	86.70	90.24	114.77	3.88	99.99	63.40	72.48	
457	60.47	40.71	-17.03	43.54	57.65	-13.52	30.16	57.20	17.02	48.24	60.41	91.55	
458	8.93	19.16	-22.61	54.77	34.41	81.23	48.47	11.40	-3.12	16.94	43.68	42.99	
459	0.54	15.15	-7.44	94.59	34.97	8.02	16.15	36.88	-6.24	-14.68	6.44	7.21	
460	-16.25	-14.96	-39.94	-14.91	-24.79	30.33	6.06	47.03	31.21	-11.46	6.45	-32.46	
461	-65.54	-79.77	-31.37	-72.81	-53.72	15.22	3.49	-40.36	6.59	0.59	-11.21	-59.71	
462	-124.87	15.36	-45.78	-190.20	-157.60	-118.70	-76.95	-72.45	-4.01	-100.74	19.49	-106.94	
463	-87.02	-27.43	-61.10	-158.39	-157.71	-138.53	-155.08	41.64	-120.39	-157.06	-45.63	-135.05	
464	13.63	-64.63	-33.89	-28.04	-39.40	-107.73	-122.24	-184.98	-4.52	-58.17	-50.56	-31.68	
465	38.96	-102.93	-32.45	19.61	-41.34	-46.80	-58.46	-64.39	-0.45	-33.11	-67.97	-11.93	
466	-3.11	-38.85	-8.97	11.09	-23.03	26.31	-93.39	-72.64	-54.76	-29.68	-50.51	-12.75	
467	50.23	-12.75	30.65	-4.81	-9.92	8.25	92.97	-36.73	-61.38	-6.32	-20.28	16.33	
468	14.40	-4.83	59.90	23.99	-9.74	-69.25	20.47	53.55	-1.73	39.02	3.22	-1.17	
469	65.09	23.61	48.94	-6.19	43.12	55.32	-42.74	61.46	-0.89	28.97	17.01	42.14	
470	18.82	49.21	6.24	-0.56	108.74	9.87	-4.90	-2.16	-62.23	-23.55	33.26	11.44	
471	-23.86	10.92	-6.52	9.46	12.41	6.83	-25.24	-31.76	-0.35	-62.60	24.66	-22.28	
472	-91.95	-70.59	-20.75	-55.66	-5.19	37.53	18.07	33.41	-30.40	-35.93	-10.74	-112.96	
473	-135.16	-63.29	7.50	-18.71	-3.33	-56.37	36.23	-11.44	-71.56	-10.49	-105.61	-188.63	
474	47.93	-29.85	-73.66	30.46	36.50	72.95	61.76	56.89	38.44	4.40	-100.81	-2.71	
475	26.46	6.28	-83.92	-10.19	14.30	40.59	28.34	28.88	-43.43	17.80	44.94	21.70	
476	20.10	14.01	-3.78	-19.79	-13.49	-26.26	38.10	-95.31	-0.60	32.92	19.38	45.57	
477	-57.19	67.83	82.97	59.89	0.15	-13.89	27.04	1.36	95.63	119.18	39.26	58.00	
478	64.31	73.71	92.41	100.38	-13.46	11.39	93.23	98.87	123.78	29.57	56.36	132.67	
479	63.74	93.82	65.83	66.48	60.62	126.31	79.50	85.96	59.60	111.02	71.16	101.30	
480	88.40	60.61	1.27	23.43	87.42	10.49	100.33	69.49	62.42	98.82	82.67	84.47	
481	98.79	54.03	-1.63	-8.12	88.88	16.76	46.03	36.07	50.16	61.91	46.16	42.70	
482	-30.12	14.98	-27.01	47.08	26.22	-30.76	-19.81	32.80	-13.15	34.29	24.56	-25.91	
483	-5.88	-33.24	-27.45	22.55	43.46	26.67	1.46	17.35	-12.12	-3.97	-22.82	0.65	
484	-66.14	-26.75	-77.15	2.67	-9.37	27.78	81.57	3.01	-13.10	-1.68	-21.91	5.99	
485	-80.83	-78.48	-172.66	-43.33	-13.13	30.41	-8.96	-29.91	-35.81	-67.52	-14.10	-92.40	
486	69.47	-166.85	-166.84	-181.20	-62.85	-107.21	-70.08	-17.00	-101.46	-121.06	-17.99	-72.96	
487	-133.23	-94.73	15.38	-150.23	-117.61	-169.69	-195.27	55.04	-88.07	-157.68	-152.88	-141.31	
488	-20.90	-54.38	67.81	-60.00	-40.34	-58.18	-131.37	-167.28	-14.38	-13.11	-146.25	-87.16	
489	72.15	-5.24	24.10	12.35	-30.19	1.41	-75.08	-129.33	-16.35	-20.45	-70.69	15.46	
490	-64.83	4.63	58.45	18.56	17.32	-36.77	-40.69	-85.60	-25.68	58.68	-13.98	46.76	
491	8.52	-4.59	36.55	-3.89	17.46	-18.84	-35.37	-7.14	-54.74	19.02	-5.27	14.00	
492	-53.52	1.70	57.74	21.79	32.31	-27.93	-78.70	56.17	25.10	-9.82	-4.25	-27.40	
493	69.22	73.94	34.34	20.67	36.34	115.91	-8.46	50.83	1.47	28.01	-13.15	24.43	
494	-6.16	21.81	21.92	9.89	26.34	44.00	13.45	9.35	15.30	63.00	3.16	31.81	
495	51.55	-21.16	-41.79	18.38	4.48	-70.47	26.13	34.67	0.90	2.94	-9.64	-17.55	
496	-60.12	-84.10	-25.80	-18.41	-30.61	-17.61	-23.59	-39.02	17.74	0.52	-43.88	-22.21	
497	-9.84	33.19	-16.57	24.37	-29.05	9.96	54.37	-2.45	6.84	-21.28	-32.56	-86.26	
498	25.45	-42.48	-50.11	81.71	-56.23	42.18	132.09	46.06	2.33	-82.68	-105.37	60.25	
499	42.61	7.05	-35.40	52.32	-10.47	-18.55	-7.95	21.49	-23.05	-27.11	-86.15	61.97	
500	25.10	-14.92	66.04	-48.17	-45.34	8.81	38.78	-69.72	-25.73	45.28	7.00	9.25	
501	75.99	31.67	116.69	35.89	7.11	-8.11	73.52	15.30	82.05	17.47	31.11	82.47	
502	42.78	98.00	90.34	90.90	58.94	52.05	98.61	89.68	83.44	33.00	37.32	135.70	
503	23.50	51.27	33.28	41.79	85.81	49.08	158.06	67.93	64.05	97.50	86.03	121.68	
504	-27.75	49.11	39.32	51.77	72.58	77.99	57.24	110.41	50.15	55.81	75.97	83.39	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
505	10.01	32.60	71.73	68.80	-1.15	44.01	44.23	43.75	36.17	27.71	35.83	68.70	
506	7.54	31.96	26.81	68.21	16.20	33.08	32.73	-28.25	-3.66	-4.28	24.49	34.67	
507	12.48	16.30	-7.35	0.38	39.20	26.00	-27.40	14.49	4.07	8.06	17.96	34.31	
508	-4.67	-9.28	-53.72	-0.14	-49.98	-7.25	-45.38	10.55	0.93	-1.28	18.98	8.84	
509	-32.54	-49.57	-142.40	-30.00	-6.88	-16.66	-42.04	-17.96	-34.07	-27.89	-7.66	-28.98	
510	-67.32	-73.40	-152.66	-21.34	-18.29	-62.39	-83.13	-92.59	-56.45	-91.46	-66.77	-145.15	
511	-76.19	-43.37	-43.54	-74.51	-69.34	-145.02	-125.60	-37.26	-123.77	-89.26	-162.56	-149.67	
512	-23.90	4.66	25.54	-75.76	-62.15	71.32	-120.30	-108.02	-54.45	-24.25	-129.23	-82.88	
513	4.55	17.97	96.44	-44.09	-74.33	-7.30	-73.39	-81.11	-29.15	-25.99	2.31	-55.28	
514	-6.34	-18.80	16.84	-69.13	-66.71	-28.25	-17.51	-35.47	-21.90	-19.43	55.44	-19.60	
515	85.32	-55.14	1.13	-13.14	-19.67	-73.10	-30.44	-23.67	13.55	-101.22	67.16	15.95	
516	47.01	9.55	15.50	-0.14	-7.40	-3.87	-19.05	71.89	12.85	15.67	38.24	33.67	
517	65.18	-11.52	19.72	66.23	11.56	16.37	-6.24	25.22	11.62	27.38	34.49	14.08	
518	72.20	12.63	-13.57	74.18	29.21	21.71	-8.56	2.33	31.90	17.04	86.92	18.72	
519	5.78	-14.53	-40.38	62.74	16.19	-4.35	26.77	8.50	4.57	7.39	17.60	-23.73	
520	-23.92	29.41	-75.59	-68.16	-7.92	-35.40	61.66	-29.91	-51.57	-31.23	-34.44	-94.88	
521	-151.62	-16.35	14.03	18.61	-41.11	-4.81	22.88	29.33	-4.81	-35.26	-177.78	-130.47	
522	-80.32	-31.78	-46.52	15.54	14.45	-7.20	-7.71	24.98	9.89	-40.64	-153.22	-16.39	
523	61.79	1.14	-46.20	-22.48	5.71	26.64	34.86	12.41	-22.22	-13.95	1.74	23.33	
524	-21.41	27.50	39.43	-98.12	-26.38	-32.51	38.01	-109.99	27.20	50.83	-7.48	21.35	
525	-38.78	14.65	100.21	-22.91	-41.80	-93.71	-16.78	23.42	44.89	57.13	45.36	64.73	
526	110.92	114.35	74.62	59.03	45.50	-10.54	9.64	91.70	19.63	68.08	59.18	75.14	
527	34.85	60.23	39.86	108.14	73.57	108.69	33.70	73.44	88.49	81.46	210.05	94.13	
528	32.58	51.05	25.59	60.45	49.68	68.70	80.48	61.70	69.06	48.66	37.74	67.95	
529	-26.06	21.57	18.76	58.83	44.42	61.17	35.35	40.38	41.96	53.21	-10.94	43.88	
530	-25.11	7.34	8.14	-17.33	4.29	57.25	32.25	14.73	29.18	24.62	49.13	18.37	
531	38.30	-23.03	-23.83	11.46	27.40	-28.08	15.62	38.68	-1.01	30.95	-0.78	13.39	
532	84.41	-25.59	-27.48	4.95	74.57	4.03	-0.89	-12.66	-7.89	31.65	-5.95	-23.46	
533	13.22	4.85	-161.10	-39.29	50.70	-71.49	-8.46	-18.00	-39.22	-9.13	4.37	-45.53	
534	-18.49	-128.19	-158.15	-59.21	-28.37	-24.68	-20.40	-97.75	-55.66	-21.68	-0.24	-98.32	
535	-50.18	-46.66	-20.12	-53.70	-119.69	-119.39	-60.40	-125.83	-91.78	-32.91	-103.44	-132.77	
536	-76.56	32.41	56.02	-75.35	-64.35	-43.97	-63.58	-44.45	-7.11	-90.54	-245.10	-95.65	
537	-108.35	15.97	41.57	-33.93	-56.86	20.49	-65.19	-55.88	49.44	-101.21	22.16	-66.28	
538	-95.29	21.61	48.09	-3.72	41.69	-1.69	-76.62	-85.00	-25.06	-81.62	-13.00	-8.80	
539	146.89	-66.41	29.92	18.65	20.43	-4.14	-19.69	-2.22	-105.71	-12.27	55.82	26.47	
540	22.96	-26.19	40.76	26.78	35.49	-16.84	10.10	17.42	-64.96	-28.18	12.54	33.47	
541	39.60	59.70	50.20	47.19	54.92	27.40	-2.60	19.49	33.81	24.09	-116.96	27.25	
542	54.67	34.41	1.94	48.68	37.68	12.38	37.41	-13.00	15.76	43.92	-0.84	23.04	
543	28.59	-0.77	-22.92	57.03	25.63	25.78	-11.20	19.35	-5.17	3.40	14.74	77.34	
544	-42.10	-127.81	-27.18	1.04	-11.45	-48.05	4.21	-12.89	-36.43	-67.92	13.08	-43.95	
545	69.08	-60.15	0.61	-29.57	-16.94	0.79	26.56	20.57	9.60	-38.50	-50.62	-123.52	
546	-17.98	8.01	-57.05	14.78	40.43	39.51	95.11	33.56	35.05	-41.19	61.67	26.89	
547	55.82	-5.30	-50.26	-10.56	-17.10	6.17	47.46	24.15	-26.60	-49.71	-20.23	51.12	
548	3.23	-21.53	57.64	-45.80	-20.08	10.27	-22.41	-32.73	6.73	37.10	33.45	-24.93	
549	72.46	36.87	80.89	19.06	-16.73	-29.72	-29.69	23.21	62.82	58.39	96.07	59.53	
550	80.01	72.52	72.70	64.49	17.63	-4.25	75.35	165.38	80.99	101.91	99.70	105.23	
551	-38.47	93.00	34.35	90.87	49.85	34.33	82.15	40.37	39.01	96.21	130.64	93.27	
552	-91.90	67.40	41.82	76.48	88.23	140.61	17.49	55.68	-10.88	68.75	98.57	52.38	
553	7.11	10.92	25.23	41.58	39.90	20.40	-28.62	11.31	38.08	32.39	91.64	70.26	
554	19.82	33.69	14.28	4.42	25.62	41.48	20.86	21.50	28.34	4.77	37.48	65.15	
555	-81.45	-7.52	-26.36	-10.85	7.30	8.83	19.09	53.86	21.16	-1.34	26.68	58.13	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
556	-35.56	-2.87	4.04	14.32	-19.82	-12.78	26.38	25.44	11.68	8.28	47.65	42.83	
557	-18.62	-31.44	-131.75	-12.80	-41.84	-33.80	44.44	-46.78	-12.02	-55.31	-21.32	-13.78	
558	-283.92	-150.92	-129.61	-30.18	-104.30	-57.51	16.64	-25.38	-63.05	-171.14	-76.30	-69.03	
559	-172.60	-120.59	-31.23	-71.98	-164.15	-96.57	-86.90	11.95	-57.11	-180.97	-193.56	-109.98	
560	37.21	105.58	32.38	-104.15	-57.26	-22.32	-114.97	-124.79	-31.62	-46.07	-78.64	-119.39	
561	0.09	-1.75	18.30	-69.05	-1.86	-17.72	-83.26	-46.25	-84.54	35.84	-7.97	-59.68	
562	22.52	54.96	9.46	-30.53	7.04	13.11	-32.45	-50.43	-53.75	42.22	7.40	-42.13	
563	134.15	5.46	9.07	-8.74	28.13	-8.54	-22.25	-5.06	-30.31	29.89	13.45	-11.29	
564	-23.88	-13.65	31.99	-30.05	14.61	26.87	17.97	9.75	-2.80	-4.86	-16.02	9.91	
565	117.92	40.12	9.09	24.41	20.15	44.14	-19.28	29.44	17.18	52.26	-24.38	85.93	
566	5.55	38.52	36.35	25.11	21.49	129.14	21.09	9.75	17.56	18.42	10.21	-1.90	
567	-15.20	-4.59	-49.82	2.13	9.81	71.96	6.70	17.58	4.66	-1.24	75.69	-17.25	
568	-137.21	-31.77	-26.69	-10.44	-18.90	-115.71	-14.82	10.51	-23.73	-17.92	-50.98	-81.29	
569	-72.29	-75.01	11.01	29.13	4.11	-55.34	-37.32	-1.90	-6.55	-29.65	-179.42	-175.95	
570	1.41	-100.53	-45.54	27.61	40.92	18.73	-2.98	-10.99	17.98	-31.29	-95.41	35.61	
571	20.04	-16.90	-99.16	-28.04	18.98	8.90	13.52	2.76	-20.38	-42.90	3.64	58.65	
572	45.65	49.48	61.29	-57.58	-32.75	-8.85	-6.35	-80.11	101.71	-9.90	9.49	33.01	
573	85.83	60.10	136.79	-19.15	6.21	-55.02	-28.45	55.63	41.93	94.38	31.70	55.54	
574	204.93	142.02	71.14	56.16	107.19	2.15	33.91	105.21	60.96	130.52	86.86	37.04	
575	102.63	74.73	20.12	73.02	88.75	170.24	97.15	55.19	3.32	82.00	90.89	19.33	
576	-90.63	56.01	24.21	48.35	103.48	58.73	107.66	93.79	80.99	98.25	92.00	76.56	
577	-107.34	37.90	26.64	24.36	26.90	-2.52	66.25	-1.17	39.51	35.44	35.86	45.43	
578	-31.21	44.09	31.70	9.39	27.77	17.72	33.81	-18.92	39.92	-1.34	52.84	13.06	
579	31.54	32.66	-19.63	3.54	23.85	20.57	-19.07	18.63	-14.91	3.85	79.68	1.02	
580	37.28	-4.58	-54.49	-54.33	-40.82	5.27	5.54	61.56	9.54	-9.79	10.31	-9.44	
581	4.77	-57.91	-168.35	-69.06	-98.65	-67.80	-19.95	17.46	6.63	-60.37	-12.06	-30.54	
582	-75.67	-155.73	-135.74	-82.87	-152.06	-4.80	-78.50	-97.14	-20.15	-152.63	-52.82	-77.06	
583	-198.62	-113.82	37.21	-102.52	-158.41	-43.03	-86.41	-103.75	-4.25	-170.59	-126.29	-99.56	
584	-61.86	-55.23	-0.93	-86.97	-73.17	-99.08	-113.78	-111.44	-77.77	-33.84	-176.78	-96.97	
585	-8.39	-13.21	0.69	-26.49	-10.92	-74.01	-75.48	-59.91	-79.09	6.72	-29.21	-57.34	
586	141.13	-9.60	15.57	12.23	-10.95	-34.24	-37.99	-31.49	-72.25	5.45	31.55	-4.86	
587	0.83	52.01	36.08	13.01	-5.16	-18.84	-23.27	9.47	-60.88	2.62	45.18	78.80	
588	-75.16	30.09	43.09	31.63	40.33	-2.12	2.05	39.31	-7.52	17.34	-29.15	43.40	
589	49.96	27.09	75.04	44.85	-2.44	25.57	82.15	43.59	13.33	12.74	18.66	93.59	
590	2.82	-92.52	14.45	39.87	27.10	23.69	0.95	55.95	32.09	4.40	-10.21	41.11	
591	-20.07	80.07	-1.73	8.99	15.29	6.81	-98.87	56.31	14.43	-23.66	36.42	-6.95	
592	-81.72	16.91	-31.85	-13.83	-36.60	-32.60	46.74	-49.83	-17.66	-61.38	11.70	-64.18	
593	-77.40	-0.31	24.64	-1.45	-36.64	47.86	73.31	-74.45	31.98	-26.27	15.94	-78.89	
594	85.88	-76.92	-47.11	27.49	15.03	34.64	47.42	31.75	7.49	-11.67	-41.07	8.39	
595	-15.32	83.15	-1.56	-4.61	12.42	-17.24	35.72	24.80	-55.83	2.63	61.22	37.20	
596	43.57	108.37	43.91	-55.62	5.31	-9.28	4.60	-70.30	13.77	51.75	60.66	37.07	
597	16.42	83.62	86.19	57.75	-5.43	-11.17	-19.20	-5.36	75.38	90.50	-15.77	62.53	
598	72.29	75.05	53.49	121.47	76.49	39.99	60.61	74.52	95.94	141.04	70.13	89.93	
599	93.56	84.62	51.28	127.81	76.80	77.87	89.42	92.59	117.15	130.57	92.29	77.84	
600	-77.11	18.77	-16.64	126.44	92.42	80.69	105.43	84.18	54.80	73.01	90.83	107.07	
601	13.70	65.27	32.87	3.10	27.97	41.49	39.09	38.53	31.04	57.01	37.59	49.79	
602	103.90	66.59	18.75	6.49	7.25	3.18	20.60	53.26	-30.41	40.68	23.94	32.69	
603	9.61	-40.38	-30.31	-12.62	35.49	12.53	3.99	-11.77	-3.43	-23.75	23.52	2.54	
604	-7.18	-65.28	-42.83	-4.25	-28.48	-1.45	-15.07	4.41	-15.15	-7.79	-5.63	11.64	
605	-43.17	-38.35	-38.31	-71.24	-50.59	-3.08	-5.01	-32.60	-45.05	-20.88	-18.83	-9.21	
606	-155.55	-92.39	-57.18	-144.30	-117.26	-22.65	-75.83	-103.02	-95.24	-177.70	-26.61	-33.32	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
607	-116.91	-93.22	-21.48	-126.40	-166.01	-64.95	-69.38	-164.60	-93.88	-148.33	-38.89	-33.15	
608	-28.25	-136.85	-5.07	-93.57	-26.04	-100.45	-67.74	-40.42	-36.98	53.02	-92.44	-73.45	
609	36.49	-71.31	-6.27	32.88	-9.45	-105.72	-50.18	-76.69	5.80	13.25	-75.87	-100.23	
610	48.49	-16.64	-60.28	-18.87	-39.84	-76.73	-20.28	6.30	79.53	-15.40	-56.48	-64.90	
611	48.29	46.36	-9.19	1.10	16.24	-52.77	-53.40	70.64	-15.95	-40.46	15.61	-45.31	
612	39.79	-35.72	52.74	-56.92	46.08	20.16	30.90	10.65	-61.82	32.72	23.96	-2.38	
613	53.00	42.76	40.67	-9.02	31.54	61.05	0.54	-4.24	-50.24	61.32	29.86	35.15	
614	32.41	25.02	17.52	22.13	35.96	59.04	25.85	-52.49	-38.90	23.85	16.57	48.08	
615	-10.67	-34.19	7.21	14.10	-0.69	0.70	6.76	14.84	3.86	-11.21	20.89	-13.13	
616	-68.53	-69.16	-14.40	-20.09	-20.80	-13.05	-20.38	-21.26	5.56	-30.55	-2.22	-67.86	
617	-14.84	-65.99	22.21	-98.83	44.61	-29.77	-11.41	-59.85	-2.59	-25.40	-124.04	-116.18	
618	7.77	-50.22	2.54	156.54	64.91	49.63	27.11	30.43	19.93	-45.49	-147.15	9.22	
619	14.39	16.45	-49.79	5.32	1.48	27.61	40.58	-12.75	-5.41	-30.72	35.20	44.70	
620	-35.56	35.40	66.02	-30.41	-7.44	-13.35	4.63	9.03	-21.21	21.30	39.57	47.49	
621	68.99	77.17	47.85	13.49	-143.62	-85.28	-0.14	13.20	14.85	49.86	44.68	54.78	
622	55.11	74.51	72.98	81.90	85.01	51.12	88.25	34.10	60.14	111.00	36.34	77.88	
623	70.15	64.27	79.02	124.27	134.07	120.11	51.40	86.28	103.56	85.04	60.15	80.52	
624	51.77	32.61	46.00	83.00	94.79	81.18	74.65	101.91	94.91	66.08	71.53	59.50	
625	48.35	21.79	8.71	47.55	82.48	37.25	55.95	9.32	22.09	0.99	50.05	32.35	
626	45.64	-3.75	0.28	45.49	46.86	-4.03	11.01	-10.60	20.94	6.12	40.66	4.00	
627	4.90	-45.78	-7.12	9.93	-0.20	-8.65	1.31	8.61	8.92	-10.32	-0.05	5.05	
628	21.41	-16.10	-25.78	-12.86	-4.39	-6.43	-15.30	-35.11	-1.30	-26.22	-0.44	-11.33	
629	-46.03	-34.12	-62.87	-38.83	-7.60	-32.67	13.79	48.98	-53.94	-54.26	-5.31	-35.04	
630	-109.66	-55.36	-68.44	-200.12	-126.43	-99.68	-94.02	0.47	-122.39	-178.22	48.18	-82.01	
631	-87.77	-63.01	-125.07	-122.49	-85.59	-142.68	-132.57	-58.91	-80.30	-171.96	-43.52	-74.64	
632	-52.79	-104.83	-77.34	-7.93	-237.67	-90.28	-14.25	-115.91	-6.41	-50.40	-61.48	-50.85	
633	-33.48	-33.95	-8.42	33.53	-19.85	-61.95	-84.35	-85.19	-3.04	-3.52	-186.07	-15.45	
634	-21.70	108.36	-11.02	-1.44	-3.99	-20.11	-30.58	-84.44	-76.44	-17.83	-74.34	39.56	
635	-9.28	15.20	4.38	26.60	-37.21	-11.26	1.53	-11.52	9.67	-4.76	-8.26	47.37	
636	-22.85	-13.84	45.61	-50.65	-35.16	-9.78	14.60	-99.66	26.17	3.99	17.64	44.10	
637	41.19	47.02	65.65	-54.94	28.21	-4.16	-17.58	172.06	42.39	12.29	8.58	71.02	
638	6.40	78.65	23.27	6.76	27.66	31.18	20.73	44.80	42.79	50.09	-6.77	45.05	
639	-26.41	30.57	-41.52	14.00	147.76	44.60	11.60	26.88	11.45	9.25	57.29	-19.50	
640	-74.91	-51.36	-13.46	5.08	-1.09	-52.82	-60.67	-68.81	-45.78	-42.45	-50.65	-132.41	
641	-10.62	-84.33	26.89	7.61	8.34	-25.77	-45.18	-5.41	26.16	-56.52	-123.59	-168.49	
642	8.66	-84.20	-75.44	-42.96	-10.62	93.11	36.84	24.47	-8.35	-41.45	-97.86	29.36	
643	11.96	-30.33	-80.33	-22.56	7.72	35.98	43.55	94.98	-18.80	-4.18	50.93	43.23	
644	48.91	24.88	35.09	-49.04	-21.97	-14.13	-44.61	-40.66	-22.95	28.31	44.86	62.08	
645	99.15	10.10	104.09	43.10	-29.45	-18.93	-10.89	17.84	31.35	65.13	23.52	67.49	
646	85.75	41.59	116.55	74.95	40.24	52.48	78.30	22.83	141.48	100.19	104.00	119.94	
647	55.67	136.80	80.74	90.51	119.46	115.44	45.84	87.55	-19.30	79.74	159.36	131.38	
648	39.12	52.34	66.86	81.50	43.24	95.07	80.46	81.22	6.41	54.93	158.63	90.66	
649	19.64	20.36	-4.42	145.76	41.43	60.62	56.10	9.48	70.07	47.85	113.01	4.76	
650	64.69	-24.36	-6.74	38.57	26.32	13.12	28.29	7.67	14.77	28.59	47.36	-37.75	
651	23.75	-29.54	-43.90	52.19	9.67	40.43	-1.84	4.75	-13.63	10.84	-1.62	124.15	
652	-82.65	-39.54	-85.29	-4.85	4.24	43.78	26.97	19.62	-9.96	11.40	-3.29	9.68	
653	-51.99	-11.92	-163.34	-15.43	-16.29	-7.47	36.51	9.15	-42.94	-52.56	20.32	-90.30	
654	-148.42	-154.07	-125.68	-148.39	-34.96	-75.15	-113.95	-28.38	-131.75	-131.65	-37.07	-56.91	
655	-153.15	-70.60	-39.29	-151.04	-80.92	-123.22	-148.54	-89.91	-113.48	-113.62	-126.11	-83.42	
656	36.64	-57.92	34.51	-38.46	-104.44	-90.44	-35.37	-96.30	-38.44	-18.08	-173.44	-63.13	
657	22.06	61.66	46.55	16.68	-65.40	-68.90	-14.31	-102.51	3.07	31.16	-28.43	-65.73	

Hourly Average Net	1/1/2011	2/1/2011	3/1/2011	4/1/2011	5/1/2011	6/1/2011	7/1/2011	8/1/2011	9/1/2011	10/1/2011	11/1/2011	12/1/2011	12-Month Average
658	28.58	117.55	48.60	13.13	-5.19	-33.09	14.47	-5.56	11.28	47.29	16.65	-38.26	
659	-41.95	142.81	37.71	38.44	-24.56	-16.56	-40.82	-5.85	0.17	24.45	33.97	-27.50	
660	45.65	17.79	18.87	8.66	-3.99	4.54	-2.42	10.96	8.95	15.32	11.99	-4.25	
661	51.11	-42.49	3.44	24.48	19.28	12.53	-30.00	8.38	12.35	17.02	9.51	38.31	
662	-5.53	-27.18	13.04	38.23	23.45	20.01	-1.09	6.47	12.47	90.85	44.09	70.55	
663	-13.98	-9.05	-38.72	65.88	33.64	3.58	3.18	27.62	-5.16	-13.12	28.21	24.09	
664	5.49	-37.26	-29.87	-58.06	-19.16	-8.86	21.13	-9.77	-36.09	-63.10	-24.34	-157.89	
665	-88.14	-39.80	14.14	-17.10	-9.45	-4.29	-79.51	0.50	-5.35	-50.00	-115.54	-73.37	
666	-19.78	-11.53	-25.22	20.86	-12.82	39.06	26.00	75.87	15.66	-62.34	-116.58	38.48	
667	18.26	25.54	-70.42	35.55	29.23	17.27	16.11	10.68	-58.67	-1.85	49.69	53.58	
668	36.56	103.58	57.27	-23.92	34.89	7.89	27.91	-102.33	0.02	39.68	33.17	51.19	
669	29.53	120.67	110.35	21.00	6.51	-14.93	-36.96	44.34	124.62	41.33	56.83	46.91	
670	31.50	137.51	91.04	64.61	79.46	57.84	41.06	84.79	86.83	82.82	76.54	68.64	
671	50.31	78.74	55.79	116.83	66.50	84.77	98.80	102.90	107.13	18.37	86.94	62.57	
672	35.63	-1.18	47.01	98.68	72.30	94.19	109.81	69.03	129.29	70.59	87.24	69.63	
673	51.46	1.46	29.79	55.51	47.05	49.42	55.80	43.00	42.23	75.10	19.39	79.64	
674	56.11		5.80	26.16	42.74	30.47	36.21	20.14	12.69	31.93	9.42	36.59	
675	15.34		-11.38	8.53	7.21	8.02	34.07	10.23	9.32	35.58	18.28	-71.36	
676	-0.65		-43.24	-19.02	24.47	2.37	-4.03	1.26	-8.25	-25.32	43.47	-14.54	
677	-14.89		-131.73	-51.09	5.57	-28.01	5.46	-19.74	-26.57	-6.45	-56.55	-21.83	
678	-53.43		-154.44	-108.25	-7.37	-88.46	-80.64	-56.43	-145.11	-67.02	-110.72	-104.98	
679	-89.13		-9.56	-148.21	-28.02	-22.75	-150.96	-120.60	-106.91	-102.35	-131.97	-92.80	
680	-56.23		30.64	-90.84	-48.82	-45.13	-96.64	-83.54	-33.58	-105.51	-215.77	-93.15	
681	-47.05		45.91	-49.83	-81.41	-72.31	-75.48	-63.13	-3.12	-49.14	-22.53	-76.08	
682	-27.62		6.39	65.20	-6.99	-72.52	-25.39	33.78	-14.79	-5.98	40.57	-42.77	
683	39.57		24.32	-70.35	-6.44	-26.14	-11.79	22.61	-2.86	-17.10	54.13	-39.78	
684	15.72		24.65	-32.11	-19.10	6.15	19.47	-18.80	-8.38	32.84	2.78	-4.60	
685	27.66		35.36	-3.83	26.39	31.48	13.75	-0.96	-5.24	35.55	17.68	33.44	
686	2.35		8.21	19.70	44.99	32.16	16.74	20.49	13.53	11.37	44.18	53.09	
687	40.36		-22.94	-8.10	24.65	26.64	37.49	-15.39	-26.61	27.38	10.06	2.79	
688	-79.63		-12.75	-27.33	-128.73	-2.46	-8.39	-29.54	-56.74	-66.02	-23.25	-79.61	
689	-144.84		22.48	24.96	-5.96	0.86	20.27	-25.64	39.19	-82.61	-115.45	-149.11	
690	-23.26		-62.17	60.87	-1.75	41.58	71.15	72.66	9.23	-71.51	-108.99	5.04	
691	56.59		-108.97	-34.85	1.35	-32.29	68.26	25.55	-23.38	-7.83	80.97	41.48	
692	9.54		-1.53	-33.76	-26.86	-9.46	34.02	-55.87	1.97	53.27	86.47	27.26	
693	59.57		93.40	21.55	-15.65	-15.06	-49.87	-54.04	83.94	63.60	60.71	67.52	
694	108.89		72.68	63.78	100.34	151.18	172.61	93.90	66.16	79.17	107.91	101.26	
695	64.64		70.26	67.08	115.45	61.61	5.31	76.22	123.23	66.81	136.33	80.14	
696	19.39		31.25	60.13	83.09	119.41	79.55	61.71	90.07	74.48	96.18	54.08	
697	27.43		39.04	25.96	49.78	50.26	57.03	14.20	49.23	62.33	50.60	43.89	
698	47.58		13.79	24.89	1.16	39.60	42.12	1.92	11.07	56.57	23.80	36.74	
699	0.43		-8.39	14.40	10.69	-26.45	7.17	-9.72	3.48	20.73	55.93	6.07	
700	-22.91		-64.42	-5.58	-13.04	-39.18	-5.39	-12.66	14.41	2.21	30.93	16.24	
701	-52.17		-148.33	-30.67	-23.80	-60.11	1.54	-95.29	-8.87	-15.66	-8.13	-39.14	
702	-0.05		-116.88	-44.99	-138.36	-80.55	2.40	-33.17	-100.16	-35.47	-32.62	-96.89	
703	-36.28		11.26	-51.79	-125.51	-203.07	5.84	-95.50	-96.26	-50.47	-130.29	-75.88	
704	-82.81		40.25	-110.18	-116.72	-14.95	-83.32	-47.81	-36.55	-56.92	-115.28	-86.34	
705	-39.83		31.35	-91.80	-62.51	-23.21	-89.27	-61.98	-63.32	-82.87	-27.95	-22.14	
706	-18.62		7.21	12.14	-145.54	-22.73	-57.01	15.81	-45.43	-95.36	-3.98	-6.57	
707	60.16		-14.01	16.34	-27.62	24.76	-30.60	-3.61	-19.59	37.98	-13.60	-1.23	
708	15.08		27.84	54.05	-9.68	6.26	55.17	25.40	21.02	-17.16	16.61	-10.07	

NON-CONFIDENTIAL

1 **Request IR-56:**

2

3 **With respect to Appendix L, page 18 of 44, please confirm that the reference to Figure 2-8**
4 **in Line 21 should be Figure 2-10.**

5

6 Response IR-56:

7

8 Confirmed.

NON-CONFIDENTIAL

1 **Request IR-57:**

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3 **With respect to Appendix L, page 38 of 44, please file a copy of the Consensus Proposal**
4 **referenced on Line 24.**

5

6 Response IR-57:

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8 Please refer to Attachment 1.

Nova Scotia Utility and Review Board

IN THE MATTER OF *The Public Utilities Act*, R.S.N.S. 1989, c.380, as amended

- and -

IN THE MATTER OF an Application by Nova Scotia Power Inc. for Approval of an Open Access Transmission Tariff

Consensus Proposal

May 6, 2005

Updated May 11, 2005

Consensus Proposal

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In this hearing, fourteen major issues were identified by stakeholders. These were:

- a. Precedents to be set by this OATT Hearing
- b. Stranded Costs
- c. Energy Imbalance
- d. Allocation of Revenue Requirement
- e. Inclusion of Radial-to-Load Transmission
- f. Use of Proxy Units to Develop Some Ancillary Service Charges
- g. Rate Design Based on NCP versus LRS
- h. Special OATT for Customers Taking Service at 138 kV or Higher
- i. Rate Unbundling
- j. Available Transmission Capacity (ATC) Calculations
- k. Interconnection of Small Generators at Transmission Voltages
- l. Refunding Capital Contributions to Network Upgrades
- m. Back-Up Service
- n. Regional Cooperation

Each of these is addressed in this consensus proposal.

NSPI

Open Access Transmission Tariff**1. Precedents to be set by this OATT Hearing**

Some stakeholders, who will not be eligible customers of OATT in the first phase of market opening, are participating in this hearing because of their concerns that this hearing may set precedent and limit their ability to address certain issues when the subsequent stages of market opening occurs. To address this, it is agreed that:

- i) The OATT will be reviewed in the event the market is opened more broadly, and in such a review, the decisions made in this proceeding will not be binding and shall not be treated as a precedent in any such subsequent review. Any party will be free to raise any issue in that review and NSPI will not take the position that any matter then under consideration was conclusively decided in this proceeding or determined to be appropriate for any broader market opening.
- ii) NSPI acknowledges that some parties will rely on this statement in deciding to withhold making submissions at this time.

2. Stranded Costs

Consistent with FERC's pro forma Open Access Transmission Tariff (OATT), NSPI's proposed Tariff, as filed on May 12, 2004, preserved NSPI's right to seek to recover stranded costs. (Sections 26.0 and 34.5 of the Tariff).

When NSPI filed its Tariff, it undertook to submit a specific proposal to address stranded costs within ninety days, because experience in other jurisdictions indicated that eligible customers were reluctant to use the OATT until their potential stranded cost obligations were known. NSPI filed its proposal on August 10, 2004.

During the technical conferences, and in their pre-filed evidence, stakeholders have expressed the view that, because of the complexity of the stranded cost issue, it should be excluded from the OATT proceeding and addressed separately. To provide certainty for

NSPI

Open Access Transmission Tariff

1 the six municipal utilities who are the only eligible customers during the first phase of
2 market opening, as specified in the Electricity Act, it has been suggested that stranded
3 costs not be calculated for, or payable by, any of those customers.

4
5 NSPI agrees with this proposal on the basis that:

- 6
- 7 a) This proposal does not set a precedent or limit NSPI's right to seek to recover
8 stranded costs from customers, other than the six municipal utilities currently
9 identified in the Electricity Act, in accordance with the OATT.
 - 10 b) This proposal applies only to the six municipal utilities identified in the Electricity
11 Act, in their present operating territories. NSPI reserves the right to seek to
12 recover stranded costs from any of the six eligible customers whose
13 characteristics change significantly. Without restricting the generality of the
14 foregoing, NSPI will be at liberty to reassess this undertaking in the event of any
15 annexation that would expand a municipal utility's service territory, or if any
16 customer of NSPI (other than former municipal customers who have, by formal
17 agreement, become customers of NSPI in the past, and may revert back to become
18 municipal customers when such agreements expire) becomes a customer of the
19 municipal utility.
 - 20 c) This proposal does not imply that NSPI accepts or rejects any methodology for
21 the determination and recovery of stranded costs.
 - 22 d) The proposal applies separately in relation to each of the six municipal utilities.
- 23

3. Energy Imbalance

24
25
26 A number of intervenors were concerned with NSPI's proposed Schedule 4 of its
27 evidence dealing with energy imbalance. The issues related to:

- 28
29 - The application of imbalance to both generation and load, rather than dealing
30 with only net imbalance

NSPI

Open Access Transmission Tariff

- 1 - The size of the deviation bands
- 2 - The multipliers applied to the marginal costs
- 3 - The treatment of non-dispatchable generators

4

5 On April 14, 2005, FERC released its Notice of Proposed Rulemaking (“NOPR”) on the

6 treatment of intermittent (non-dispatchable) generation. This document helped NSPI and

7 other stakeholders further understand the treatment of energy imbalance as applied to

8 load and generation balancing services, and move toward a consensus. NSPI is modifying

9 its energy imbalance proposal to reflect this and is submitting a revised Schedule 4. In

10 summary, the changes are:

- 11
- 12 - **Settlement on Net Deviation** – Energy imbalance will be applied to the net
- 13 deviation of generation and load for a bilateral schedule of a single load and
- 14 its single generator. In other circumstances, separate settlement will apply.
- 15 - **Minimum size of the Deviation Band** - The minimum size of the deviation
- 16 band increases from +/- 1 MW to +/- 2 MW.
- 17 - **90% - 110% Buy/Sell spread within the deviation band** –The Buy/Sell
- 18 spread is eliminated for net energy imbalances within the deviation band.
- 19 Imbalances that have not been eliminated by the end of the billing month will
- 20 be settled at either the average marginal cost of peak hours or the average
- 21 marginal cost of non-peak hours, applied to the residual on-peak and non-peak
- 22 amounts respectively.
- 23 - **90% - 150% Buy/Sell spread outside the deviation band** – The 90/150%
- 24 spread is changed to 90/110% for settlement of imbalances outside of the
- 25 deviation band. These are settled based on the marginal cost in the hour of
- 26 deviation. Changing the 150% charge for under-deliveries outside the
- 27 deviation band effectively eliminate the network service band and therefore
- 28 the energy imbalance treatment for both Network and Point-to-Point Service
- 29 are combined into one section.
- 30

NSPI

Open Access Transmission Tariff

- 1 - **Treatment of Non-Dispatchable Generators** - A +/- 10% (Minimum +/- 2
 2 MW) Deviation Band for Non-Dispatchable Generators is introduced, within
 3 which imbalances are settled at marginal cost in the hour of occurrence.
 4 Outside this deviation band, net imbalances are settled at the 90% - 110% of
 5 marginal cost in the hour of deviation.
- 6 - **Treatment of Dispatchable Generators** – The treatment for "Dispatchable"
 7 generators is clarified. All net imbalances are settled at the 90% - 110% of
 8 marginal cost in the hour of the deviation.

4. Allocation of OATT Revenue Requirement

11
 12 In the preparation of its OATT, NSPI allocated revenue requirement between Network
 13 and Point-to-Point service on the basis of 12 CP.

14
 15 UARB consultants Stutz and Fagan expressed concern in pre-filed evidence and IR
 16 responses that because this approach is different from NSPI's approved cost of service
 17 methodology, it may not be FERC compliant, may not be most appropriate from a cost
 18 causation point of view, and may result in a customer who currently takes bundled
 19 service paying a different rate for transmission service should that customer become an
 20 OATT customer.

21
 22 At the April 8, 2005 technical conference, Dr. Stutz and Mr. Fagan agreed to reconsider
 23 their positions. In subsequent discussions, it was determined that:

- 24
 25 - Future exports using point-to-point service are uncertain. Some
 26 assumption is necessary to establish a rate for point-to-point service. For
 27 the purposes of this OATT, NSPI used the average of the last five years,
 28 assuming equal exports in all hours.

NSPI

Open Access Transmission Tariff

1 - For the assumptions made, and for reasonable variations of those
2 assumptions, the results of the allocation are similar, whether the
3 allocation is done using the cost of service method or the 12 CP method.

4
5 Based on these facts, it was agreed that 98% of the revenue requirement would be
6 allocated to Network Service and 2% would be allocated to Point-to-Point Service. Based
7 on current assumptions of transmission system usage, these results are consistent with
8 either the cost of service approach or the 12 CP approach. Acceptance of these results
9 does not endorse either method of deriving them.

5. Inclusion of Radial-to-Load Transmission

10
11
12
13 NSPI proposes to include all transmission (except direct-assigned facilities) in its OATT
14 revenue requirement. SEB consultant Rosenberg recommended radial-to-load
15 transmission should be excluded from OATT.

16
17 In light of the position on precedent not being set in this hearing, SEB is no longer taking
18 a position on this issue in this hearing. No other party has suggested a position different
19 from NSPI's proposal.

6. Use of Proxy Units to Develop Some Ancillary Service Charges

20
21
22
23 NSPI proposed in its OATT to calculate prices based on proxy units for the following
24 ancillary services:

25
26 Load Following and Regulation
27 Reactive Supply and Voltage Control
28 Reserve – Spinning
29 Reserve – Supplemental

30

NSPI

Open Access Transmission Tariff

1 UARB consultants Stutz and Fagan proposed basing these prices on embedded costs,
2 reflecting the costs of the units that actually supply these services. NSPI agrees to price
3 its ancillary services on embedded costs, as derived in Exhibit 4 and updated in NSPI's
4 Supplementary Evidence of May 6, 2005.

7. Rate Design Based on NCP versus LRS

7
8 NSPI proposes to calculate its OATT rates using Non-coincident Peak as the customer's
9 billing determinant. SEB consultant Rosenberg recommended that the rate should be
10 designed using Load Ratio Share.

11
12 In light of the position on precedent not being set in this hearing, SEB is no longer taking
13 a position on this issue in this hearing. No other party has suggested a position different
14 from NSPI's proposal.

8. Special OATT for Customers Taking Service at 138kV or Higher

15
16
17
18 NSPI proposes to include all transmission in its OATT. SEB consultant Rosenberg
19 recommended a separate OATT rate for customers taking service at 138Kv or higher.

20
21 In light of the position on precedent not being set in this hearing, SEB is no longer taking
22 a position on this issue in this hearing. No other party has suggested a position different
23 from NSPI's proposal.

9. Rate Unbundling

24
25
26
27 Some stakeholders expressed concern that NSPI's proposal to provide OATT information
28 to all customers eligible to use OATT would not be sufficient to allow those customers to
29 make a decision as to whether or not to seek competitive supply, and that unbundling of
30 rates was necessary. After reviewing a sample of the bill information proposed by NSPI,

NSPI

Open Access Transmission Tariff

1 stakeholders agreed the information was sufficient and that unbundling was not required
2 for this market opening.

10. Available Transmission Capacity (ATC) Calculations

3
4
5
6 NSPI proposes to use the NPCC methodology for ATC calculations, recognizing that:

- 7
8 - NSPI and NBSO jointly determine TTC/ATC based on conditions on their
9 respective transmission systems, and the more restrictive of the two
10 determinations rules;
- 11 - Nova Scotia import is constrained by conditions such as load in Moncton,
12 export to PEI or transmission out of service in NB, up to a maximum level
13 of NS underfrequency load shedding; and
- 14 - Nova Scotia export is limited by load level in Northern NS, the size of the
15 largest single load loss, and the amount of generation armed for rejection
16 by the Export Monitor Special Protection System.

17
18 The proposed method of calculating ATC has been accepted by stakeholders.

11. Interconnection of Small Generators at Transmission Voltages

19
20
21
22 NSPI's proposed interconnection procedures apply to all generators connecting to the
23 transmission system. As noted by UARB consultant Fagan, FERC allows a simpler
24 approach to generators smaller than 20MW who connect to the transmission system. He
25 suggests that NSPI also allow a simpler approach.

26
27 NSPI's interconnection procedures as filed allow NSPI to simplify the process when
28 appropriate, and NSPI's practice reflects this. To make the process more transparent,
29 NSPI is adding the following new Section 2.5 to its interconnection procedures (Exhibit
30 2):

NSPI

Open Access Transmission Tariff

1 “In assessing whether the interconnection process can be expedited, the Transmission
 2 Provider will consider the capacity of the Generation facility, the point of interconnection
 3 requested, and the results of any previously completed System Impact Studies which may
 4 be relevant. If the process is expedited, the transmission Provider will:

- 5
- 6 - Forego the Feasibility Study
- 7 - Combine the System Impact Study and the Facilities Study
- 8 - Eliminate the requirement for coordination with Affected Systems
- 9 - Modify the System Impact Study scope to exclude stability analysis.”

10

11 Revised pages reflecting this change are included in NSPI’s Supplementary Evidence,
 12 filed May 6th, 2005.

12. Refunding Capital Contributions to Network Upgrades

15

16 NSPI’s proposed Standard Generation Interconnection Procedures (SGIP) do not address
 17 the repayment of capital contributions by an interconnecting customer to network
 18 upgrades. As noted by UARB consultant Fagan, FERC addressed this issue in Orders
 19 2003, 2003-A and 2003-B.

20

21 NSPI is addressing this issue by adopting the FERC approach, as described below, and is
 22 modifying Section 11.4.1, Appendix 6, its SGIP accordingly:

23

24 “Interconnection Customer shall be entitled to a cash repayment, equal to the total
 25 amount paid to Transmission Provider and Affected System Operator, if any, for the
 26 Network Upgrades, to be paid to Interconnection Customer on a dollar-for-dollar basis
 27 for the non-usage sensitive portion of transmission charges, as payments are made under
 28 Transmission Provider's Tariff and Affected System's Tariff for transmission services
 29 with respect to the Generating Facility. Any repayment shall include interest from the
 30 date of any payment for Network Upgrades through the date on which the

NSPI

Open Access Transmission Tariff

1 Interconnection Customer receives a repayment of such payment pursuant to this
2 subparagraph. Interconnection Customer may assign such repayment rights to any person.

3
4 Notwithstanding the foregoing, Interconnection Customer, Transmission Provider, and
5 Affected System Operator may adopt any alternative payment schedule that is mutually
6 agreeable so long as Transmission Provider and Affected System Operator take one of
7 the following actions no later than five years from the Commercial Operation Date:

- 8
9 (1) return to Interconnection Customer any amounts advanced for Network Upgrades
10 not previously repaid, or
11 (2) declare in writing that Transmission Provider or Affected System Operator will
12 continue to provide payments to Interconnection Customer on a dollar-for-dollar
13 basis for the non-usage sensitive portion of transmission charges, or develop an
14 alternative schedule that is mutually agreeable and provides return of all amounts
15 advanced for Network Upgrades not previously repaid; however full
16 reimbursement shall not extend beyond (20) years from the Commercial
17 Operation Date

18
19 If the Generating Facility fails to achieve commercial operation, but it or another
20 Generating Facility is later constructed and makes use of the Network Upgrades,
21 Transmission Provider and Affected System Operator shall at that time reimburse
22 Interconnection Customer for the amounts advanced for the Network Upgrades.

23
24 Before such re-imburement can occur, the Interconnection customer, or the entity that
25 ultimately constructs the generating facility, if different, is responsible for identifying the
26 entity to which reimbursement must be made.”

27
28 Revised pages reflecting this change are included in NSPI’s Supplementary Evidence,
29 filed May 6th, 2005.

30

NSPI

Open Access Transmission Tariff**1 13. Back-up Service**

2

3 The EMGC defined Back-up Supply Service as “The provision of capacity and energy to
4 a market participant, either when needed to replace the loss of its generation sources, or
5 to cover that portion of demand that exceeds the generator’s capacity to supply for more
6 than a short time”.

7

8 NSPI’s proposed OATT addresses the second component of the EMGC’s back-up service
9 by allowing partial service. This is supported by all parties.

10

11 NSPI currently offers its Generation Replacement rate to address the first component of
12 EMGC’s back-up service, and has agreed to develop a rate to provide firm back-up
13 service should it be requested. In addition, NSPI’s OATT permits an OATT customer to
14 negotiate with alternate suppliers to provide such service. Stakeholders have agreed that
15 these options are outside the scope of the OATT.

16

17 14. Regional Cooperation

18

19 In its pre-filed evidence, NBSO agrees that there is consistency between the NBSO
20 OATT and the NSPI OATT, but expresses the view that:

21

- 22 - the UARB should direct NSPI to "actively pursue regional cooperation in
23 order to achieve costs savings" in certain OATT ancillary service charges.
- 24 - the UARB "direct NSPI to modify OATT to accommodate a mechanism
25 for limiting the quantity of capacity -based ancillary services that can be
26 self supplied".

27

28 In view of NSPI's registration with NERC on April 1, 2005 as a "balancing authority", in
29 light of the NB PUB decision regarding NBSO's OATT on April 26, 2005 (subsequent to
30 the filing of NBSO's evidence in this hearing), which modified or delayed a decision on

NSPI

Open Access Transmission Tariff

1 some of NBSO's proposals for New Brunswick that relate to its evidence in this hearing,
2 and given the ongoing efforts of NSPI and NBSO in regional cooperation for mutual
3 benefit, the parties have agreed that the issues raised here should be deferred from this
4 hearing and addressed as part of the ongoing efforts of the parties to identify and
5 implement opportunities beneficial to customers in both jurisdictions in a timely manner.
6

NON-CONFIDENTIAL

1 **Request IR-58:**

2

3 **With respect to Appendix L, page 40 of 44, Line 6, what factors led to NSPI's choosing five**
4 **years?**

5

6 Response IR-58:

7

8 NS Power has been in the process of transitioning its resources to meet new environmental
9 standards for several years now. Since the Open Access Transmission Tariff (OATT) was
10 developed in 2005, NS Power has made generation investments on behalf of all customers,
11 including the wholesale municipalities whose demand for electric service was stable and
12 predictable during these years.

13

14 The total net plant value assigned to the municipal class has increased since 2005 by close to 50
15 percent from \$38.6 million in 2005 test year to \$57 million in the 2013 test year. With proposed
16 revenues for this class of \$20.4 million per year, of which capital-related costs¹ account for \$8.7
17 million, it would take NS Power approximately 10 years to fully recover the net plant value of
18 \$57 million, on a net present value basis.

19

20 The five year period proposed by NS Power represents a typical planning horizon used by
21 electric utilities for their strategic initiatives. This period will allow the Company to optimize its
22 resource mix in delivery of generation services following the loss of the municipal customers.
23 This time period aligns with the period approved by the Board in other NS Power tariffs which
24 require planning notice for customers leaving one service for another. Please refer to the Extra
25 Large Industrial Two Part Real Time Pricing Tariff (ELI-2P-RTP) the One Part Extra High
26 Voltage Real Time Pricing Tariff, the One Part Distribution Voltage Real Time Pricing Tariff,

¹ The capital related costs include depreciation and carrying costs.

NON-CONFIDENTIAL

1 the Load Retention Tariff Pricing Mechanism, as well as customers on the Interruptible Rider to
2 the Large Industrial Tariff.

3

4 The five year period also balances the interests of affected stakeholders. Under the five year
5 period, the “revenue approach” yields fixed cost recovery, on a net present value basis, of \$28.3²
6 million for departure in 2013. This accounts for two thirds of the \$43 million which NS Power
7 estimates to represent the non-ancillary services portion of generation net plant value, assigned to
8 the municipal class in Cost of Service Study (COSS).

² Please refer to response to Multeese IR-60.

NON-CONFIDENTIAL

1 **Request IR-59:**

2

3 **With respect to Appendix L, page 40 of 44, Line 21, please define BUTU revenue.**

4

5 Response IR-59:

6

7 Backup/Top-up (BUTU) revenue is the revenue collected from customers under the BUTU

8 Tariff. Please refer to Attachment 1, for the current tariff.

NOVA SCOTIA POWER INCORPORATED
WHOLESALE MARKET BACKUP/TOP-UP SERVICE TARIFF

CUSTOMER CHARGE

The monthly customer charge under this tariff is calculated according to the following formula:

$$\text{Monthly customer charge} = \frac{\text{forecast annual administration costs}}{\text{forecast number of customers subscribed}} * 12$$

This charge will be \$3,916.37 per month for the period January 1, 2012 to December 31, 2012.

DEMAND CHARGE

\$5.286 per month, per kilowatt (kW) of billing demand measured on an average hourly basis.

Contracted firm demand requirement is defined as the demand (kW) requested by the wholesale customer (or aggregate customer group) and agreed to be supplied by NSPI. This may constitute all, or a portion of the demand contracted to be served on a primary basis by a third party supplier. Billing demand is determined based upon the following formula:

$$\text{Billing demand} = (\text{PR} * \min(\text{CD}, \text{CF} * \text{GC})) + (\text{CD} - \min(\text{CD}, \text{CF} * \text{GC}))$$

Where:

- PR is Planning Reserve (based on NPCC planning criteria, i.e., 20% or as updated)
- GC is the third party supplier's generating capacity
 - a) For non-dispatchable generation, GC = MSC, the Maximum Spill Capacity as defined in Wholesale Market Non-Dispatchable Supplier Spill Tariff.
 - b) For dispatchable generation, GC = the supplier's maximum capacity contracted to provide its wholesale customers' demand
- CD is the customer's Contract Demand
- CF is the capacity factor associated with the third party supplier's generation

ENERGY CHARGE

The energy charge shall be the Company's forecast average annual marginal energy costs as approved for use with the GRLF rate.

MINIMUM MONTHLY CHARGE

The minimum monthly charge will be the customer charge plus the demand charge.

EFFECTIVE: JANUARY 1, 2012

NOVA SCOTIA POWER INCORPORATED
WHOLESALE MARKET BACKUP/TOP-UP SERVICE TARIFF

AVAILABILITY:

The tariff is available to wholesale customers as defined in section 2(b) of the Electricity Act, Chapter 25 of the Acts of 2004.

“(b) “wholesale customer” means Nova Scotia Power Incorporated, the electric utilities of the towns of Antigonish, Berwick, Canso, Lunenburg and Mahone Bay and The Electric Light Commissioners for Riverport, in the County of Lunenburg.”,

The tariff is applicable to the *scheduled* backup\top-up load of participating customers under the following terms and conditions:

- (1) The wholesale customer has provided written notice of its intent to take service under this tariff, clearly identifying the following:
 - a. The Municipal utility or utilities for which service is being requested.
 - b. The year for which service is being requested.
 - c. The contract demand (kW) required for backup and top-up service.
 - d. The portion of the customer’s annual load contracted to be supplied by third party suppliers or through self-supply
 - e. The names, addresses, contact details and supply arrangements associated with contracted third party suppliers

Backup\top-up service will be subscribed on a minimum 12 month, annual-renewable basis. Applications for service must be provided annually to NSPI by January 31st of each year, for service applicable to the subsequent year.

- (2) Adequate metering equipment, as dictated by the Generation Interconnection Agreement, must be installed to monitor the generation of any third-party generators selected for use by the wholesale customer. The equipment and installation must be approved by the Company and the costs will be the responsibility of the generator.

SPECIAL CONDITIONS:

- (1) This tariff is designed for customers supplied and metered at the high side of the transformer at transmission voltage of 69 kV or higher. For customers metered at the low side of the transformer, or at a distribution voltage level, meter readings shall be increased by 1.75% for each transformation between the meter and the transmission voltage.

EFFECTIVE: JANUARY 1, 2012

NOVA SCOTIA POWER INCORPORATED
WHOLESALE MARKET BACKUP/TOP-UP SERVICE TARIFF

- (2) The charges under this rate do not reflect transmission service costs. Customers taking service under this tariff must also take service under OATT.
- (3) For system reasons, NSPI may, at its discretion, deny an application for service from a customer who has not taken service from NSPI in the year prior to the year requested.
- (4) The Company reserves the right to have a separate service agreement, if in the opinion of the Company issues not specifically set out herein, must be addressed for the ongoing benefit of the Company and its customers.
- (5) The customer will make all necessary arrangements to ensure that its load does not unduly deteriorate the integrity of the power supply system, either by its design and/or operation. These specific requirements shall be stipulated by way of a written operating agreement.
- (6) In assessing issues which might unduly affect the integrity of the power supply system the following would be considered: reliability, harmonic voltage and current levels, voltage flicker, unbalance, rate of change in load levels, stability, fault levels and other related conditions.

EFFECTIVE: JANUARY 1, 2012

REDACTED

1 **Request IR-60:**

2

3 **With respect to Appendix L, page 42 of 44, Line 18, please provide the derivation of the**
4 **\$28.3 million for 2013.**

5

6 Response IR-60:

7

8 The response to this information request is confidential.

NON-CONFIDENTIAL

1 **Request IR-61:**

2

3 **With respect to Appendix L, please provide Attachments 2 and 4 from NSPI's 2005 Direct**
4 **Evidence.**

5

6 Response IR-61:

7

8 Please refer to Attachment 1.

FIGURE 5-9

NOVA SCOTIA POWER INC.
TRANSMISSION REVENUE REQUIREMENT ALLOCATION
(in \$000s)

Asset Category	(1) Gross Plant (Note 1)	(2) Net Plant (Note 1)	(3) OM&G Expense	(4) Depreciation Expense	(5) Int., Taxes & Return Exp	(6) Total Expenses
Generation Related Transmission Assets:						
Step Up Transformers	\$17,619	\$10,045	\$371	\$455	\$1,228	\$2,054
Radial to Generation	17,460	9,954	368	451	1,217	2,036
Generator Breakers	7,427	4,234	157	192	517	866
Total Gen. Related Transmission Assets	42,506	24,234	896	1,098	2,962	4,956
Bulk Network:						
Total Equipment	636,797	356,733	13,367	16,101	43,597	73,065
Total Transmission Assets	\$679,303	\$380,967				
Scheduling, System Control & Dispatch (Note 2)			4,758			4,758
Total Transmission Revenue Requirement			\$19,021	\$17,199	\$46,559	\$82,779

NOTE:

1. Transmission Gross and Net Plant assets include allocated share of General Property assets and other assets such as deferred charges, materials inventory and net receivables.
2. Control Centre assets and related capital charges are included in the General Property assignment to Transmission assets.

FIGURE 5-10

**NOVA SCOTIA POWER INC.
DEMAND ALLOCATION FACTORS
(in MW Demand)**

	(1)	(2)	(3)	(4)
<u>Service</u>	<u>Long-Term Firm Reservations</u>	<u>Transmission System 12 CP</u>	<u>Allocation Factors (%)</u>	<u>Billing Determinants 12 NCP</u>
Point-to-Point (Note 1)	34		2%	N/A
Network In-Province (Note 2)		1,823	98%	2,145
TOTAL MW	34	1,823	100%	
NOTES:				
1. NSPI currently has no long-term firm reservations. However, exports have averaged 34 MW over the past 5 years.				
2. The 1823 MW is the average of the 12 monthly Coincident System Peaks forecasted for 2005 and developed in April 2004 as part of NS Power's 2005 Rate Application. The 2145 MW was derived by applying an 85% coincidence factor to the 12 monthly System Coincident Peaks. This coincident factor was based on 2003 system load data.				

FIGURE 5-11

**NOVA SCOTIA POWER INC.
TRANSMISSION REVENUE REQUIREMENT ALLOCATION
UNIT COSTS**

	(1)	(2)	(3)	(4)
Transmission Services	Total Cost By Service (in \$000s)	Total Usage By Service (in MW)	Annual \$/MW-year	Monthly \$/MW-month
Point-to-Point Service	\$1,461	34	\$42,970.59	\$3,580.88
Network Service	71,604	1,823	\$39,278.11	\$3,273.18
Total Transmission	73,065	1,857	\$39,345.72	\$3,278.81
Scheduling, System Control & Dispatch				
Point-to-Point Service	95	34	\$2,794.12	\$232.84
Network Service	4,663	1,823	\$2,557.87	\$213.16
Total Scheduling, System Control & Dispatch	\$4,758	1,857	\$2,562.20	\$213.52
NOTES:				
1. Point-to-Point and Network Transmission Service costs are Bulk Network Costs from Figure 5-9 and allocated using the allocation factors from Figure 5-10.				
2. Scheduling, System Control & Dispatch Service costs, from Figure 5-9, are allocated using the allocation factors from Figure 5-10.				

FIGURE 5-12

**NOVA SCOTIA POWER INC.
RATE CALCULATION
POINT-TO-POINT TRANSMISSION SERVICE**

	(1)	(2)	(3)	(4)
Service Category	Total Cost By Service (in \$000s)	Total Usage By Service (in MW)	Annual \$/MW-year	Monthly \$/MW-month
Point-to-Point Service	\$1,461	34	\$42,970.59	\$3,580.88
			RATES	
			\$/MW-year	\$/MW-month
Yearly		Monthly Cost * 1000	42,970.59	3,580.88
Monthly	(\$/MW-m)	Yearly/12		3,580.88
Weekly	(\$/MW-w)	Yearly/52		826.36
On-Peak Daily	(\$/MW-d)	Weekly/5		165.27
Off-peak Daily	(\$/MW-d)	Yearly/365		117.73
On-Peak Hourly	(\$/MW-h)	Daily/16		10.33
Off-Peak Hourly	(\$/MW-h)	Yearly/8760		4.91
NOTES:				
1. Yearly Service is available only as firm service.				
2. Hourly Service is available only as non-firm service.				
3. Other Services are available as firm or non-firm services.				

FIGURE 5-13

**NOVA SCOTIA POWER INC.
RATE CALCULATION
NETWORK TRANSMISSION SERVICE**

	(1)	(2)	(3)	(4)
Service Category	Annual Cost of Service (\$MW-year)	Monthly Cost of Service (\$MW-month)	Coincidence Factor	Monthly (\$MW-month) Billing Rate
Network Service	\$39,278.11	\$3,273.18	85.0%	\$2,782.20
NOTE: This approach facilitates the use of non-coincident peaks for billing purposes consistent with EMGC Recommendation 28.				

FIGURE 5-14

NOVA SCOTIA POWER INC.
 RATE CALCULATION
 SCHEDULING, SYSTEM CONTROL AND DISPATCH

Service	(1)	(2)	(3)	(4)		
	Total Cost of Service (in \$000s)	Total Usage (in MW)	Yearly Cost \$/MW-year	Monthly Cost \$/MW-month		
Sched., Sys. Cntrl. & Disp. for Point-to-Point	\$95	34	\$2,794.12	\$232.84		
Rate for Services Billed Monthly						
			Services \$/MW-year	\$/MW-month		
Yearly		Monthly Cost	2,794.12	232.84		
Monthly	(\$/MW-m)	Yearly/12		232.84		
Weekly	(\$/MW-w)	Yearly/52		53.73		
On-Peak Daily	(\$/MW-d)	Weekly/5		10.75		
Off-peak Daily	(\$/MW-d)	Yearly/365		7.66		
On-Peak Hourly	(\$/MW-h)	Daily/16		0.67		
Off-Peak Hourly	(\$/MW-h)	Yearly/8760		0.32		
Cost of Service						
	Total Cost of Service (in \$000s)	Total Usage (in MW)	(\$MW-year)	(\$MW-month)	Coincidence Factor	Rate Monthly (\$MW-month)
Sched., Sys. Cntrl. & Disp. for Network Service	\$4,663	1823	\$2,557.87	\$213.16	85.0%	\$181.18
NOTE:						
This approach facilitates the use of non-coincident peaks for billing purposes consistent with EMGC Recommendation 28.						

FIGURE 6-5

**NOVA SCOTIA POWER INC.
CAPACITY BASED ANCILLARY SERVICES
COST DATA FOR PROXY UNITS**

		Greenfield Combustion Turbine Unit	Combined Cycle Gas Unit
Capacity Rating	(kW)	183,000	122,000
Capital Cost	(\$000)	\$96,336	\$116,234
	(\$/kW)	\$526	\$953
Plant Life	(Years)	30	30
Variable O&M Costs	(\$/MWh)	\$1.75	\$1.41
Fixed O&M Costs	(\$000)	\$2,172	\$1,333
	(\$/kW-yr)	\$11.87	\$10.93
Year Dollars		2005	
Escalation Factor		2.00%	
Interest Rate (WACC)		8.30%	
NOTES:			
1. The Combustion Turbine unit is used as a proxy for off-line services.			
2. The Combined Cycle unit is used as a proxy for on-line services.			
3. The Capital Costs of the Combined Cycle unit is currently being used by NSPI in its planning models. The cost has been updated to 2005\$.			
4. The Capital cost of the Combustion Turbine unit is the same as that used in the Generic Rate Design Hearing. The cost has been updated to 2005\$.			
5. The Fixed and Variable costs of the Combustion Turbine unit was based on an 80% capacity factor and segregated between fixed and variable based on the relationship of the Combined Cycle unit.			
6. Fixed and Variable Costs include Corporate O/H assignment.			

FIGURE 6-6

NOVA SCOTIA POWER INC.
COST OF CAPACITY BASED ANCILLARY SERVICES FROM PROXY UNITS

Ancillary Service	Proxy Source	(1) Capacity (MW)	(2) Capital Cost 2004\$ (\$/kW)	(3) Expected Life (yr)	(4) Escalating Capital Charge (\$/kW-yr)	(5) Fixed O&M (\$/kW-yr)	(6) Total Fixed Costs (\$/kW-yr)	(7) Contribution Reactive Supply (\$/kW-yr)	(8) Installed Capacity Credit (\$/kW-yr)	(9) Energy Production Credit (\$/kW-yr)	(10) Revenue Requirement Ancillary Serv. (\$/kW-yr)
Regulation and Frequency Response:											
Regulation	Combined Cycle	122	\$953	30	\$78.79	\$10.93	\$89.72	\$3.61	\$0.00	\$43.05	\$43.05
Load Following	Combined Cycle	122	\$953	30	\$78.79	\$10.93	\$89.72	\$3.61	\$0.00	\$43.05	\$43.05
Operating Reserves:											
Spinning (10 minute)	Combined Cycle	122	\$953	30	\$78.79	\$10.93	\$89.72	\$3.61	\$0.00	\$8.61	\$77.49
Supplemental (10 Minute)	Combustion Turbine	183	\$526	30	\$43.54	\$11.87	\$55.41	\$1.81	\$0.00	\$0.00	\$53.60
Supplemental (30 Minute)	Combustion Turbine	183	\$526	30	\$43.54	\$11.87	\$55.41	\$1.81	\$0.00	\$0.00	\$53.60
NOTES:											
1. The Escalating Capital charge includes Income Tax.											
2. The Fixed O&M is the 2005 estimate from Figure 6-4.											
3. The Contribution to Reactive Supply is \$8.40/kVAR (Figure 6-9) multiplied by 88.8% (Figure 6-9 ratio of required MVAR to MVAR capability) multiplied by 48.4% (ratio of MVAR to MW at 90% power factor).											
4. Capacity Factor for regulation 50%											
5. Capacity Factor for load following 50%											
6. Capacity Factor for spinning reserve 10%											
7. Capacity factor for supplemental 10 minute reserve 0%											
8. Capacity factor for supplemental 30 minute reserve 0%											
9. Energy Production Credit is Total Fixed Costs in Col. 6 minus Col. 7 and minus Col. 8 multiplied by the appropriate Capacity Factor from Notes 4 to 8.											

FIGURE 6-7

**NOVA SCOTIA POWER INC.
CAPACITY BASED ANCILLARY SERVICES
NOVA SCOTIA USAGE**

	(1)	(2)	(3)	(4)	(5)
	<u>Network Service Billing Determinants</u>				
	Usage by Point-to- Point MW	Total MW	Loads that Self Supply MW	Loads that Purchase From Third Party MW	Net Usage in Tariff MW
Regulation and Frequency Response					
Regulation	0	2,145			2,145
Load Following	0	2,145			2,145
Operating Reserves (Contingency Reserves)					
Spinning (10 Minute)	0	2,145			2,145
Supplemental (10 Minute)	0	2,145			2,145
Supplemental (30 Minute)	0	2,145			2,145
NOTES:					
1. The Network Billing Determinants (based on 12 NCP) are as per Figure 5-10.					
2. These services apply only to Network Service loads or to point-to-point services within Nova Scotia. They do not apply to point-to-point service used for exports, because for exports, those services would be the responsibility of the customer receiving the supply. That customer would purchase these ancillary services from the transmission provider in the operating area where the load is located.					

FIGURE 6-8

**NOVA SCOTIA POWER INC.
CAPACITY BASED ANCILLARY SERVICES
REVENUE REQUIREMENT AND RATE DESIGN**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Revenue Requirement (\$/kW-yr)	Services Required (MW)	Revenue Requirement (\$000/yr)	Usage (MW)	Rate for Network (\$/MW-yr)	Rate for Network (\$/MW-mo)	Rate for Pt.-to-Pt. (\$/MW-mo)	Rate for Pt.-to-Pt. (\$/MW-wk)	Rate for Pt.-to-Pt. (\$/MW-dy)
Regulation and Frequency Response									
Regulation	\$43.05	26	\$1,119.35	2,145	\$521.84	\$43.49	\$43.49	\$10.04	\$1.43
Load Following	\$43.05	142	\$6,113.35	2,145	\$2,850.05	\$237.50	\$237.50	\$54.81	\$7.81
Operating Reserves (Contingency Reserves)									
Spinning (10 Minute)	\$77.49	25	\$1,937.33	2,145	\$903.18	\$75.27	\$75.27	\$17.37	\$2.47
Supplemental (10 Minute)	\$53.60	100	\$5,360.16	2,145	\$2,498.91	\$208.24	\$208.24	\$48.06	\$6.85
Supplemental (30 Minute)	\$53.60	50	\$2,680.08	2,145	\$1,249.45	\$104.12	\$104.12	\$24.03	\$3.42
NOTES:									
1. Revenue Requirement is from Figure 6-5, Column 10.									

FIGURE 6-9

**NOVA SCOTIA POWER INC.
REACTIVE SUPPLY AND VOLTAGE CONTROL
CALCULATION OF REVENUE REQUIREMENT**

		(1)	(2)	(3)	(4)	(5)	(6)
		Capacity (MVAR)	Capital Cost (\$000) 2005\$	Expected Life (yrs)	Escalating Capital Charge (\$000/yr)	Fixed O&M (\$000/yr)	Total Fixed Costs (\$000/yr)
Ancillary Service	Proxy Source						
Reactive Supply and Voltage Control	Static Var Compensators	200	\$14,045.0	35	\$1,153.56	\$526.70	\$1,680.26
Revenue Requirement per VAR of capability				\$/kVAR/yr			\$8.40
Estimated peak VAR requirement				MVAR	480		
Additional VAR requirement for dynamic system security				MVAR	<u>480</u>		
Total VAR requirement				MVAR	960		960
Revenue requirement total				\$000/yr			\$8,065
NOTES:							
1. Discount Rate		8.30%					
2. Escalation Rate		2.00%					
3. The Escalating Capital charge includes Income Tax.							
4. Total capability of generation currently on the system is		1,080.5 MVAR					
5. The requirement divided by the capability is		960 MVAR divided by	1080.5	MVAR	=	88.8%	

FIGURE 6-10

NOVA SCOTIA POWER INC.
 REACTIVE SUPPLY AND VOLTAGE CONTROL
 RATE DESIGN

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Revenue Requirement (\$000/yr)	Billing Determinants (MW)	Yearly (\$/MW-yr)	Monthly (\$/MW-mo)	Weekly (\$/MW-wk)	On-Peak Daily (\$/MW-dy)	Off-Peak Daily (\$/MW-dy)	On-Peak Hourly (\$/MW-hr)	Off-Peak Hourly (\$/MW-hr)
Reactive Supply and Voltage Control									
Total	\$8,065.3								
Less: Credits	0.0								
Net	8,065.3								
Point-to-Point	\$161.3	34	\$4,744.27	\$395.36	\$91.24	\$18.25	\$13.00	\$1.14	\$0.54
Network Services	\$7,904.0	2,145	\$3,684.83	\$307.07					
		2,179							
NOTES:									
1. Point-to-Point and Network Services Reactive Supply and Voltage Control Revenue Requirements are segregated as per Figure 5-10, Col. 3.									

NSPI

Embedded Cost of Ancillary Services

TABLE E4-1
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NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
GENERATING STATION UNIT SPECIFIC FIXED CHARGE RATE SUMMARY

	Lingan	Tufts Cove	Trenton	Pt. Tupper	Pt. Aconi	Sub-Total Thermal Gen.	Wreck Cove	Annapolis Tidal Power	Other Hydro	Wind Generation	Total Hydro
Generator Nameplate Capacity kW's	600000	350000	310000	150000	185000	1595000	200000	17200	163000	1300	381500
Gross Plant Cost	\$451,829,560	\$154,448,551	\$308,031,167	\$142,022,315	\$487,395,932	\$1,543,727,524	\$162,200,373	\$32,766,338	\$162,186,696	\$1,991,516	\$359,144,923
Gross Plant Cost/kW	\$753.05	\$441.28	\$993.65	\$946.82	\$2,634.57	\$967.85	\$811.00	\$1,905.02	\$995.01	\$1,531.94	\$941.40
Net Plant Value	\$242,695,201	\$85,084,729	\$216,894,052	\$80,271,520	\$382,431,806	\$1,007,377,307	\$100,249,779	\$23,617,220	\$114,864,771	\$1,756,986	\$240,488,756
Net Plant Value/kW	\$404.49	\$243.10	\$699.66	\$535.14	\$2,067.20	\$631.58	\$501.25	\$1,373.09	\$704.69	\$1,351.53	\$630.38
- share of General Property Plant	\$18,980,863	\$6,654,361	\$16,962,990	\$6,277,927	\$29,909,473	\$78,785,614	\$7,840,399	\$1,847,071	\$8,983,418	\$137,411	\$18,808,300
- share of Deferred Chgs & W/C	\$44,361,413	\$15,552,342	\$39,645,311	\$14,672,552	\$69,903,382	\$184,135,001	\$18,324,309	\$4,316,910	\$20,995,733	\$321,153	\$43,958,105
Total NPV incl. GP & Deferred Chgs.	\$306,037,476	\$107,291,433	\$273,502,353	\$101,221,999	\$482,244,661	\$1,270,297,921	\$126,414,487	\$29,781,200	\$144,843,922	\$2,215,551	\$303,255,160
OM&G (Direct)	\$19,973,900	\$12,436,400	\$14,729,600	\$8,343,600	\$8,272,600	\$63,756,100	\$1,032,600	\$455,900	\$6,133,000	\$52,700	\$7,674,200
OM&G (Overhead)	\$1,656,777	\$1,031,564	\$1,221,778	\$692,078	\$686,188	\$5,288,385	\$85,651	\$37,816	\$508,715	\$4,371	\$636,553
Grants in Lieu	\$3,397,900	\$1,191,245	\$3,036,666	\$1,123,857	\$5,354,309	\$14,103,977	\$1,403,566	\$330,657	\$1,608,186	\$24,599	\$3,367,008
Depreciation (Direct)	\$9,714,336	\$3,969,328	\$7,669,976	\$3,465,344	\$11,941,200	\$36,760,184	\$1,930,184	\$563,581	\$2,196,012	\$62,235	\$4,752,012
Depr. (Gen.Prop. & GB Write-off)	\$2,974,754	\$1,215,500	\$2,348,724	\$1,061,168	\$3,656,671	\$11,256,816	\$591,067	\$172,582	\$672,470	\$19,058	\$1,455,176
Interest	\$11,910,198	\$4,175,509	\$10,644,014	\$3,939,302	\$18,767,732	\$49,436,754	\$4,919,729	\$1,159,008	\$5,636,956	\$86,224	\$11,801,917
Preferred Dividends	\$1,526,405	\$535,131	\$1,364,131	\$504,859	\$2,405,263	\$6,335,789	\$630,510	\$148,538	\$722,429	\$11,050	\$1,512,528
Corporate Taxes	\$7,937,085	\$2,782,605	\$7,093,287	\$2,625,194	\$12,507,021	\$32,945,191	\$3,278,561	\$772,376	\$3,756,529	\$57,460	\$7,864,926
Return	\$10,581,196	\$3,709,584	\$9,456,300	\$3,499,734	\$16,673,532	\$43,920,346	\$4,370,761	\$1,029,680	\$5,007,955	\$76,602	\$10,484,998
TOTAL	\$69,672,551	\$31,046,864	\$57,564,475	\$25,255,136	\$80,264,516	\$263,803,542	\$18,242,630	\$4,670,138	\$26,242,251	\$394,300	\$49,549,318
OM&G	7.07%	12.55%	5.83%	8.93%	1.86%	5.44%	0.88%	1.66%	4.59%	2.58%	2.74%
Depreciation	<u>4.15%</u>	<u>4.83%</u>	<u>3.66%</u>	<u>4.47%</u>	<u>3.23%</u>	<u>3.78%</u>	<u>1.99%</u>	<u>2.47%</u>	<u>1.98%</u>	<u>3.67%</u>	<u>2.05%</u>
Sub-Total	11.21%	17.39%	9.50%	13.40%	5.09%	9.22%	2.88%	4.13%	6.57%	6.25%	4.79%
Grants in Lieu	1.11%	1.11%	1.11%	1.11%	1.11%	1.11%	1.11%	1.11%	1.11%	1.11%	1.11%
Interest	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%
Preferred Dividends	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Corporate Taxes	2.59%	2.59%	2.59%	2.59%	2.59%	2.59%	2.59%	2.59%	2.59%	2.59%	2.59%
Return	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>
Cost of Capital	11.55%	11.55%	11.55%	11.55%	11.55%	11.55%	11.55%	11.55%	11.55%	11.55%	11.55%
FIXED CHARGE RATE	<u>22.77%</u>	<u>28.94%</u>	<u>21.05%</u>	<u>24.95%</u>	<u>16.64%</u>	<u>20.77%</u>	<u>14.43%</u>	<u>15.68%</u>	<u>18.12%</u>	<u>17.80%</u>	<u>16.34%</u>

NOTES:

1. The Gross and Net Asset Values have been averaged based on actual year-end balances for 2003 and 2004.
2. Tufts Cove #5 was in-service at the end of 2004, therefore average GPV & NPV would account for only 50% of asset value at the end of 2004.
3. OM&G and Capital Related Expenses have been based on the 2005 Compliance Filing in response to UARB's Decision on the 2005 Rate Application.
4. The percentages are calculated on "Total NPV incl. GP and Deferred Charges" since the capital-related expenses such as interest, taxes and return reflect NSPI's total capitalization.

NSPI

Embedded Cost of Ancillary Services

TABLE E4-1
Page 2 of 2NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
GENERATING STATION UNIT SPECIFIC FIXED CHARGE RATE SUMMARY

	Burnside	Victoria Junction	Tusket	Tufts Cove 4	Tufts Cove 5	Total Combustion Turbines	Total Generation
Installed Capacity kW's	120000	60000	24000	54000	54000	312000	2288500
Gross Plant Cost	\$18,764,579	\$7,352,598	\$4,368,960	\$42,739,289	\$15,629,500	\$88,854,926	\$2,007,356,872
Gross Plant Cost/kW	\$156.37	\$122.54	\$182.04	\$791.47	\$289.44	\$284.79	\$877.15
Net Book Value	\$5,834,692	\$1,293,328	\$1,833,557	\$39,705,088	\$15,629,500	\$64,296,165	\$1,327,791,727
Net Book Value/kW	\$48.62	\$21.56	\$76.40	\$735.28	\$289.44	\$206.08	\$580.20
- share of General Property Plant	456,323	101,149	143,400	3,105,281	1,222,362	\$5,028,516	\$103,844,791
- share of Deferred Chgs & W/C	1,066,503	236,403	335,150	7,257,555	2,856,862	\$11,752,473	\$242,702,440
Total NPV incl. GP & Deferred Chgs.	\$7,357,518	\$1,630,880	\$2,312,107	\$50,067,924	\$19,708,724	\$61,368,429	\$1,674,338,958
OM&G (Direct)	\$557,500	\$160,500	\$134,700	\$118,350	\$118,350	\$1,089,400	\$72,519,700
OM&G (Overhead)	\$46,243	\$13,313	\$11,173	\$9,817	\$9,817	\$90,363	\$6,015,300
Grants in Lieu	\$81,690	\$18,107	\$25,671	\$555,899	\$218,824	\$900,191	\$18,590,000
Depreciation (Direct)	\$403,438	\$145,581	\$114,030	\$1,423,218	\$520,462	\$2,606,730	\$44,639,389
Depr. (Gen.Prop. & GB Write-off)	\$123,542	\$44,580	\$34,919	\$435,822	\$159,378	\$798,241	\$13,669,611
Interest	\$286,336	\$63,470	\$89,981	\$1,948,516	\$767,013	\$3,155,316	\$65,161,000
Preferred Dividends	\$36,697	\$8,134	\$11,532	\$249,721	\$98,300	\$404,384	\$8,351,000
Corporate Taxes	\$190,817	\$42,297	\$59,965	\$1,298,512	\$511,146	\$2,102,737	\$43,424,000
Return	\$254,385	\$56,387	\$79,941	\$1,731,090	\$681,426	\$2,803,230	\$57,890,000
TOTAL	\$1,980,648	\$552,371	\$561,911	\$7,770,945	\$3,084,716	\$13,950,591	\$330,260,000
OM&G	8.21%	10.66%	6.31%	0.26%	0.65%	1.92%	4.69%
Depreciation	<u>7.16%</u>	<u>11.66%</u>	<u>6.44%</u>	<u>3.71%</u>	<u>3.45%</u>	<u>5.55%</u>	<u>3.48%</u>
Sub-Total	15.37%	22.32%	12.75%	3.97%	4.10%	7.47%	8.17%
Grants in Lieu	1.11%	1.11%	1.11%	1.11%	1.11%	1.47%	1.11%
Interest	3.89%	3.89%	3.89%	3.89%	3.89%	5.14%	3.89%
Preferred Dividends	0.50%	0.50%	0.50%	0.50%	0.50%	0.66%	0.50%
Corporate Taxes	2.59%	2.59%	2.59%	2.59%	2.59%	3.43%	2.59%
Return	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>3.46%</u>	<u>4.57%</u>	<u>3.46%</u>
Cost of Capital	<u>11.55%</u>	<u>11.55%</u>	<u>11.55%</u>	<u>11.55%</u>	<u>11.55%</u>	15.26%	11.55%
FIXED CHARGE RATE	<u>26.92%</u>	<u>33.87%</u>	<u>24.30%</u>	<u>15.52%</u>	<u>15.65%</u>	<u>22.73%</u>	<u>19.72%</u>

NOTES:

1. The Gross and Net Asset Values have been averaged based on actual year-end balances for 2003 and 2004.
2. Tufts Cove #5 was in-service at the end of 2004, therefore average GPV & NPV would account for only 50% of asset value at the end of 2004.
3. OM&G and Capital Related Expenses have been based on the 2005 Compliance Filing in response to UARB's Decision on the 2005 Rate Application.
4. The percentages are calculated on "Total NPV incl. GP and Deferred Charges" since the capital-related expenses such as interest, taxes and return reflect NSPI's total capitalization.

NSPI

Embedded Cost of Ancillary Services

TABLE E4-2
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NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
VOLTAGE CONTROL and REACTIVE SUPPORT SERVICES REVENUE REQUIREMENT

Unit	Generator Nameplate Rating					Generator Net Book Value \$	Fixed Charge Rate	MVAR Production at System Peak	Allocation to Reactive Power	Allocated Generator Cost \$	Exciter Cost Ratio	Exciter Cost \$	Total Gen/Exciter Allocation \$
	MVA	MW	MVAR	Peak MW	PRACTICAL MVAR								
	1	2	3	4	5								
Column Formula			(Note 2)	(Note 3)	= sqrt((1*1) - (4*4))	6	7	8	= (3*3)/(1*1)	= 6*9	11	= 6*11	= 7*(10+12)
Lingan 1	177.0	150.0	94.0	163.0	69.0	\$2,947,081	22.77%	36.0	28.18%	\$830,533	8%	\$235,766	\$242,754
Lingan 2	177.0	150.0	94.0	163.0	69.0	\$2,947,081	22.77%	26.0	28.18%	\$830,533	8%	\$235,766	\$242,754
Lingan 3	177.0	150.0	94.0	163.0	69.0	\$4,333,775	22.77%	22.0	28.18%	\$1,221,325	8%	\$346,702	\$356,977
Lingan 4	177.0	150.0	94.0	163.0	69.0	\$4,333,775	22.77%	24.0	28.18%	\$1,221,325	8%	\$346,702	\$356,977
Tufts Cove 1	117.0	100.0	60.7	82.5	83.0	\$1,151,973	28.94%	37.0	26.95%	\$310,441	10%	\$115,197	\$123,167
Tufts Cove 2	117.0	100.0	60.7	103.0	55.5	\$1,662,892	28.94%	41.0	26.95%	\$448,127	8%	\$133,031	\$168,169
Tufts Cove 3	177.0	150.0	94.0	156.0	69.0	\$2,290,218	28.94%	46.0	28.18%	\$645,419	8%	\$183,217	\$239,782
Tufts Cove 4	60.0	54.0	26.2	51.0	31.6	\$7,941,018	15.52%	5.0	19.00%	\$1,508,793	8%	\$635,281	\$332,778
Tufts Cove 5	60.0	54.0	26.2	51.0	31.6	\$3,125,900	15.65%	5.0	19.00%	\$593,921	8%	\$250,072	\$132,098
Trenton 5	177.0	150.0	94.0	153.0	81.7	\$1,649,798	21.05%	33.0	28.18%	\$464,939	10%	\$164,980	\$132,580
Trenton 6	188.0	160.0	98.7	168.0	84.4	\$11,297,230	21.05%	46.0	27.57%	\$3,114,537	8%	\$903,778	\$845,741
Pt. Tupper 2	177.0	150.0	94.0	161.0	69.0	\$4,729,216	24.95%	38.0	28.18%	\$1,332,767	8%	\$378,337	\$426,925
Pt. Aconi 1	218.0	185.0	115.3	188.0	110.4	\$13,385,113	16.64%	45.0	27.98%	\$3,745,657	8%	\$1,070,809	\$801,650
Wreck Cove 1	111.0	100.0	48.2	83.0	20.0	\$1,253,122	14.43%	2.0	18.84%	\$236,060	8%	\$100,250	\$48,532
Wreck Cove 2	111.0	100.0	48.2	83.0	20.0	\$1,253,122	14.43%	2.0	18.84%	\$236,060	8%	\$100,250	\$48,532
Annapolis Tidal	19.1	17.2	8.3	19.0	2.0	\$1,180,861	15.68%	0.0	18.91%	\$223,250	8%	\$94,469	\$49,823
Wind (Note 1)	1.0	1.3	0.0	1.0	0.0								
Other Hydro	181.0	163.0	78.7	163.0	78.7	\$0	18.12%	10.0	18.90%	\$0	8%	\$0	\$0
Burnside 1	35.0	30.0	18.0	31.0	16.2	\$291,735	26.92%	10.0	26.53%	\$77,399	8%	\$23,339	\$27,119
Burnside 2	35.0	30.0	18.0	31.0	16.2	\$291,735	26.92%	10.0	26.53%	\$77,399	8%	\$23,339	\$27,119
Burnside 3	35.0	30.0	18.0	31.0	16.2	\$291,735	26.92%	10.0	26.53%	\$77,399	8%	\$23,339	\$27,119
Burnside 4	35.0	30.0	18.0	31.0	16.2	\$291,735	26.92%	15.0	26.53%	\$77,399	8%	\$23,339	\$27,119
Victoria Junction 1	35.0	30.0	18.0	34.0	8.3	\$129,333	33.87%	8.0	26.53%	\$34,313	8%	\$10,347	\$15,126
Victoria Junction 2	35.0	30.0	18.0	33.0	11.7	\$129,333	33.87%	7.0	26.53%	\$34,313	8%	\$10,347	\$15,126
Tusket 1	28.0	24.0	14.4	24.0	14.4	\$366,711	24.30%	7.0	26.53%	\$97,291	8%	\$29,337	\$30,774
TOTALS	2,660.1	2,288.5	1,351.5	2,329.5	1,112.1	\$67,274,491		485.0					\$4,718,741

NOTES:

1. The Wind Turbine Induction Generators have no VAR Capability.
2. Nameplate based on MVA and rated Power Factor.
3. Gross generator output on peak.
4. Value of increased generator capacity required to operate excitor.

NSPI

Embedded Cost of Ancillary Services

TABLE E4-2
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NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
VOLTAGE CONTROL and REACTIVE SUPPORT SERVICES REVENUE REQUIREMENT

Unit	Unit Exciter Rating		Ratio of Exciter to Unit Ratings	Exciter Capacity (Note 4) \$	Unit Reactive Capacity Factor	Exciter Energy Consumption Cost \$
	kVA	kW				
Column Formula	14	15	16	17	18	19
			= 15/2/1000	= 6*7*16		= 15/1000*8760*18*\$51.00/MWh
Lingan 1	1430	858	0.57%	\$3,838	74.34%	\$284,965
Lingan 2	1430	858	0.57%	\$3,838	68.82%	\$263,786
Lingan 3	1430	858	0.57%	\$5,644	72.26%	\$277,006
Lingan 4	1430	858	0.57%	\$5,644	71.26%	\$273,161
Tufts Cove 1	639	383	0.38%	\$1,278	77.05%	\$131,987
Tufts Cove 2	424	255	0.25%	\$1,225	68.30%	\$77,695
Tufts Cove 3	1968	1181	0.79%	\$5,217	56.81%	\$299,718
Tufts Cove 4	413	248	0.46%	\$5,660	40.00%	\$44,319
Tufts Cove 5	413	248	0.46%	\$2,247	40.00%	\$44,319
Trenton 5	1402	841	0.56%	\$1,947	67.18%	\$252,487
Trenton 6	1700	1020	0.64%	\$15,158	72.90%	\$332,205
Pt. Tupper 2	1186	711	0.47%	\$5,596	73.29%	\$232,931
Pt. Aconi 1	1800	1080	0.58%	\$13,006	65.90%	\$317,975
Wreck Cove 1	575	345	0.35%	\$624	9.00%	\$13,872
Wreck Cove 2	575	345	0.35%	\$624	9.00%	\$13,872
Annapolis Tidal	86	51.57	0.30%	\$555	10.20%	\$2,350
Wind (Note 1)						
Other Hydro	1358	815	0.50%	\$0	31.20%	\$113,532
Burnside 1	169	102	0.34%	\$266	1.60%	\$726
Burnside 2	169	102	0.34%	\$266	1.60%	\$726
Burnside 3	169	102	0.34%	\$266	1.60%	\$726
Burnside 4	169	102	0.34%	\$266	1.60%	\$726
Victoria Junction 1	169	102	0.34%	\$148	1.60%	\$726
Victoria Junction 2	169	102	0.34%	\$148	1.60%	\$726
Tusket 1	169	102	0.42%	\$377	1.60%	\$726
TOTALS				\$73,838		\$2,981,263

Estimated Peak VAR Requirements (Col. 8)	485.0
Additional VAR Requirements for Dynamic System Security (Exhibit 6-5)	485.0
Total VAR Requirements	970.0
Total Reactive Support Costs - (Col.13+Col.17+Col.19)	\$7,773,841
Ratio of VAR Requirements to Sum of Generator VAR Ratings (960/1080.5)	87.2%
Total Reactive Support Costs	\$6,780,351

NSPI

Embedded Cost of Ancillary Services

TABLE E4-3

**NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
REGULATION REVENUE REQUIREMENT**

Unit	Generator Nameplate Capacity MW	Regulating Capacity MW	Regulating Ramp Rate MW/min	Time on AGC Hours	Regulating Capacity MWh	Ramp Rate Weighting Factor	Weighted Capacity to Regulate MWh	Participation Percentage	Net Book Value \$/kW	Fixed Charge Rate		Weighted Annual Cost \$/kW
Column Formula	1	2	3	4	5	6	7	8	9	10	11	12
		(Note 1)	(Note 2)	(Note 3)	= 2*4	= 3/(Sum of 3)	= 5*6	= 7/(Sum of 7)			= 9*10	= 8*11
Lingan 1	150	25	1.0	1,587.5	39688	1%	261	1%	\$404.49	22.77%	\$92.09	\$ 1.02
Lingan 2	150	25	1.0	1,240.5	31013	1%	204	1%	\$404.49	22.77%	\$92.09	\$ 0.80
Lingan 3	150	25	1.0	756.0	18900	1%	124	1%	\$404.49	22.77%	\$92.09	\$ 0.49
Lingan 4	150	25	1.0	901.0	22525	1%	148	1%	\$404.49	22.77%	\$92.09	\$ 0.58
Tufts Cove 1	100	10	1.0	0.0	0	1%	0	0%	\$243.10	28.94%	\$70.35	\$ -
Tufts Cove 2	100	11	1.5	1,204.5	13250	1%	131	1%	\$243.10	28.94%	\$70.35	\$ 0.39
Tufts Cove 3	150	52	1.5	2,299.5	119574	1%	1,180	5%	\$243.10	28.94%	\$70.35	\$ 3.53
Tufts Cove 4 (Est.)	54	45	10.0	100.0	4500	7%	296	1%	\$735.28	15.52%	\$114.12	\$ 1.43
Tufts Cove 5 (Est.)	54	45	10.0	100.0	4500	7%	296	1%	\$289.44	15.65%	\$45.30	\$ 0.57
Trenton 5	150	30	1.0	560.0	16800	1%	111	0%	\$699.66	21.05%	\$147.26	\$ 0.69
Trenton 6	160	25	2.0	960.5	24013	1%	316	1%	\$699.66	21.05%	\$147.26	\$ 1.98
Pt. Tupper 2	150	70	1.0	500.0	35000	1%	230	1%	\$535.14	24.95%	\$133.52	\$ 1.31
Pt. Aconi 1	185	0	0.0	0.0	0	0%	0	0%	\$2,067.20	16.64%	\$344.06	\$ -
Wreck Cove 1	100	60	15.0	521.5	31290	10%	3,088	13%	\$501.25	14.43%	\$72.33	\$ 9.49
Wreck Cove 2	100	60	15.0	2,122.5	127350	10%	12,567	53%	\$501.25	14.43%	\$72.33	\$ 38.61
Annapolis Tidal	17.2	0	0.0	0.0	0	0%	0	0%	\$1,373.09	15.68%	\$215.32	\$ -
Other Hydro	163	40	20.0	562.0	22480	13%	2,958	13%	\$704.69	18.12%	\$127.67	\$ 16.04
Burnside 1	30	25	10.0	678.0	16950	7%	1,115	5%	\$48.62	26.92%	\$13.09	\$ 0.62
Burnside 2	30	25	10.0	119.5	2988	7%	197	1%	\$48.62	26.92%	\$13.09	\$ 0.11
Burnside 3	30	25	10.0	104.5	2613	7%	172	1%	\$48.62	26.92%	\$13.09	\$ 0.10
Burnside 4	30	25	10.0	68.0	1700	7%	112	0%	\$48.62	26.92%	\$13.09	\$ 0.06
Victoria Junction 1	30	25	10.0	10.0	250	7%	16	0%	\$21.56	33.87%	\$7.30	\$ 0.01
Victoria Junction 2	30	25	10.0	10.0	250	7%	16	0%	\$21.56	33.87%	\$7.30	\$ 0.01
Tusket 4	24	10	10.0	10.0	100	7%	7	0%	\$76.40	24.30%	\$18.57	\$ 0.01
TOTALS	2287.2	708	152.0	14415.5	535731	100%	23,545	100%				\$ 77.82

NOTES:

- 1. Capacity assigned to Automatic Generation Control.
- 2. Unit tested capability for ramping control
- 3. Two year average (SCADA records)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-4

NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
LOAD FOLLOWING REVENUE REQUIREMENT

Unit	Type	Net Book Value	Fixed Charge Rate		Contribution to Load Following	Unit Contribution	Weighted Annual Cost
		\$/kW			Winter morning MW-h		\$/kW
	Column Formula	1	2	3	4	5	6
				= 1*2		= 4/(Sum of 4)	= 3*5
Lingan 1	Thermal	\$404.49	22.77%	\$92.09	-	0%	\$ -
Lingan 2	Thermal	\$404.49	22.77%	\$92.09	-	0%	\$ -
Lingan 3	Thermal	\$404.49	22.77%	\$92.09	-	0%	\$ -
Lingan 4	Thermal	\$404.49	22.77%	\$92.09	-	0%	\$ -
Tufts Cove 1	Thermal	\$243.10	28.94%	\$70.35	-	0%	\$ -
Tufts Cove 2	Thermal	\$243.10	28.94%	\$70.35	2,530	10%	\$ 6.84
Tufts Cove 3	Thermal	\$243.10	28.94%	\$70.35	2,700	10%	\$ 7.30
Tufts Cove 4	Thermal	\$735.28	15.52%	\$114.12	2,600	10%	\$ 11.41
Tufts Cove 5	Thermal	\$289.44	15.65%	\$45.30	2,600	10%	\$ 4.53
Trenton 5	Thermal	\$699.66	21.05%	\$147.26	-	0%	\$ -
Trenton 6	Thermal	\$699.66	21.05%	\$147.26	-	0%	\$ -
Pt. Tupper 2	Thermal	\$535.14	24.95%	\$133.52	-	0%	\$ -
Pt. Aconi 1	Thermal	\$2,067.20	16.64%	\$344.06	-	0%	\$ -
Wreck Cove 1	Hydro	\$501.25	14.43%	\$72.33	4,580	18%	\$ 12.74
Wreck Cove 2	Hydro	\$501.25	14.43%	\$72.33	4,890	19%	\$ 13.60
Annapolis Tidal	Hydro	\$1,373.09	15.68%	\$215.32	-	0%	\$ -
Other Hydro	Hydro	\$704.69	18.12%	\$127.67	5,000	19%	\$ 24.55
Burnside 1	LFO	\$48.62	26.92%	\$13.09	497	2%	\$ 0.25
Burnside 2	LFO	\$48.62	26.92%	\$13.09	221	1%	\$ 0.11
Burnside 3	LFO	\$48.62	26.92%	\$13.09	61	0%	\$ 0.03
Burnside 4	LFO	\$48.62	26.92%	\$13.09	325	1%	\$ 0.16
TOTALS					26,004	100%	\$ 81.53

NOTES:

1. Average one-hour load pickup morning peak November - April (SCADA records)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-5
Page 1 of 2NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
SPINNING 10 MINUTE RESERVE REVENUE REQUIREMENT

Unit	Type	Generator Nameplate Capacity	Net Book Value	Fixed Charge Rate		Annual Generation	Time Connected To Load	Average Generation	Equivalent Availability Factor	Unit Response Rate
		MW	\$/kW			MW-h	Hours	MW		MW/Minute
	Column Formula	1	2	3	4	5	6	7	8	9
					= 2*3	(Note 1)	(Note 2)	= 5/6	(Note 3)	
Lingan 1	Thermal	150	\$404.49	22.77%	\$92.09	1,040,715	7715	134.9	0.927	1.0
Lingan 2	Thermal	150	\$404.49	22.77%	\$92.09	1,003,059	7909	126.8	0.860	1.0
Lingan 3	Thermal	150	\$404.49	22.77%	\$92.09	1,137,349	8352	136.2	0.934	1.0
Lingan 4	Thermal	150	\$404.49	22.77%	\$92.09	1,081,624	8098	133.6	0.905	1.0
Tufts Cove 1	Thermal	100	\$243.10	28.94%	\$70.35	560,323	6924	80.9	0.914	1.0
Tufts Cove 2	Thermal	100	\$243.10	28.94%	\$70.35	518,660	6212	83.5	0.888	1.5
Tufts Cove 3	Thermal	150	\$243.10	28.94%	\$70.35	694,260	6078	114.2	0.929	1.5
Tufts Cove 4	Gas	54	\$735.28	15.52%	\$114.12	25,000	500	50.0	0.950	10.0
Tufts Cove 5	Gas	54	\$289.44	15.65%	\$45.30	25,000	500	50.0	0.950	10.0
Trenton 5	Thermal	150	\$699.66	21.05%	\$147.26	958,504	7639	125.5	0.882	1.0
Trenton 6	Thermal	160	\$699.66	21.05%	\$147.26	1,198,512	8120	147.6	0.923	2.0
Pt. Tupper 2	Thermal	150	\$535.14	24.95%	\$133.52	1,111,341	8014	138.7	0.950	1.0
Pt. Aconi 1	Thermal	185	\$2,067.20	16.64%	\$344.06	1,371,043	7948	172.5	0.905	0.0
Wreck Cove 1	Hydro	100	\$501.25	14.43%	\$72.33	135,656	2508	54.1	0.980	15.0
Wreck Cove 2	Hydro	100	\$501.25	14.43%	\$72.33	146,713	2750	53.4	0.910	15.0
Annapolis Tidal	Hydro	17.2	\$1,373.09	15.68%	\$215.32	29,328	3523	8.3	0.950	0.0
Other Hydro	Hydro	163	\$704.69	18.12%	\$127.67	743,176	8760	84.8	0.500	20.0
Burnside 1	Diesel	30	\$48.62	26.92%	\$13.09	7,118	365	19.5	0.930	10.0
Burnside 2	Diesel	30	\$48.62	26.92%	\$13.09	5,763	292	19.8	0.964	10.0
Burnside 3	Diesel	30	\$48.62	26.92%	\$13.09	3,770	206	18.3	0.860	10.0
Burnside 4	Diesel	30	\$48.62	26.92%	\$13.09	6,253	307	20.4	0.968	10.0
Victoria Junction 1	Diesel	30	\$21.56	33.87%	\$7.30	1,171	58	20.2	0.973	10.0
Victoria Junction 2	Diesel	30	\$21.56	33.87%	\$7.30	1,928	95	20.4	0.973	10.0
Tusket 1	Diesel	24	\$76.40	24.30%	\$18.57	1,236	102	12.1	0.978	10.0
TOTALS		2287.2	\$10,767.92			11,807,499		1,825.7		152.0

NOTES:

1. Average 2002 - 2003
2. Average 2002 - 2003 (SCADA records)
3. Time available to operate, two year average
4. Non-firm exports assigned to units (2003)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-5
Page 2 of 2

NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
SPINNING 10 MINUTE RESERVE REVENUE REQUIREMENT

Unit	Type	Spinning Reserve (10 Minutes)						
		Response 0 - 10 Min. MW	Used Yes = 1 No = 0	Actual Recallable Sales MWh	Potential Reserve MWh	Total Reserve MWh	Unit/Inter. Contribution	Weighted Annual Cost \$/kW
		10 Formula = Min (1,9*10)	11	12 (Note 4)	13 = Max (0,Min(1-7,10))*6*11	14 = 12+13	15 = 14/(Sum of 14)	16 = 4*15
Lingan 1	Thermal	10.0	1	10,520	77,150	87,670	7%	\$ 6.72
Lingan 2	Thermal	10.0	1	21,195	79,090	100,285	8%	\$ 7.69
Lingan 3	Thermal	10.0	1	2,483	83,515	85,998	7%	\$ 6.59
Lingan 4	Thermal	10.0	1	4,582	80,975	85,557	7%	\$ 6.56
Tufts Cove 1	Thermal	10.0	0	26,934	-	26,934	2%	\$ 1.58
Tufts Cove 2	Thermal	15.0	1	27,943	93,173	121,116	10%	\$ 7.09
Tufts Cove 3	Thermal	15.0	1	33,206	91,170	124,376	10%	\$ 7.29
Tufts Cove 4	Gas	54.0	0	351	-	351	0%	\$ 0.03
Tufts Cove 5	Gas	54.0	0	351	-	351	0%	\$ 0.01
Trenton 5	Thermal	10.0	1	15,872	76,390	92,262	8%	\$ 11.31
Trenton 6	Thermal	20.0	1	5	100,688	100,693	8%	\$ 12.35
Pt. Tupper 2	Thermal	10.0	1	30,989	80,140	111,129	9%	\$ 12.35
Pt. Aconi 1	Thermal	0.0	0	613	-	613	0%	\$ 0.18
Wreck Cove 1	Hydro	100.0	1	-	115,094	115,094	10%	\$ 6.93
Wreck Cove 2	Hydro	100.0	1	-	128,288	128,288	11%	\$ 7.73
Annapolis Tidal	Hydro	0.0	0	-	-	-	0%	\$ -
Other Hydro	Hydro	163.0	0	-	-	-	0%	\$ -
Burnside 1	Diesel	30.0	1	1,679	3,833	5,512	0%	\$ 0.06
Burnside 2	Diesel	30.0	1	1,388	2,982	4,370	0%	\$ 0.05
Burnside 3	Diesel	30.0	1	375	2,410	2,785	0%	\$ 0.03
Burnside 4	Diesel	30.0	1	1,147	2,942	4,089	0%	\$ 0.04
Victoria Junction 1	Diesel	30.0	1	367	569	936	0%	\$ 0.01
Victoria Junction 2	Diesel	30.0	1	268	907	1,175	0%	\$ 0.01
Tusket 1	Diesel	24.0	1	185	1,212	1,397	0%	\$ 0.02
TOTALS				180,453	1,020,527	1,200,980	100%	\$ 94.63

NOTES:

1. Average 2002 - 2003
2. Average 2002 - 2003 (SCADA records)
3. Time available to operate, two year average
4. Non-firm exports assigned to units (2003)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-6
Page 1 of 2

NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
SUPPLEMENTAL 10 MINUTE RESERVE REVENUE REQUIREMENT

Unit	Type	Generator Nameplate Capacity	Net Book Value	Fixed Charge Rate		Annual Generation	Time Connected To Load	Average Generation	Equivalent Availability Factor	Unit Response Rate
		MW	\$/kW			MW-h	Hours	MW		MW/Minute
		1	2	3	4	5	6	7	8	9
	Formula				= 2*3	(Note 1)	(Note 2)	= 5/6	(Note 3)	(Note 4)
Lingan 1	Thermal	150	\$404.49	22.77%	\$92.09	1,040,715	7,715.0	134.9	0.927	1.0
Lingan 2	Thermal	150	\$404.49	22.77%	\$92.09	1,003,059	7,909.0	126.8	0.860	1.0
Lingan 3	Thermal	150	\$404.49	22.77%	\$92.09	1,137,349	8,351.5	136.2	0.934	1.0
Lingan 4	Thermal	150	\$404.49	22.77%	\$92.09	1,081,624	8,097.5	133.6	0.905	1.0
Tufts Cove 1	Thermal	100	\$243.10	28.94%	\$70.35	560,323	6,924.0	80.9	0.914	1.0
Tufts Cove 2	Thermal	100	\$243.10	28.94%	\$70.35	518,660	6,211.5	83.5	0.888	1.5
Tufts Cove 3	Thermal	150	\$243.10	28.94%	\$70.35	694,260	6,078.0	114.2	0.929	1.5
Tufts Cove 4	Gas	54	\$735.28	15.52%	\$114.12	25,000	500.0	50.0	0.950	10.0
Tufts Cove 5	Gas	54	\$289.44	15.65%	\$45.30	25,000	500.0	50.0	0.950	10.0
Trenton 5	Thermal	150	\$699.66	21.05%	\$147.26	958,504	7,639.0	125.5	0.882	1.0
Trenton 6	Thermal	160	\$699.66	21.05%	\$147.26	1,198,512	8,120.0	147.6	0.923	2.0
Pt. Tupper 2	Thermal	150	\$535.14	24.95%	\$133.52	1,111,341	8,014.0	138.7	0.950	1.0
Pt. Aconi 1	Thermal	185	\$2,067.20	16.64%	\$344.06	1,371,043	7,947.5	172.5	0.905	0.0
Wreck Cove 1	Hydro	100	\$501.25	14.43%	\$72.33	135,656	2,507.5	54.1	0.980	15.0
Wreck Cove 2	Hydro	100	\$501.25	14.43%	\$72.33	146,713	2,750.0	53.4	0.910	15.0
Annapolis Tidal	Hydro	17.2	\$1,373.09	15.68%	\$215.32	29,328	3,523.0	8.3	0.950	0.0
Other Hydro	Hydro	163	\$704.69	18.12%	\$127.67	743,176	8,760.0	84.8	0.500	20.0
Burnside 1	Diesel	30	\$48.62	26.92%	\$13.09	7,118	365.0	19.5	0.930	10.0
Burnside 2	Diesel	30	\$48.62	26.92%	\$13.09	5,763	291.5	19.8	0.964	10.0
Burnside 3	Diesel	30	\$48.62	26.92%	\$13.09	3,770	206.0	18.3	0.860	10.0
Burnside 4	Diesel	30	\$48.62	26.92%	\$13.09	6,253	306.5	20.4	0.968	10.0
Victoria Junction 1	Diesel	30	\$21.56	33.87%	\$7.30	1,171	58.0	20.2	0.973	10.0
Victoria Junction 2	Diesel	30	\$21.56	33.87%	\$7.30	1,928	94.5	20.4	0.973	10.0
Tusket 1	Diesel	24	\$76.40	24.30%	\$18.57	1,236	102.0	12.1	0.978	10.0
TOTALS		2287.2	\$10,767.92			11,807,499		1,825.7		152.0

NOTES:

1. Average 2002 - 2003
2. Average 2002 - 2003 (SCADA records)
3. Time available to operate, two year average
4. Unit tested capability for ramping control
5. Non-firm exports assigned to units (2003)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-6
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NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
SUPPLEMENTAL 10 MINUTE RESERVE REVENUE REQUIREMENT

Unit	Type	Supplemental 10 Minute Reserve						
		Response 0 - 10 Min. MW	Used Yes = 1 No = 0	Actual Recallable Sales MWh	Potential Reserve MWh	Total Reserve MWh	Unit/Inter. Contribution	Weighted Annual Cost \$/kW
		Column 10	11	12	13	14	15	16
		Formula = Min (1,9*10)		(Note 5)	Thermal = Max (0,Min(1-7,10))*6 *11 Hyd & Diesel = 1*8*8760 - 5 *11	= 12+13	= 14/(Sum of 14)	= 4*15
Lingan 1	Thermal	10.0	0	10,520	-	10,520	0%	\$ 0.36
Lingan 2	Thermal	10.0	0	21,195	-	21,195	1%	\$ 0.72
Lingan 3	Thermal	10.0	0	2,483	-	2,483	0%	\$ 0.08
Lingan 4	Thermal	10.0	0	4,582	-	4,582	0%	\$ 0.16
Tufts Cove 1	Thermal	10.0	0	26,934	-	26,934	1%	\$ 0.70
Tufts Cove 2	Thermal	15.0	1	27,943	93,173	121,116	4%	\$ 3.16
Tufts Cove 3	Thermal	15.0	1	33,206	91,170	124,376	5%	\$ 3.25
Tufts Cove 4	Gas	54.0	0	351	-	351	0%	\$ 0.01
Tufts Cove 5	Gas	54.0	0	351	-	351	0%	\$ 0.01
Trenton 5	Thermal	10.0	0	15,872	-	15,872	1%	\$ 0.87
Trenton 6	Thermal	20.0	0	5	-	5	0%	\$ 0.00
Pt. Tupper 2	Thermal	10.0	0	30,989	-	30,989	1%	\$ 1.54
Pt. Aconi 1	Thermal	0.0	0	613	-	613	0%	\$ 0.08
Wreck Cove 1	Hydro	100.0	1	-	722,824	722,824	27%	\$ 19.41
Wreck Cove 2	Hydro	100.0	1	-	650,448	650,448	24%	\$ 17.47
Annapolis Tidal	Hydro	0.0	0	-	-	-	0%	\$ -
Other Hydro	Hydro	163.0	0	-	-	-	0%	\$ -
Burnside 1	Diesel	30.0	1	1,679	237,287	238,966	9%	\$ 1.16
Burnside 2	Diesel	30.0	1	1,388	247,576	248,964	9%	\$ 1.21
Burnside 3	Diesel	30.0	1	375	222,238	222,613	8%	\$ 1.08
Burnside 4	Diesel	30.0	1	1,147	248,138	249,285	9%	\$ 1.21
Victoria Junction 1	Diesel	30.0	0	367	-	367	0%	\$ 0.00
Victoria Junction 2	Diesel	30.0	0	268	-	268	0%	\$ 0.00
Tusket 1	Diesel	24.0	0	185	-	185	0%	\$ 0.00
TOTALS				180,453	2,512,853	2,693,306	100%	\$ 52.49

NOTES:

1. Average 2002 - 2003
2. Average 2002 - 2003 (SCADA records)
3. Time available to operate, two year average
4. Unit tested capability for ramping control
5. Non-firm exports assigned to units (2003)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-7
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NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
SUPPLEMENTAL 30 MINUTE RESERVE REVENUE REQUIREMENT

Unit	Type	Installed Capacity	Net Book Value	Fixed Charge Rate		Annual Generation	Time Connected To Load	Average Generation	Equivalent Availability Factor	Unit Response Rate
		MW	\$/kW			MW-h	Hours	MW		MW/Minute
		1	2	3	4	5	6	7	8	9
Formula				= 2*3	(Note 1)	(Note 2)	= 5/6	(Note 3)	(Note 4)	
Lingan 1	Thermal	150	\$404.49	22.77%	\$92.09	1,040,715	7,715.0	134.9	0.927	1.0
Lingan 2	Thermal	150	\$404.49	22.77%	\$92.09	1,003,059	7,909.0	126.8	0.860	1.0
Lingan 3	Thermal	150	\$404.49	22.77%	\$92.09	1,137,349	8,351.5	136.2	0.934	1.0
Lingan 4	Thermal	150	\$404.49	22.77%	\$92.09	1,081,624	8,097.5	133.6	0.905	1.0
Tufts Cove 1	Thermal	100	\$243.10	28.94%	\$70.35	560,323	6,924.0	80.9	0.914	1.0
Tufts Cove 2	Thermal	100	\$243.10	28.94%	\$70.35	518,660	6,211.5	83.5	0.888	1.5
Tufts Cove 3	Thermal	150	\$243.10	28.94%	\$70.35	694,260	6,078.0	114.2	0.929	1.5
Tufts Cove 4	Gas	54	\$735.28	15.52%	\$114.12	25,000	500.0	50.0	0.950	10.0
Tufts Cove 5	Gas	54	\$289.44	15.65%	\$45.30	25,000	500.0	50.0	0.950	10.0
Trenton 5	Thermal	150	\$699.66	21.05%	\$147.26	958,504	7,639.0	125.5	0.882	1.0
Trenton 6	Thermal	160	\$699.66	21.05%	\$147.26	1,198,512	8,120.0	147.6	0.923	2.0
Pt. Tupper 2	Thermal	150	\$535.14	24.95%	\$133.52	1,111,341	8,014.0	138.7	0.950	1.0
Pt. Aconi 1	Thermal	185	\$2,067.20	16.64%	\$344.06	1,371,043	7,947.5	172.5	0.905	0.0
Wreck Cove 1	Hydro	100	\$501.25	14.43%	\$72.33	135,656	2,507.5	54.1	0.980	15.0
Wreck Cove 2	Hydro	100	\$501.25	14.43%	\$72.33	146,713	2,750.0	53.4	0.910	15.0
Annapolis Tidal	Hydro	17.2	\$1,373.09	15.68%	\$215.32	29,328	3,523.0	8.3	0.950	0.0
Other Hydro	Hydro	163	\$704.69	18.12%	\$127.67	743,176	8,760.0	84.8	0.500	20.0
Burnside 1	Diesel	30	\$48.62	26.92%	\$13.09	7,118	365.0	19.5	0.930	10.0
Burnside 2	Diesel	30	\$48.62	26.92%	\$13.09	5,763	291.5	19.8	0.964	10.0
Burnside 3	Diesel	30	\$48.62	26.92%	\$13.09	3,770	206.0	18.3	0.860	10.0
Burnside 4	Diesel	30	\$48.62	26.92%	\$13.09	6,253	306.5	20.4	0.968	10.0
Victoria Junction 1	Diesel	30	\$21.56	33.87%	\$7.30	1,171	58.0	20.2	0.973	10.0
Victoria Junction 2	Diesel	30	\$21.56	33.87%	\$7.30	1,928	94.5	20.4	0.973	10.0
Tusket 1	Diesel	24	\$76.40	24.30%	\$18.57	1,236	102.0	12.1	0.978	10.0
TOTALS		2287.2	\$10,767.92			11,807,499		1,825.7		152.0

NOTES:

1. Average 2002 - 2003
2. Average 2002 - 2003 (SCADA records)
3. Time available to operate, two year average
4. Unit tested capability for ramping control
5. Non-firm exports assigned to units (2003)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-7
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NOVA SCOTIA POWER INC.
EMBEDDED COST OF ANCILLARY SERVICES
SUPPLEMENTAL 30 MINUTE RESERVE REVENUE REQUIREMENT

Unit	Type	Supplemental 30 Minute Reserve						
		Response 10 - 30 Min. MW	Used Yes = 1 No = 0	Actual Recallable Sales MWh	Potential Reserve MWh	Total Reserve MWh	Unit/Inter. Contribution	Weighted Annual Cost \$/kW
		Column 10	11	12	13	14	15	16
		Formula = Min (1,9*20)		(Note 5)	Thermal = Max (0,Min(1-7,10))*6*11 Hyd & Diesel = ((1*8*8760)- 5)*11	= 12+13	= 14/(Sum of 14)	= 4*15
Lingan 1	Thermal	20.0	1	10,520	116,535	127,055	9.51%	\$ 8.75
Lingan 2	Thermal	20.0	1	21,195	158,180	179,375	13.42%	\$ 12.36
Lingan 3	Thermal	20.0	1	2,483	115,376	117,859	8.82%	\$ 8.12
Lingan 4	Thermal	20.0	1	4,582	133,001	137,583	10.29%	\$ 9.48
Tufts Cove 1	Thermal	20.0	0	26,934	-	26,934	2.02%	\$ 1.42
Tufts Cove 2	Thermal	30.0	1	27,943	102,490	130,433	9.76%	\$ 6.86
Tufts Cove 3	Thermal	30.0	1	33,206	182,340	215,546	16.13%	\$ 11.34
Tufts Cove 4	Gas	54.0	1	351	2,000	2,351	0.18%	\$ 0.20
Tufts Cove 5	Gas	54.0	1	351	2,000	2,351	0.18%	\$ 0.08
Trenton 5	Thermal	20.0	1	15,872	152,780	168,652	12.62%	\$ 18.58
Trenton 6	Thermal	40.0	1	5	100,688	100,693	7.53%	\$ 11.09
Pt. Tupper 2	Thermal	20.0	1	30,989	90,759	121,748	9.11%	\$ 12.16
Pt. Aconi 1	Thermal	0.0	0	613	-	613	0.05%	\$ 0.16
Wreck Cove 1	Hydro	100.0	0	-	-	-	0.00%	\$ -
Wreck Cove 2	Hydro	100.0	0	-	-	-	0.00%	\$ -
Annapolis Tidal	Hydro	0.0	0	-	-	-	0.00%	\$ -
Other Hydro	Hydro	163.0	0	-	-	-	0.00%	\$ -
Burnside 1	Diesel	30.0	0	1,679	-	1,679	0.13%	\$ 0.02
Burnside 2	Diesel	30.0	0	1,388	-	1,388	0.10%	\$ 0.01
Burnside 3	Diesel	30.0	0	375	-	375	0.03%	\$ 0.00
Burnside 4	Diesel	30.0	0	1,147	-	1,147	0.09%	\$ 0.01
Victoria Junction 1	Diesel	30.0	0	367	-	367	0.03%	\$ 0.00
Victoria Junction 2	Diesel	30.0	0	268	-	268	0.02%	\$ 0.00
Tusket 1	Diesel	24.0	0	185	-	185	0.01%	\$ 0.00
TOTALS				180,453	1,156,149	1,336,602	100.00%	\$ 100.66

NOTES:

1. Average 2002 - 2003
2. Average 2002 - 2003 (SCADA records)
3. Time available to operate, two year average
4. Unit tested capability for ramping control
5. Non-firm exports assigned to units (2003)

NSPI

Embedded Cost of Ancillary Services

TABLE E4-8

**NOVA SCOTIA POWER INC.
EMBEDDED VS PROXY COST OF ANCILLARY SERVICES
REVENUE REQUIREMENT SUMMARY**

<u>Service</u>	EMBEDDED		PROXY	
	<u>Unit Revenue Requirement</u>		<u>Unit Revenue Requirement</u>	
Voltage Control and Reactive Supply	\$6,780,351	\$/yr	\$8,065,300	\$/yr
Regulation Cost	\$77.82	\$/kW-yr	\$43.05	\$/kW-yr
Load Following Cost	\$81.53	\$/kW-yr	\$43.05	\$/kW-yr
Operating Reserve - Spinning	\$94.63	\$/kW-yr	\$77.49	\$/kW-yr
Operating Reserve - Supplemental - 10 Minute	\$52.49	\$/kW-yr	\$53.60	\$/kW-yr
Operating Reserve - Supplemental - 30 Minute	\$100.66	\$/kW-yr	\$53.60	\$/kW-yr
	<u>Total Revenue Requirement</u>		<u>Total Revenue Requirement</u>	
Voltage Control and Reactive Supply	\$6,780	\$000/yr	\$8,065	\$000/yr
Regulation Cost	2,023	\$000/yr	1,119	\$000/yr
Load Following Cost	11,578	\$000/yr	6,113	\$000/yr
Operating Reserve - Spinning	2,366	\$000/yr	1,937	\$000/yr
Operating Reserve - Supplemental - 10 Minute	5,249	\$000/yr	5,360	\$000/yr
Operating Reserve - Supplemental - 30 Minute	<u>5,033</u>	\$000/yr	<u>2,680</u>	\$000/yr
Total Annual Revenue Requirement	<u>\$33,030</u>	\$000/yr	<u>\$25,275</u>	\$000/yr