Item	Stakeholder Comment	Intervenor	Draft Response	Category
1	At the Technical Conference, NSPI had indicated that it would provide the detailed assumptions that were used to develop the natural gas price assumptions (slide 25). Please provide these assumptions.	Industrial Group	Please refer to slides 52 to 58 of the April 11, 2014 Finalized Assumptions deck.	Assumptions
2	Also, if NSPI intends to revise or update coal, natural gas or other fuel prices prior to completing the IRP modelling, please provide relevant information as to when and how NSPI will update the assumptions.	Industrial Group	The Company does not plan to update the fuel assumptions any further for this IRP.	Assumptions
3	With respect to purchased power assumptions, the Industrial Group requests that NSPI include, in the plan modelling, (a) scenarios where the Maritime Link is delayed in completion and (b) scenarios where supply from the Link is curtailed such that there is no "market price" power available (only the "basic block")	Industrial Group	NS Power will test pricing sensitivities for imported electricity. The Company expects the Maritime Link will be completed in the timeframe discussed during the regulatory process that approved the project. Regular updates are sent to the UARB on project timelines.	Alternative Worlds
4	…there appears to be some inconsistencies with the life-spans specified. … This suggests a 5 year difference in coal plant retirements between max and med coal, i.e. 55 year lives, which is inconsistent with the 60 and 50 year life spans specified in slide 36.	Industrial Group	Please refer to Attachment 3 for the retirement assumptions for the CRP coal use levels.	CRPs
5	The Industrial Group suggests that NSPI apply its knowledge to vary and extend the plant lives individually as a limiting factor and then allow Strategist to choose the most cost-effective time for retirement within individual plant life constraints.	Industrial Group	Please refer to item 4.	CRPs
6	The Industrial Group requests that NSPI provide more information with respect to the treatment of costs for retired generating plants.	Industrial Group	The Company will consider the retirement cost on a case by case basis for the retirement schedule of the Candidate Resource Plans. Decommissioning costs are considered through depreciation rates.	Assumptions
7	What heat rates were used to translate natural gas and coal prices to equivalent power prices for this graph? Heat rates of NSPI's existing units (for coal) or potential new units (gas)?	Industrial Group	Coal power prices were based on NS Power's existing coal units. Gas power prices were based on a unit similar to Tufts Cove 6 combined cycle.	Assumptions
8	Does NSPI expect winter peak power prices to consistently reflect a heat rate lower than they can generate at (as implied by the graph)? If so, will Strategist not always (under the Base Price scenarios) select winter peak purchases prior to running or building gas units? What is the likelihood of this happening year after year, as implied in the fuel price input data?	Industrial Group	Correct. Strategist will select import power (up to available amounts) if imports are cheaper than domestic generation. NEPOOL market prices are the result of a combination of evolving generation fleet composition (which drives the heat rate) and evolving natural gas prices (both by PIRA). NS Power's cost of natural gas fired generation shown in this graph is driven by natural gas prices and the heat rate of existing NS Power facilities, and shown for information purposes only. Model outputs will consider all relevant quantities, including (among others): import transmission constraints, NEPOOL power prices, NS delivered natural gas prices and existing and new facility (if any) heat rates. NS Power cannot comment on the specific likelihood of any scenario under consideration but is instead providing high, low and base scenarios to capture many potential outcomes.	Assumptions
9	In the early years coal is lower cost than off-peak purchases only in the winter. Has this been the case in the recent past or is this a new paradigm?	Industrial Group	Import prices are set by prices in New England, which are set by gas and oil in the winter, both on and off peak. As a result, import prices are higher than NS Power's own coal facilities. In the summer, NS coal is typically more competitive.	Assumptions

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10	Given that Plexos will reveal useful information about the CRPs, but that it must be used in a limited fashion, the Industrial Group requests that NSPI develop and circulate a protocol that outlines when and how Plexos will be used. We suggest that this should include a "control" scenario - one where NSPI expects that modelling in Plexos would not produce significantly different results from the Strategist model - to confirm that modelling in Plexos is only useful in the situations established by the protocol.	Industrial Group	Plexos is not used for resource optimization and it cannot produce different results from Strategist, but rather expose operational issues with CRPs which are expected to stretch the system operating limits. Plexos and Strategist outputs were benchmarked with control scenarios as a part of the FAM Plan of Administration revision in 2013. Differences in dispatch optimization as well as their causes are well understood. Prior to commencement of the IRP CRP analysis, Plexos and Strategist system assumptions and output will be aligned using the Candidate Resource Plan 2 results. Plexos chronological dispatch will be used at the discretion of NS Power modellers and the Board's consultant to simulate critical years on a selection of CRPs containing resources whose viability and effects on the system are better explored in a chronological dispatch model. Please also refer to the accompanying memo.	Modelling
11	The Industrial Group requests that NSPI develop and circulate criteria for assessing these "other qualities" and provide further information on how these qualities will be weighted or otherwise used to rank CRPs that have been, initially, ranked by NPV of the plan.	Industrial Group	NS Power has provided a non-exhaustive list of qualities that are used to evaluate Candidate Resource Plans, including: robustness, flexibility, and cost effectiveness. The Company would encourage the stakeholder group to provide additional elements or specific metrics that should be considered. The process and criteria for selecting the Preferred Resource Plan will be examined in detail in the Technical Conference on September 12. Please also refer to the accompanying memo.	Modelling
12	Where judgment is used, particularly in significant steps in the process such as establishing the foundational or core CRPs, the Industrial Group requests that NSPI document how judgment was applied. This could include further information such as what factors were considered, why some were selected and others were rejected and what constraints shaped NSPI's decision-making. This information will increase transparency and will facilitate a shared understanding of the overall process that leads to the selection of a preferred plan.	Industrial Group	The June 25, 2014 Technical Conference presentation describes where judgment has been applied by NS Power and Synapse in the selection of CRPs. The Company and Synapse used a matrix where load, DSM, renewable energy, plant retirement dates and a potential large PPA were considered. Based on changes to these variables and feedback from the stakeholder group, NS Power and Synapse developed the Candidate Resource Plans in this submission. Please also refer to the accompanying memo and item 21.	Modelling
13	NSE believes that NSPI and the UARB should focus resources, sensitivity cases and analyses on the realistic scenario that reflects "Scenario A". … Moreover, NSE reiterates that compliance periods should be incorporated into the modeling, as indicated in NSE's April 2014 letter, since this is the realistic future.	NSE	NS Power will be focusing its resources on Scenario "A" emissions (modelled in the Reference World) and will also be testing higher and lower emissions scenarios as requested by the Intervenors - please refer to sensitivity analysis cases S1 and S2.	Alternative Worlds
14	The following market scenarios and technologies are suggested for consideration in relation to the IRP world's analyses: Future opportunities for imports and exports (i.e. a regional approach to energy markets). Additional hydro resources from either Quebec or Newfoundland	Dept of Energy	The Company has included a PPA in its Candidate Resource Plans 1, 21, and 32.	CRPs
15	Grid optimization/Smart grid/Demand response development	Dept of Energy	The Company is considering demand response in the IRP and improvements in grid technology, while not explicitly modelled, could be reflected by declining load in various Candidate Resource Plans and sensitivities considered. The CRPs will identify the value of various levels of energy reduction via DSM and demand response, regardless of the measures through which they are achieved.	CRPs
16	We would suggest that a range of +/- 15%-20% should be modelled for load, imported electricity pricing, import economy energy availability and coal and natural gas prices.	Dept of Energy	Sensitivities for import pricing, coal and natural gas prices are defined by the "Low" and "High" cases from the IRP Assumptions. Please refer to sensitivities S3 to S7. In addition, testing will be done using the High Load World (World 2).	Sensitivity Analysis

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17	The SBA recommends that a workshop be held with stakeholders to take input on a decision framework.	SBA	The Company welcomes feedback from the stakeholder group on specific metrics and a decision framework. Please also refer to item 11.	Modelling
18	The supply side option information does not show how the costs of future options vary. For example, are certain technologies such as PV Solar or Wind, declining on a real dollar basis while others are not?	SBA	Varying the costs of future options will be examined in the sensitivities for some technologies - please refer to sensitivity analysis cases S9 and S10.	Assumptions
19	The assumptions for technology improvement over time are not apparent, such as heat rate of combined cycles.	SBA	Technology improvement over time was not modelled in the base assumptions. This will be examined in the sensitivities for some technologies - please refer to sensitivity analysis cases S9 and S10.	Assumptions
20	It is critical that variation in the amount of energy delivered through the PPAs from New Brunswick and the Maritime Link be evaluated to determine the value of existing resource, and the timing of additional resource requirements.	SBA	Various amounts of energy imports will vary through the testing of import price sensitivity. Please refer to sensitivity analysis cases S3, S4 and S5 and item 3.	Assumptions
21	The SBA requests that NSPI… provide information and specific examples as to how some plans did not make operational or economic sense in its development of the Candidate Resource Plans. This screening logic is critical to stakeholders developing confidence in the NSPI process.	SBA	The Company and Synapse, with feedback from intervenors, has screened plans using the process described in the June 25th presentation. Specifically plans that were similar to other plans being explored were not considered for optimization, i.e. variations in load and DSM combinations (medium DSM with high load, low DSM with base load). Plans that weren't operationally viable were not considered for optimization. Please also refer to the accompanying memo.	CRPs
22	The use of Strategist and Plexos needs to be presented with more concrete examples to gain support of the stakeholders. While a formal protocol may not be possible to establish up front, a 'de facto' protocol should be explained…	SBA	Please refer to item 10.	Modelling
23	Customer Engagement Sessions - Did these include Small Business Customers? If so, how many?	SBA	Small Business customers were in attendance at the IRP customer engagement sessions. For Regional Sessions organized and hosted by NS Power (April and May), the following estimated number of Small Business Customers were in attendance: Yarmouth 7 Port Hawkesbury 6 Bridgewater 2 Wolfville 2 Halifax 13 Sydney 7 Truro 4 Stellarton 2 For the sessions hosted in partnership between NS Power and chambers of commerce (July): Amherst 16 New Glasgow 10 Sydney 11 Port Hawkesbury 5	Customer Engagement
24	NSPI should clarify the scope of its supply cost estimates, specifying whether they include such factors as transmission network upgrades.	CA	Transmission network upgrades were not included in the supply cost estimate. They are provided separately in the April 11 Finalized Assumptions under Transmission Options on slide 33.	Assumptions
25	…should clarify the energy storage in MWh for each alternative, and for the CAES, the amount of natural gas required for reheating the compressed air during generation conditions.	CA	The example the Company used was adiabatic CAES. This is new generation CAES and uses turbo expanders, not natural gas.	Assumptions
26	NSPI should clarify its expectation for the incremental energy output from the Mersey upgrade.	CA	An incremental 40 GWh is assumed from the Mersey Upgrade.	Assumptions
27	The presentation of the Lingan "Carbon Capture 25% Power Penalty (in addition to scrubber)" option is confusing. How many units would this apply to? Does the $790 M include the $210 - $220 M for the scrubber, or is that additional?	CA	The carbon capture option is assumed for two units at Lingan (300MW). The scrubber costs are additional.	Assumptions
29	NSPI should evaluate the option of keeping Lingan 1 - 4 running as load following units, accepting accelerated wear, until one unit wears out, justifying retirement.	CA	Please refer to Attachment 3 for the retirement assumptions for the CRP coal use levels.	CRPs

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30	The assumption that Trenton 5 would be retired before Lingan 1, 3 and 4 is odd, given the much higher usage of Trenton 5.	CA	Please refer to item 29. In addition to age and operating cost, other factors such as location of a unit drive retirement decisions.	Assumptions
31	For IRP modeling, NSPI should ensure that assuming the retirement of Tufts Cove units is not biasing any near-term decisions.	CA	Please refer to item 29.	Assumptions
32	It is not clear why the low-DSM case is designated as Plan 1 (Base Run). This terminology appears to reflect a judgment that ENSC's DSM projection is too high. NSPI should articulate the basis for this judgment.	CA	The Candidate Resource Plan numbering is random and is not intended to indicate a ranking. The numbering is used to keep track of which plans are being modelled and their results. As agreed during the Technical Conference, NS Power will remove the phrase "Base Case" (and the footnote regarding "least cost run") from this list.	CRPs
33	The CRP descriptions do not specify the treatment of Tufts Cove Requirements.	CA	Please refer to Attachment 1 and 3.	CRPs
34	NSPI should clarify whether "Maximum Coal Use" is synonymous with the retirement schedule on Slide 23, or whether other inputs force higher levels of coal use. Similarly, NSPI should clarify the meaning of "Medium" and "Minimum" coal use.	CA	Please refer to Attachment 3.	CRPs
35	NSPI's numbering system for the CRP plans, naming the plans in order of their NPVs, is apt to be clumsy for presentation and discussion of results.	CA	Please refer to item 32. The CRPs are not numbered by their NPVs, the numbering is random and not intended to imply a ranking.	CRPs
36	Similarly, CRP 2.3 and CRP 4.3 may be completely different; the portion of the CRP number after the decimal point has no consistent meaning.	CA	The number after the decimal point indicates the ranking of the plan in the resource optimization for that CRP. It is simply a way to identify an individual plan.	CRPs
37	PHP believes it is very important that… Alternative Worlds testing include Worlds based on each of the Scenario B and C emissions constraints.	PHP	The Company is testing both Scenario "B" and "C" emissions at the request of stakeholders in sensitivity analysis cases S1 and S2.	Alternative Worlds
38	Sensitivities for the CRPs be tested against the high price scenario for natural gas, solid fuel and imports	PHP	The Company will conduct fuel price sensitivities; please refer to sensitivity analysis cases S3, S4, S6 and S7.	Sensitivity Analysis
39	Alternative Worlds noted… above also be tested with the high fuel price sensitivity…	PHP	The Company will conduct fuel price sensitivities. Please refer to item 38 and Attachment 1.	Sensitivity Analysis
40	World 1, Business as Usual: This is the world established within the existing assumptions.	EAC	This is the Reference World, the first world NS Power is modelling CRPs in.	Alternative Worlds
41	World 2, Zero GHG World: This is a world where carbon emissions from stationary sources like power generation are no longer permitted. Emission sequestration options would become mandatory. GHG emissions would be limited to transportation, forestry and agricultural activities.	EAC	NS Power is testing Scenario "C" emissions - 2.25 MT by the end of the planning period - please refer to sensitivity analysis case S2.	Alternative Worlds
42	World 3, Renewable World: This a world where carbon emissions from stationary sources like power generation are no longer permitted and sequestration of C02 is either not permitted or locally impractical. GHG emissions would be limited to transportation, forestry and agricultural activities.	EAC	Please refer to item 41.	Alternative Worlds
43	Understanding that Strategist as a planning tool may not fairly examine resource plans with high variable generation and low load, EAC strongly recommends that Plexos be used to examine a high wind and high/medium DSM case.	EAC	Please refer to item 10.	Modelling
44	Likewise, Strategist may not fully reveal the value of Demand Response or Storage options. EAC strongly recommends that Plexos be used to examine a high wind and high/medium DSM case so that both the potential benefit and cost implications of these options are clear.	EAC	Please refer to item 10.	Modelling
45	EAC recommends that the COMFIT be extended indefinitely. This IRP will aid in identifying the amount and type of COMFIT generation that should be included in the future.	EAC	The Company will consider increased renewables in the CRPs modelled. As well, the Company may need to examine increased renewables in order to meet Scenario "C" emission scenarios. Please refer to CRPs 6 and 8 and sensitivity analysis case S2.	CRPs
46	A CRP that reflects improved regional interconnection and balancing and also reflects the potential cost sharing of these improvements should be investigated. Balancing in particular may offer the chance to narrow the duration of low wind periods.	EAC	The IRP is a planning exercise that only models the resources required on the Nova Scotia system; however, better regional integration will be examined in sensitivity analysis case S5 (please refer to the accompanying memo and Attachment 1).	CRPs

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47	EAC recommends that sensitivities explored for all options be non-linear. That is, that the negative cost sensitivity be less than the opposing positive cost sensitivity. EAC recommends that sensitivities examined take the form of -25%/+50%. Plans that respond in proportion to these sensitivities are clearly robust. Plans that do not are clearly riskier.	EAC	The Company will use various sensitivities depending on the plan being examined and the impact. There are no pre-defined maximum or minimum thresholds; rather, the Company uses the Assumptions which were designed based on expert judgment and research to define ranges for examination. Please refer to the accompanying memo.	Sensitivity Analysis
48	A Candidate Resource Plan that includes a transition to an electricity supply that consists of 100% Renewable Energy Sources by the year 2040.	Scotian WindFields	Due to the operational issues and uncertainties of this CRP this has not been selected as a Candidate Resource Plan. However, CRPs 6 and 8 and Scenario "C" emissions sensitivity analysis (S2) may provide relevant information regarding this proposal.	CRPs
49	A Candidate Resource Plan that includes a transition to an electricity supply that consists of 80% Renewable Energy Sources by the year 2040.	Scotian WindFields	Due to the operational issues and uncertainties of this CRP this has not been selected as a Candidate Resource Plan. However, CRPs 6 and 8 and Scenario "C" emissions sensitivity analysis (S2) may provide relevant information regarding this proposal.	CRPs
50	A Candidate Resource Plan that includes a transition to an electricity supply that consists of 60% Renewable Energy Sources by the year 2040.	Scotian WindFields	This has not been selected as a Candidate Resource Plan; however, CRPs 6 and 8 and Scenario "C" emissions sensitivity analysis (S2) may provide relevant information regarding this proposal.	CRPs
51	A Candidate Resource Plan that includes the following criteria: High DSM Case, Min Use Coal Case, High Wind Case.	Scotian WindFields	This proposal is being modelled as CRP 6.	CRPs
52	A Candidate Resource Plan that includes Scenario C GHG Emissions cust to 2.25 MT in 2040.	Scotian WindFields	Scenario C emissions will be tested as sensitivity analysis case S2.	Alternative Worlds
53	A Candidate Resource Plan that includes Scenario C GHG Emissions cust to 0 MT in 2040.	Scotian WindFields	Please refer to items 41 and 42.	Alternative Worlds
54	Scotian Windfields Inc. requests that utilization of CAES, and other energy storage technologies be considered in high-RES Candidate Resource Plans.	Scotian WindFields	The Company will examine the need for storage technologies in CRPs with increased intermittent renewable generation.	CRPs