

# **Nova Scotia Power System Operator (NSPSO)**

Market Procedure

MP-04

Registration of Facilities

Issue: 01

Effective Date: 2012 12 31

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**Appendices**

MP-04 appendix A Generating Facilities directly connected to the transmission system; information requirements for registration.

MP-04 appendix B Load Facilities, other than Distribution Systems, directly connected to the transmission system; information requirements for registration.

MP-04 appendix C Distribution Systems; information requirements for registration.

MP-04 appendix D Embedded Generating Facilities: information requirements for registration.

**Forms**

MPF-04-01 Application for Facility registration

MPF-04-02 Application for Transfer of Facility registration

MPF-04-03 Certification of Transfer

# 1 Document Control and General Provisions

## 1.1 Issue and revision History

Issue	Date	Reason for Issue
01	2012 12 31	Original

## 1.2 Contact for queries and submissions

For queries concerning the application or interpretation of this Market Procedure and for submission of documents required under this procedure (unless noted otherwise) contact:

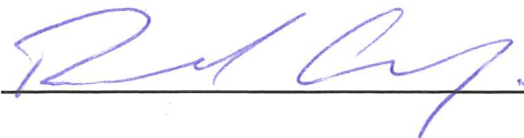
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## 1.3 Incorporation of general provisions

The general provisions set out in part 3 of Market Procedure 01, General Market Procedure, are incorporated into this Market Procedure (unless superseded by explicit wording to the contrary in this Market Procedure).

## 1.4 Document approval

Paul Casey, Director Reliability & Control Centre Operations

Signature: 

## **2 Overview of this procedure**

### **2.1 Purpose of this Market Procedure**

The purpose of this Market Procedure is to define the processes, documents and forms to be used in relation to the registration of Facilities by the NSPSO, and by NSPI Customer Operations in respect of its load and distribution connections and by Market Participants (including NSPI Power Production), and to set out the requirements to be fulfilled by such parties in order that Facilities may be registered by the NSPSO.

This Market Procedure also establishes the processes to be used by the same parties to modify or update Facility registration, including changes to classification, aggregation, status and information.

This Market Procedure also establishes the process to be used by parties planning voluntary Disconnection of a Facility and by the NSPSO in considering such voluntary Disconnection and the de-registration of a Facility.

### **2.2 Market Rules, Generator Interconnection Agreements, Network Operating Agreements, and other agreements**

This Market Procedure is established in accordance with paragraphs 2.2.1.8 of the Market Rules and Published by the NSPSO in accordance with paragraph 1.5.1.1 of the Market Rules.

The requirements described in this Market Procedure comply with the relevant requirements of section 2.2 of the Market Rules.

In order to provide for a single reference point, this Market Procedure updates the technical information required in the standard Generator Interconnection Agreement and Network Operating Agreement. The process described in this Market Procedure recognizes the overlap between information required for studies required under the standard Generation Interconnection Procedure and the information required for Facility registration. In instances of such overlap, the registration process calls for updated information reflecting actual or as-built values.

### **2.3 Scope and application**

The scope of this Market Procedure is defined in section 2.2.1 of the Market Rules. This Market Procedure also addresses processes required in connection with section 2.2.8 of the Market Rules.

Part 3 of this Market Procedure describes the steps to be taken and the forms to be used by any person seeking to register any new Facility or to update registered facility information following the coming into effect of the Market Rules.

Part 4 of this Market Procedure describes the steps to be taken for the registration of Facilities that prior to the coming into effect of the Market Rules already fulfill the requirements of paragraph 2.2.1.4 for the Market Rules and have already been synchronized to the Transmission System.

Part 5 of this Market Procedure describes the steps to be taken for the voluntary Disconnection of a Facility and its associated de-registration.

## **2.4 Responsibilities of parties under this Market Procedure**

In respect of existing Facilities, it is the responsibility of the NSPSO to identify the list of existing Facilities and the existing database of information held by the NSPSO, to provide this listing to individual Market Participants who are then required to review, correct, and complete the information requirements.

It is the responsibility of each Market Participant to apply for registration of new Facilities, to apply for any change in classification, aggregation or status, and to provide updates of such information as they arise. This responsibility for provision of information does not relieve any Market Participant from its obligation that its facilities comply with the requirements of the Market Rules and Reliability Standards.

It is the responsibility of the NSPSO to assess the information provided, to evaluate applications for acceptance or rejection, and to maintain its database of registration information for use in system modeling and for other purposes. The NSPSO is also responsible for de-registering Facilities as provided in association with their Disconnection.

## **2.5 Other Market Procedures**

This Market Procedure does not address the Accreditation as a Market Participant. This issue is addressed in Market Procedure MP-02. An applicant for Accreditation may commence the Facility registration process once receipt of its application for Accreditation has been acknowledged by the NSPSO. The Facility registration process cannot, however, be completed until the applicant has been accredited.

### **3 Process description following the coming into effect of the Market Rules**

The process described in this part of the Market Procedure applies to all new Facilities that were not synchronized to the transmission system prior to 1<sup>st</sup> February, 2007, and to all modifications to Facilities after that date. This part also applies to all changes to information in connection with Facilities, except to the extent that such changes were made before 31<sup>st</sup> January, 2008 and were notified to the NSPSO prior to that date in accordance with the process described in part 4.

#### **3.1 Requirements for Facility registration**

3.1.1.1 Paragraphs 2.2.1.1 to 2.2.1.3 of the Market Rules define the Facilities that are required to be registered.

3.1.1.2 Paragraph 2.2.1.4 of the Market Rules sets out the agreements that are required to be in effect prior to registration of certain classes of Facilities.

#### **3.2 Application for Facility registration**

##### **3.2.1 Timing and form of application**

3.2.1.1 The Market Participant for a Facility shall make an initial application for registration at least 6 months prior to the intended first synchronization of the Facility.

3.2.1.2 This early application is intended to allow the NSPSO and the Market Participant to identify and resolve all information and testing requirements well in advance of the intended first synchronization.

3.2.1.3 The Market Participant shall use form MPF-04-01 to make its application. The application shall be made by an authorized representative of the Market Participant.

3.2.1.4 A Market Participant may make a single application to cover multiple generating units at a single station, even if such units are required in accordance with paragraph 2.2.1.5 of the Market Rules to be separately registered.

3.2.1.5 Separate Facilities shall otherwise be the subject of separate applications, even if requested for aggregation in accordance with paragraph 2.2.1.6 and 2.2.1.7 of the Market Rules.



### 3.2.2 Information required

3.2.2.1 The information required to complete Facility registration is listed in the following appendices: (As briefly noted in section 2.2, prior information of a similar nature may have been supplied, in confidence, to facilitate various studies. This information requirement represents a requirement for the actual, as built / as commissioned information, which will be made available within NSPSO for various daily and long term planning studies.)

Appendix A Generating Facilities directly connected to the transmission system; information requirements for registration.

Appendix B Load Facilities, other than Distribution Systems, directly connected to the transmission system; information requirements for registration.

Appendix C Distribution Systems; information requirements for registration.

Appendix D Embedded Generating Facilities: information requirements for registration.

3.2.2.2 The application for registration must be accompanied by satisfactory evidence that the Facility is or will meet the requirements of paragraph 2.2.1.4 of the Market Rules.

3.2.2.3 The application for registration must be accompanied by satisfactory evidence that the Market Participant who is the applicant is the owner, or has adequate control over the operation of the Facility and can be fully responsible to the NSPSO for compliance of the Facility and its operations to the Market Rules. (ref MR 2.2.2.2)

3.2.2.4 The application for registration when made must be accompanied by the information listed in the relevant appendix. Information may be provided by reference to information previously provided for connection assessment or system impact study or included in an Interconnection or Operating Agreement, if such information is still valid. The Market Participant should identify information that is still preliminary or provisional (e.g. that will be updated using actual test results).

3.2.2.5 The balance of information required in accordance with the relevant appendix must be supplied in order to complete the Facility registration.

3.2.2.6 An application may include the appointment of an agent for the Market Participant. (ref MR 2.2.2.6)

3.2.2.7 An applicant shall include in its application any request for aggregation of a Facility with another Facility (ref MR 2.2.1.6 & 7)

3.2.2.8 Each applicant must, before registration can be completed, provide certification in form MPF-04-02. This form must be signed by a person authorized to bind the Market Participant. Where a new Facility is being registered on a provisional

basis for commissioning purposes, this certification need not be provided until the time at which a change in registration status is requested under section 3.5 to register the Facility on an as-final basis.

### **3.3 NSPSO review and assessment**

#### **3.3.1 Initial assessment for completeness**

3.3.1.1 Upon receipt of an application for registration, the NSPSO will first carry out an initial review for apparent completeness. Where the NSPSO determines that the application for registration is seriously deficient, it will reject the application and so notify the applicant. In such cases, the applicant must re-file a more complete application for registration.

3.3.1.2 Where the NSPSO is satisfied, on the basis of its initial review that an application for registration is sufficiently complete, the NSPSO will formally acknowledge receipt of the application and assign an application number and / or a provisional Facility identifier to it.

3.3.1.3 The NSPSO will then conduct a more thorough assessment of the application for completeness. Where information is missing, or the NSPSO otherwise requires additional information or clarification, the NSPSO will notify the applicant and will specify a reasonable period within which such information or clarification should be provided.

#### **3.3.2 Compliance with standards and other requirements**

3.3.2.1 It is not the intention of the NSPSO to independently determine whether a Facility complies with the technical requirements of the Market Rules. The Market Participants are required in accordance with paragraph 3.2.2.8 to self-certify as to such compliance, and may be required to undertake test to demonstrate compliance.

3.3.2.2 Provision of information in connection with an application does not constitute application for a waiver of any requirements. Where a Facility does not comply with a requirement of the Market Rules, it is the responsibility of the Market Participant for that Facility to bring the Facility into compliance and if appropriate to obtain a Temporary Waiver from the NSPSO. The process by which Temporary Waivers may be applied for and granted is set out in Market Procedure MP-06.

3.3.2.3 The NSPSO may require that a Facility undergo specified tests to confirm that the Facility complies with one or more of the technical requirements of the Market Rules. Where testing is required, the specified test must be successfully completed by the Facility prior to final registration of the Facility.

### **3.3.3 Refusal of registration**

3.3.3.1 Where the NSPSO considers that there are grounds for refusing to register a Facility, the NSPSO will notify the applicant as soon as possible. The applicant will be given 30 day period within which to respond to the NSPSO's concerns.

3.3.3.2 Where the NSPSO remains of the view that the Facility is not eligible for registration, it may deny the Market Participant's application to register the Facility.

## **3.4 Provisional and final registration**

### **3.4.1 Provisional registration**

3.4.1.1 The NSPSO may grant provisional registration for a limited period of time in order to allow synchronization and operation of a Facility for the purposes of carrying out tests and commissioning trials.

3.4.1.2 Provisional registration may also allow continued operation for a limited amount of time pending submission of test results or certain data requirements, or for correction of non-critical deficiencies in the equipment.

3.4.1.3 In granting provisional registration, the NSPSO may impose conditions on the operation of the Facility pending final registration.

3.4.1.4 The granting of provisional registration does not waive any information or other requirements pertaining to Facility registration.

3.4.1.5 The NSPSO may withdraw provisional registration and require disconnection of a Facility in order to protect reliability of the Bulk Electricity Supply System or any Zone thereof.

3.4.1.6 The Market Participant must promptly seek final registration following the completion of the tests or commissioning trials, or the correction of non-critical deficiencies for which the provisional registration was granted.

### **3.4.2 Facility classification**

3.4.2.1 In registering a facility on a provisional or final basis, the NSPSO may accept or modify the classification requested by the applicant.

### **3.4.3 Unit registration and Facility aggregation**

3.4.3.1 The NSPSO shall evaluate requests for several units to be registered as a single Generating Facility, and for aggregation between Generating Facilities in accordance with paragraphs 2.2.1.5 & 6 of the Market Rules against the potential

impact on the reliability of the Bulk Electricity Supply System and the information needs of the NSPSO in managing that system.

3.4.3.2 Requests for aggregation under paragraph 2.2.1.7 of the Market Rules are not permitted in respect of new Facility registrations.

#### **3.4.4 Notice of registration and assignment of Facility identifiers**

3.4.4.1 Where the NSPSO grants registration to a facility on a provisional or final basis, or modifies such status, it shall notify the applicant of the registration, status, of the Facility classification and any aggregation permitted with other Facilities and of all relevant identifiers and codes to be used in connection with the Facility or its Delivery Point.

3.4.4.2 Where the NSPSO grants registration to a Facility, the NSPSO shall notify the applicable Transmitter and the Market Participant of any applicable Delivery Points and the descriptions and codes to be used in reference to the Facility and its associated Delivery Point. The NSPSO may also Publish such data on OASIS.

### **3.5 Changes to Facility classification, aggregation, registration status or registration information**

#### **3.5.1 General**

3.5.1.1 A Market Participant that wishes to amend the status of registered Facilities as follows:

- a) change the classification of a Facility,
- b) aggregate multiple Facilities or to cease aggregation,
- c) change the registration status of a Facility (between provisional and final),  
or
- d) provide additional information or changes to information provided in connection with Facility registration should provide written communication to the person indicated in section 1.2 of this Market Procedure. The initial communication may be electronic or in hard copy.

3.5.1.2 The NSPSO shall acknowledge receipt, and shall advise the Market Participant of any additional information required or of any different formats required.

3.5.1.3 The Market Participant shall provide such additional information.

3.5.1.4 The NSPSO shall review this information as described in sections 3.5.2 to 3.5.5 below.

3.5.1.5 Provision of information to the NSPSO does not relieve the Market Participant from continued compliance with the Market Rules and the Reliability Standards.

3.5.1.6 If the NSPSO becomes aware of any discrepancy between the information provided and the requirements of the Market Rules, it shall notify the Market Participant, and may take appropriate action to protect the Reliability of the Bulk Electricity Supply System.

3.5.1.7 The NSPSO shall, within 10 business days of its receipt of all the necessary information, confirm to the Market Participant the change in classification, aggregation, registration status or information or advise the Market Participant that the change is denied and the reasons for such denial.

### **3.5.2 Change to Facility classification**

3.5.2.1 Changes may arise:

- a) between Generating and Load Facilities, as a result of operating or equipment changes, and
- b) between class of Generating Facility as a result of operating or equipment changes or export contract arrangements.

3.5.2.2 The NSPSO shall review the proposed change against the criteria for such Facility classification as set out in sections 2.2.3 and 2.2.4 of the Market Rules.

### **3.5.3 Change to aggregation**

3.5.3.1 A Market Participant may apply at any time for changes to the unit registration and Facility aggregation arrangements.

3.5.3.2 The NSPSO shall apply the evaluation criteria included in section 3.4.3.

### **3.5.4 Change to registration status**

3.5.4.1 for a change from provisional registration status to final registration status, the Market Participant must provide:

- a) satisfactory evidence of the successful completion of all required testing and commissioning activities;
- b) the certification referred to in section 3.2.2.8; and
- c) any required updates to information in order to replace data based on design with newer data based on the results of testing and commissioning activities.

3.5.4.2 The NSPSO shall review the information for completeness.

### **3.5.5 Change to registration information**

3.5.5.1 Market Participants are required promptly to notify the NSPSO of any change in the information provided in or in support of Facility registration. (MR 2.2.7.2)

3.5.5.2 Wherever possible, Market Participants should advise the NSPSO in advance of any planned changes in the information provided in or in support of Facility registration.

3.5.5.3 If a Market Participant is in doubt as to the materiality of a change or of an observed trend in parameters, then it should consult with the NSPSO.

3.5.5.4 The NSPSO may from time to time request that the Market Participant for a Facility confirm the continued validity of registration data for that Facility or provide additional registration data pertaining to that Facility. The Market Participant shall provide such confirmation (or adjustment) or additional data to the NSPSO promptly upon being requested to do so.

### **3.5.6 Changes initiated by the NSPSO**

3.5.6.1 Where the NSPSO considers that a change in circumstances relating to a Facility requires the Facility to be re-registered with a different classification or aggregation arrangement, or that individual units are required to be registered separately, the NSPSO will notify the Market Participant for the Facility. The Market Participant will be given a reasonable opportunity to respond.

3.5.6.2 In such circumstances the NSPSO shall notify the Market Participant for the Facilities and advise the Market Participant of the change and the reasons. The NSPSO and the Market Participant shall review the change required and any alternatives.

3.5.6.3 Where the NSPSO remains of the view that re-registration is required under paragraph 3.5.6.1, it will re-register the Facility and notify the Market Participant. Such re-registration may include conditions that must be met by the Facility on an on-going basis. The Market Participant must provide any additional information and documentation that may be required to give effect to the re-registration.

## **3.6 Facility assignment**

3.6.1.1 A Market Participant cannot transfer the registration of a Facility without the prior approval of the NSPSO. In order to obtain such approval, the Market Participant and the intended transferee must jointly apply to the NSPSO by completing, by hand or electronically, an application to transfer in form MPF-04-03. The application must be filed at least 30 days prior to the date of the proposed transfer.

3.6.1.2 Although the transfer application is required to be made jointly, the Market Participant for the Facility is the person with whom the NSPSO will communicate for purposes of the application. It is the Market Participant's responsibility to ensure that the intended transferee is notified of all relevant communications from the NSPSO and provides any information required by the NSPSO.

3.6.1.3 Although the intended transferee does not need to be a Market Participant at the time of the application filing, the transfer will not be approved by the NSPSO until the intended transferee is Accredited as a Market Participant. The process for Accreditation is described in Market Procedure MP-02.

3.6.1.4 The applying Market Participant must identify to the NSPSO all required changes to information relating to the registration of the Facility if the proposed transfer is approved.

3.6.1.5 The NSPSO will not approve the transfer of the registration of a Facility:

- a) if the owner of the Facility is not the Market Participant for the Facility, unless it has received satisfactory evidence that the owner has consented to the transfer;
- b) where the Facility is an embedded Generating Facility, satisfactory evidence that the Market Participant for the Delivery Point behind which the Facility is embedded has consented to the transfer;
- c) where the intended transferee will not be the owner of the Facility at the time of the proposed transfer, satisfactory evidence that the intended transferee has received from the owner authority, power and control over the Facility and or may be required to enable the applicant to ensure that the Facility complies with the Market Rules and to enable the intended transferee to perform all of the obligations of a Market Participant in respect of the Facility;
- d) satisfactory evidence that the Facility will continue to be subject to the same Agreements or that new Agreements will be in place by the date of the proposed transfer;
- e) the certification in form MPF-04-03, signed by a person authorized to bind the intended transferee; and

3.6.1.6 If the Facility is the subject of a Temporary Waiver and the parties wish to transfer the Temporary Waiver to the intended transferee, an application for the transfer of the Temporary Waiver must be filed with the NSPSO in accordance with Market Procedure MP-06.

3.6.1.7 The NSPSO may request that the applicant provide clarification or additional information in support of the application to transfer the registration of a Facility.

3.6.1.8 The NSPSO will review each application for the transfer of the registration of a Facility and will notify the Market Participant of any additional information or clarification that may be required.

3.6.1.9 The NSPSO will not approve the transfer of the registration of a Facility if it considers that:

- a) such transfer will result in the Facility being in non-compliance with the Market Rules, subject to any applicable Temporary Waiver that may be in place or transferred (see section 3.6.1.6); or
- b) the intended transferee is not capable of fulfilling the obligations of a Market Participant for a Facility or of ensuring that the Facility complies with all applicable requirements of the Market Rules.

3.6.1.10 The NSPSO will approve or reject an application for the transfer of the registration of a Facility within a reasonable period of time following the later of:

- a) the receipt of the application;
- b) the receipt of any additional information or clarification requested by the NSPSO;
- c) the receipt of all supporting information and documentation specified in this Market Procedure as being required; and
- d) the confirmation of transfer of any Temporary Waiver applicable to the Facility.

3.6.1.11 The NSPSO will notify the applying Market Participant of its decision. Where the NSPSO denies the application, the NSPSO must provide reasons for its decision. Where the NSPSO approves the application, the applying Market Participant and the intended transferee shall provide any additional information or documentation that may be required to give effect to the transfer. The transfer will take effect on the date specified in the application or such later date as may be required as a result of the operation of section 3.6.1.10 or requested by the applying Market Participant.

3.6.1.12 The NSPSO may impose new or different conditions on the registration of a Facility where the NSPSO considers that such conditions are required as a result of the transfer of the registration.

3.6.1.13 Market Participants are reminded that any transfer of the control of a Facility without the prior approval of the NSPSO may result in the NSPSO issuing a Disconnection Order directing the disconnection of the Facility from the Transmission System in accordance with paragraph 2.2.8.4 of the Market Rules.



### **3.7 Dispute Resolution**

3.7.1.1 All disputes arising in connection with the processes described in this Market Procedure are to be resolved using the dispute resolution process described in sub-section 2.8.2 of the Market Rules.

### **3.8 Publication**

3.8.1.1 The NSPSO will Publish and update as required the following information relating to the processes described in this Market Procedure:

- a) A list of all Market Participants with their registered facility type.
- b) Disconnection notices issued as compliance actions.

## **4 Process description – Transition process for Facilities existing prior to Market commencement**

The process described in this part of the Market Procedure applies only to Facilities that were synchronized to the transmission system prior to 1<sup>st</sup> February, 2007, excluding any subsequent modifications. This part also applies to the completion and update or correction of information in connection with such Facilities prior to 31<sup>st</sup> January, 2008.

### **4.1 Introduction**

4.1.1.1 The NSPSO presently should have available sufficient information for its reliable operation of the Bulk Power Supply System. This Market Procedure does not require re-registration of existing Facilities, but provides for a three stage review process to be completed and the information verified. The three stages are:

- a) Complete the listing of all facilities, generally by 30<sup>st</sup> August, 2013, with any omissions corrected by 31<sup>st</sup> March, 2014;
- b) Identify and correct any omissions or questions relating to critical information, generally by 31<sup>st</sup> October, 2013; and
- c) Complete and verify all information by 31<sup>st</sup> July, 2014.

### **4.2 Initial listing**

#### **4.2.1 NSPI Power Production division**

4.2.1.1 NSPI PP shall before 30<sup>th</sup> August, 2013 provide to the NSPSO a list of all the Generating Facilities for which it is the Market Participant, including:

- a) those owned by NSPI; and
- b) those owned by others but the subject of a Power Purchase Agreement (PPA) with NSPI, unless that PPA establishes or the parties agree that NSPI should not be the market Participant for the Generating Facility.

4.2.1.2 Information to be provided in this list includes:

- a) Facility identifier (as used in SCADA system)
- b) Facility name
- c) Class of Facility (e.g., Intermittent Generating Facility)

4.2.1.3 The NSPSO shall review this list within 10 Business Days of its receipt, and shall, following any appropriate consultations, advise NSPI PP of any separations required or aggregations permitted in accordance with paragraphs 2.2.1.5 and 2.2.1.6 of the Market Rules, or of any required changes in classification.

4.2.1.4 NSPI PP shall within 10 Business Days of receiving such advice, revise and resubmit its listing of Generating Facilities.

#### **4.2.2 NSPI Customer Operations division**

4.2.2.1 NSPI Customer Operations division shall before 30th August, 2013 provide to the NSPSO a list of all the Load Facilities and Distribution Systems for which it is the Market Participant, including:

- a) those owned by NSPI; and
- b) those owned by others but taking Bundled Service.

4.2.2.2 Information to be provided in this list includes:

- a) Facility identifier (as used in SCADA system)
- b) Facility name
- c) Class of Facility (Load Facility or Distribution System)

4.2.2.3 The NSPSO shall review this list within 10 Business Days of its receipt, and shall, following any appropriate consultations, advise NSPI Customer Operations division of any aggregations permitted in accordance with paragraph 2.2.1.7 of the Market Rules, or of any required changes in classification.

4.2.2.4 NSPI Customer Operations division shall within 10 Business Days of receiving such advice, revise and resubmit its listing of Load Facilities and Distribution Systems.

#### **4.2.3 Other Generation Market Participants and Load Market Participants**

4.2.3.1 Each other Generation Market Participant and Load Market Participant shall before 30th August, 2013 provide to the NSPSO a list of all the Generating Facilities, Load Facilities and / or Distribution Systems for which it is the Market Participant. For clarity:

- a) If a Generating Facility is the subject of an existing PPA with NSPI, it is expected that NSPI PP will be the Market Participant; the Facility owner should seek verification from NSPI PP.
- b) If a Load Facility or Distribution System is to be served by Bundled Service, it is expected that NSPI Customer Operations division will be the Market Participant; the Facility owner should seek verification from NSPI Customer Operations division. If it is to be served by Unbundled Service or Partially Unbundled Service, then the Facility Owner will generally be the Market Participant.

4.2.3.2 Information to be provided in this list includes:

- a) Facility identifier (as used in SCADA system)

- b) Facility name
- c) Classes of Facility (eg Intermittent Generating Facility, Load Facility, etc)

4.2.3.3 The NSPSO shall review this list within 10 Business Days of its receipt, and shall, following any appropriate consultations, advise the Market Participant of any separations required or aggregations permitted in accordance with paragraphs 2.2.1.5, 2.2.1.6 and 2.2.1.7 of the Market Rules.

4.2.3.4 Each Market Participant shall within 10 Business Days of receiving such advice, revise and resubmit its listing of Generating Facilities, Load Facilities and / or Distribution Systems.

### **4.3 Review of information**

#### **4.3.1 Completeness of Facility listings**

4.3.1.1 The NSPSO shall review its existing information, and shall identify any Facilities for which no Market Participant has identified itself.

4.3.1.2 The NSPSO shall immediately contact the person whom it believes to be responsible for any such Facility, shall seek clarification as to the person who carries the Market Participant responsibilities, and shall request that the responsible person identify itself as the Market Participant for the Facility.

4.3.1.3 That Market Participant for the Facility should then follow the process set out in section 3.1.

4.3.1.4 In the event that no person identifies itself promptly as the Market Participant for a Facility the NSPSO shall issue notice to the effect that, absent remedy within 10 Business Days, the NSPSO will initiate Disconnection on the grounds that such Facility has not been registered, and the continued lack of any Market Participant taking responsibility for the Facility would jeopardize Reliability. Such notice shall be issued to:

- a) The person previously contacted by the NSPSO in this connection;
- b) The person identified by that person previously contacted to be person who carries the Market Participant responsibilities;
- c) Any other counterparty to any Generator Interconnection Agreement or Network Operating Agreement with NSPI; and
  - i. For any Generating Facility, NSPI PP, or
  - ii. For any other Facility, NSPI Customer Operations.

4.3.1.5 Absent any person taking responsibility as Market Participant for a Facility, the NSPSO may initiate its Disconnection as causing jeopardy to Reliability.

### **4.3.2 Initial review**

4.3.2.1 The initial review described in this section 4.3.2 is intended to identify and correct critical gaps only.

4.3.2.2 Based on the initial or revised listings received in accordance with section 3.1, the NSPSO shall before 30<sup>th</sup> September, 2013 review the information on its files with reference to each Facility, and shall notify the Market Participant of any critical information that is missing or which the NSPSO considers questionable.

4.3.2.3 Any Market Participant thus notified shall seek to provide missing information or to verify or correct questionable information within 10 Business Days of notification, or such longer time as the NSPSO may permit.

4.3.2.4 In the event that the Market Participant does not have such information, e.g. due to incomplete records of old equipment, the Market Participant shall advise the NSPSO within 10 Business Days of notification, or such longer time as the NSPSO may permit. The NSPSO and the Market Participant will review what is available, and the NSPSO may, depending on its assessment of criticality:

- a) Require immediate testing or require testing in conjunction with scheduled maintenance;
- b) Accept estimated or type-test data; or
- c) Accept the lack of data.

4.3.2.5 The responsible Market Participant shall provide the additional data required, including if necessary any testing, within 10 Business Days or such longer period as the NSPSO may permit.

### **4.3.3 General review and verification**

4.3.3.1 By 31<sup>st</sup> July, 2014, the NSPSO and Market Participants should review, verify and complete all Facility registration information as described in this section 4.3.3.

4.3.3.2 Market Participants and the NSPSO should endeavour to smooth the work flow, and not to leave submissions until the “no later than” dates set out in this section.

4.3.3.3 No later than 15<sup>th</sup> November, 2013, the NSPSO shall provide to each Market Participant a listing of the registration-related information that the NSPSO does have on file for each Facility.

4.3.3.4 No later than 28<sup>th</sup> February, 2014, each Market Participant shall provide to the NSPSO a file containing all the available registration-related information identified in the relevant appendix to this Market Procedure including identification of any estimates, and shall identify all omissions and the reason for omission.

4.3.3.5 No later than 30<sup>th</sup> April, 2014 the NSPSO shall review estimates and omissions, and may consult with the Market Participant responsible. The NSPSO may, depending on its assessment of criticality:

- a) Require immediate testing or require testing in conjunction with scheduled maintenance;
- b) Accept estimated or type-test data; or
- c) Accept the lack of data.

4.3.3.6 The responsible Market Participant shall provide the additional data required, including if necessary any testing, no later than 31<sup>st</sup> July, 2014, or if testing is required such later date as the NSPSO may permit.

#### **4.3.4 Updated, corrected or completed information**

4.3.4.1 If a Market Participant becomes aware before 31<sup>st</sup> July, 2014, of any incorrect or incomplete information provided to the NSPSO in accordance with paragraph 4.3.3.4, it shall promptly notify the NSPSO of such incorrectness or incompleteness.

4.3.4.2 The NSPSO shall review the notification, may consult with the Market Participant, and shall specify the corrected or additional information required and the deadline for its provision, taking account of any difficulties that are likely to be encountered in providing such information.

4.3.4.3 The Market Participant shall fulfill the specified information requirements by the specified deadline.

## **5 Voluntary Disconnection and Facility de-registration**

### **5.1 Voluntary Facility Disconnection**

#### **5.1.1 Normal approval process**

5.1.1.1 A Market Participant may apply to the NSPSO for permission to Disconnect a Facility from the Transmission System (MR 2.2.8.1).

5.1.1.2 Where a Market Participant wishes to Disconnect a Facility from the Transmission System, the Market Participant must submit notice to that effect to the contact person identified in section 1.2. The notice must specify the proposed date of Disconnection, which must be at least 60 days from the date of application.

5.1.1.3 The NSPSO may request that the applicant provide clarification or additional information in support of the application to Disconnect a Facility in order for the NSPSO to process that application or determine whether any action is required to address the proposed Disconnection.

5.1.1.4 The NSPSO will review each application to Disconnect a Facility and will notify the applying Market Participant of any additional information or clarification that may be required.

5.1.1.5 The NSPSO will approve or reject an application to Disconnect a Facility within a reasonable period of time following the later of:

- a) the receipt of the application; or
- b) the receipt of any additional information or clarification requested by the NSPSO.

5.1.1.6 The NSPSO will notify the applying Market Participant of its decision. Where the NSPSO denies the application, the NSPSO must provide reasons for its decision. Processes to follow the rejection of an application are set out in section 5.1.2

5.1.1.7 Where the NSPSO approves the application, the applying Market Participant shall provide any additional information or documentation that may be required to give effect to the Disconnection of the Facility. The Disconnection and the associated de-registration will take effect on the date specified in the application or such later date as may be required as a result of the operation of section 5.1.1.5 or requested by the applying Market Participant.

5.1.1.8 Where the NSPSO approves the Disconnection and de-registration of a Facility that is directly connected to the Transmission System, it will also issue a

Disconnection Order directing the Disconnection of the Facility from the Transmission System in accordance with section 2.8 of the Market Rules.

### **5.1.2 Process on rejection of application**

5.1.2.1 Where the NSPSO determines that de-registration would have a material adverse impact on the Reliability of the Bulk Electricity Supply System, it may reject the application to Disconnect.

5.1.2.2 The NSPSO and the Market Participant are then required under paragraph 2.2.8.3 of the Market Rules to negotiate in good faith the ongoing provision by the Facility of the necessary services until the NSPSO can reasonable secure an alternative means to maintain Reliability.

5.1.2.3 That negotiation process will require to be developed to suit the particular circumstances of any occurrence, taking account of the statutory and other obligations of the various parties.

## **5.2 Voluntary de-registration of an embedded Generating Facility**

5.2.1.1 The Market Participant for an embedded Generating Facility may at any time and subject to one month's notice, request de-registration of the Facility.

5.2.1.2 The NSPSO shall de-register an embedded Generating Facility according to such request, and shall notify the Market Participant for the Load facility or Distribution System in which it is embedded.

## **5.3 Cancellation of Facility Registration by the NSPSO**

5.3.1.1 The NSPSO may cancel the registration of (de-register) a Facility that is directly connected to the Transmission System where the NSPSO has issued a Disconnection Order under paragraph 2.2.8.4 or 5 of the Market Rules.

5.3.1.2 Where the NSPSO intends to cancel the registration of a Facility, it will give notice to the Market Participant and will give the Market Participant a reasonable opportunity to respond. Where the NSPSO cancels the registration of a Facility, it will notify the Market Participant for the Facility of its decision.



**APPENDIX A**  
**NSPSO Market Procedure MP-04**  
**Generating Facilities directly connected to the transmission system**  
**Information Requirements for Registration**

**General Information**

Date

Identification	Facility name	
	Facility identifier (as advised by the NSPSO for SCADA and other use)	
	Facility owner	
	Facility Geographic Location	
	MW capacity, summer & winter	
	Facility type (e.g. wind, gas combined cycle, etc)	
Transmission System	Point of Interconnection (NSPI Facility identifier)	
Service Dates	Initial in-service	
	Permanent in-service	
	Permanent out-of-service	
Single Line Diagram	<p>Single Line Diagram showing all primary electrical equipment at the Facility, including:</p> <ul style="list-style-type: none"> <li>◆ Generation units</li> <li>◆ Transformers (step up and step down)</li> <li>◆ Switchgear at Transmission voltages and secondary voltage</li> <li>◆ Protection and monitoring equipment (SCADA)</li> <li>◆ Revenue metering equipment</li> </ul>	
Protection & Instrumentation Diagram(s)	Single Line and Three Phase P & I diagrams for all primary electrical equipment shown in the Single Line Diagram	
Disturbance Monitoring Equipment	List all monitoring equipment, if applicable as outlined in NPCC Document A-15 "Disturbance Monitoring Equipment".	
Nameplate Data	Nameplate data on all primary electrical equipment (including conductor, cables etc.) shown in the Single Line Diagram.	
Protection System Description, for all Generating Facilities greater than 5 MVA and for other Facilities if requested by the NSPSO	<p>A functional description of all protective schemes shall be provided to allow a detailed analysis of all credible contingencies, including:</p> <ul style="list-style-type: none"> <li>◆ Operating times for protection components (e.g. primary relaying, auxiliary relaying, communication)</li> <li>◆ General models for normal and delayed (breaker failure) fault clearing</li> <li>◆ Exceptions to the general model</li> </ul> <p>For all recognized contingencies, the functional description must enable fault clearing times at all terminals to be determined for both normal and delayed clearing.</p>	
Parameters and practices for thermal limitations	<p>All system operating limits of the facilities to the point of connection with NSPI that could have a bearing on equipment operation shall be reported. These may include:</p> <ul style="list-style-type: none"> <li>◆ primary or secondary equipment rating limits</li> <li>◆ Conductor / connection limits</li> <li>◆ Indoor or outdoor location limits</li> </ul>	
Relay Information	Settings and characteristics to enable relay margin analysis of credible contingencies	
Test Results	Copies of all commissioning tests of all power system components to be available on request.	

## **Non-Conventional Generation Information**

**Generation that does not meet the characteristics of Conventional Synchronous Generating Units may include wind, solar, tidal and yet to be developed technologies. The GIP Interconnection Request, Appendix 1, Attachment A includes basic information needs for wind generation based on inverter and induction generator technology. Flexibility must be maintained in describing the needs for non-conventional generation information. Data on the generation capacity, real (MW) and reactive power (MVar) capability, control characteristics, and model data suitable for inclusion in PSS/E studies must be available.**

## Conventional Synchronous Generating Unit Information

<b>Generating Unit Data</b>	Identifier				
	Manufacturer				
	Serial Number				
	Rated capability (MVA)				
	Rated voltage (kV)				
	Power factor				
	Generator Type (e.g. salient pole, round rotor, induction)				
	Frequency (Hz)				
	Unit type (e.g. Steam Turbine, Hydraulic Turbine, Wind Turbine)				
	Cooling Water Source				
	Fuel Type (primary, alternate)				
	Fuel Transportation (primary, alternate)				
	Maximum Continuous Rating (summer MCR, winter MCR) (MW)				
	Capability above MCR (MW), sustainability per event (hrs)				
	Description of other restriction when operating above MCR (e.g. hours/year)				
	Normal and emergency Hydrogen Pressure operating range				
	NERC primary fuel heat rate at full load (BTU/kWhr)				
	Total rotational inertia of generator and turbine(s) (H)				
	Moment of Inertia ( $WR^2$ )				
	Speed (RPM)				
	Station load (MW, MVAR)				
	Minimum power (MW)				
	Normal loading and unloading ramp rates (MW/min)				
	Emergency loading and unloading ramp rates (MW/min)				
	Rotational inertia for generator without turbine(s) (upon request only)				
	Damping				
	Losses at Rated capability, 1.0 and 0.9 power factor (MW)				
	<b>Armature Data</b>	Stator Amperes at Rated MVA			
Maximum Operating Temperature					
Generator Winding Connection ( e.g. Wye)					
Three Phase Armature capacitance ( $\mu$ f)					
Reactances in pu on machine base ( $X_0$ required only if unit transformer provides a zero sequence path)					
		Unsaturated values		Saturated Values	
Synchronous		$X_{du}$	$X_{qu}$	$X_{ds}$	$X_{qs}$
Transient		$X'_{du}$	$X'_{qu}$	$X'_{ds}$	$X'_{qs}$
Sub-Transient		$X''_{du}$	$X''_{qu}$	$X''_{ds}$	$X''_{qs}$
Neg. Sequence		$X_{2du}$	$X_{2qu}$	$X_{2ds}$	$X_{2qs}$
Zero Sequence	$X_{0du}$	$X_{0qu}$	$X_{0ds}$	$X_{0qs}$	
Leakage	$X_{ld}$	$X_{lq}$			

Armature Resistance			
$R_1$ (pos.)	at	$^{\circ}$ C	$R_2$ (neg.)
			$R_0$ (zero)
Armature Time Constants			

Field Data	Three Phase Short Circuit	$T_{a3}$	
	Line to Line Short Circuit	$T_{a2}$	
	Line to Neutral Short Circuit	$T_{a1}$	

Field Time Constants	Open Circuit	$T_{d0}$	$T_{q0}$
	Three Phase Short Circuit Transient	$T'_{d3}$	$T'_{d3}$
	Line to Line Short Circuit Transient	$T'_{d2}$	
	Line to Neutral Short Circuit Transient	$T'_{d1}$	
	Short Circuit Subtransient	$T''_d$	$T''_q$
	Open Circuit Subtransient	$T''_{d0}$	$T''_{q0}$
	Field Voltage		
	Field Current at rated kVA, Armature kV and PF		
	Field Current at rated kVA, Armature kV, 0 PF		
	Short Circuit Ratio		
	Rotor Short Time Thermal capacity ( $I_2^2 t$ )		
	Field Winding Resistance	Ohms at	°C
	Saturation at rated voltage (S1.0) and 20% above (S1.2)		
Characteristics			
	Open circuit saturation curve		
	Short circuit curve		
	V curves		
	Capability curve		
	Capacity Temperature Correction Curves		

**\*Field resistance for hydraulic units should be specified at 75°C and for thermal units at 100°C.**

**Generator Step-Up Transformer**

Capacity: Self-cooled / maximum nameplate _____ / _____		kVA
Voltage Ratio: Generator side / System side _____ / _____		kV
Winding Connections: Low V / High V (Delta or Wye) _____ LV _____ HV _____		
Fixed Taps Available: + _____, _____, _____, _____, _____, _____, _____, _____, _____ -		
Present Tap Setting:		
IMPEDANCE		
Positive Seq. ( $Z_1$ ) (on self-cooled kVA rating)	%	X/R
Zero Seq. ( $Z_0$ ) (on self-cooled kVA rating)	%	X/R

**Excitation System Model**

Identify appropriate IEEE model block diagram of excitation system and power system stabilizer (PSS) for computer representation in power system stability simulations and the corresponding excitation system and PSS constants for use in the model.	For each unit
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**Governor and Prime Mover System Model**

Identify appropriate IEEE model block diagram of governor system for computer representation in power system stability simulations and the corresponding governor system constants for use in the model.	
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**Load Data**

Ratings of station service and other loads which comprise part of the Facility.	
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**Aggregation Data**

Description of the requested aggregation of units into a Facility or of multiple Facilities in accordance with paragraphs 2.2.1.6 and 2.2.1.7 of the Market Rules.	
Description of the technical and operational interaction between units or Facilities,	

**Wind Generators**

Number of generators to be interconnected pursuant to this Registration Request: \_\_\_\_\_

Elevation: \_\_\_\_\_

Single Phase \_\_\_\_\_ Three Phase \_\_\_\_\_

Inverter manufacturer, model name, number, and version:  
\_\_\_\_\_

List of adjustable set points for the protective equipment or software:  
\_\_\_\_\_  
\_\_\_\_\_

**Note:** A completed Power Systems Load Flow (PSLF) data sheet must be supplied with the Interconnection Request. If other data sheets are more appropriate to the proposed device then they shall be provided and discussed at Scoping Meeting.

**Induction Generators**

Field Volts:
Field Amperes:
Motoring Power (kW):
Neutral Grounding Resistor (If Applicable):
$I_2^2t$ or K (Heating Time Constant):
Rotor Resistance:
Stator Resistance:
Stator Reactance:
Rotor Reactance:
Magnetizing Reactance:
Short Circuit Reactance:
Exciting Current:
Temperature Rise:
Frame Size:
Design Letter:
Reactive Power Required In Vars (No Load):
Reactive Power Required In Vars (Full Load):
Total Rotating Inertia, H: Per Unit on KVA Base

**APPENDIX B**  
**NSPSO Market Procedure MP 04**  
**Load Facilities, other than Distribution Systems,**  
**directly connected to the transmission system**  
**Information Requirements for Registration**

**General Information**

Submission Date Identification	Facility name	
	Facility identifier (as advised by the NSPSO for SCADA and other use)	
	Facility owner	
	Facility location	
	Demand	
	Transmission System	Point of Interconnection
Service Dates	Initial in-service	
	Permanent in-service	
	Permanent out-of-service	
Single Line Diagram	<p>Single Line Diagram showing all primary electrical equipment at the Facility, including:</p> <ul style="list-style-type: none"> <li>◆ Main feeders</li> <li>◆ Embedded generation units (including for load displacement)</li> <li>◆ Transformers (step up and step down)</li> <li>◆ Switchgear at Transmission voltages and secondary voltage</li> <li>◆ Protection and monitoring equipment</li> <li>◆ Revenue metering equipment</li> </ul>	
Protection & Instrumentation Diagram(s)	Single Line and Three Phase P & I diagrams for all primary electrical equipment shown in the Single Line Diagram	
Nameplate Data	Nameplate data on all primary electrical equipment (including conductor, cables etc.) shown in the Single Line Diagram.	
Protection System Description, if requested by the NSPSO	<p>A functional description of all protective schemes shall be provided to allow a detailed analysis of all credible contingencies, including:</p> <ul style="list-style-type: none"> <li>◆ Operating times for protection components (e.g. primary relaying, auxiliary relaying, communication)</li> <li>◆ General models for normal and delayed (breaker failure) fault clearing</li> <li>◆ Exceptions to the general model</li> </ul> <p>For all recognized contingencies, the functional description must enable fault clearing times at all terminals to be determined for both normal and delayed clearing.</p>	
Parameters and practices for thermal limitations	<p>All system operating limits of the facilities to the point of connection with NSPI, that could have a bearing on equipment operation shall be reported. These may include:</p> <ul style="list-style-type: none"> <li>◆ primary or secondary equipment rating limits</li> <li>◆ Conductor / connection limits</li> <li>◆ Indoor or outdoor location limits</li> </ul>	
Relay Information	Settings and characteristics to enable relay margin analysis of credible contingencies	
Test Results	Copies of all commissioning tests of all power system components to be available on request.	

**Load Data**

Load Schedule	Date	Peak Load	Power Factor	Load Factor					
	Commissioning	MW	%	%					
	Initial	MW	%	%					
	Ultimate	MW	%	%					
Nature of Load	Composition (e.g. % industrial, % commercial, %residential)								
	Requirement for dual supply								
	Description of unusual sensitivity to voltage or frequency fluctuations								
	Description of unusual consequences of power outages								
Power Quality, upon request by the NSPSO	Harmonics (frequency, magnitude)								
	Flicker (voltage change, frequency)								
	Phase Imbalance (%)								
	Variable Speed Drives	Demand (kVA)		Description					
	Welding Equipment	Demand (kVA)		Description					
	Static Converters	Demand (kVA)		Description					
	Furnace	Demand (kVA)		Description					
	Other discontinuous or harmonic rich load	Demand (kVA)		Description					
	Capacitors	Demand (kVA)		Description					
	Generators	Total Size (kVA)		Description					
Load Shape, upon request by the NSPSO	Hours	Winter Maximum Demand				Summer Maximum Demand			
		Weekday		Weekend		Weekday		Weekend	
		MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
	00:00-04:00								
	04:00-08:00								
	08:00-12:00								
	12:00-16:00								
	16:00-20:00								
	20:00-24:00								
	Motors ≥ 500 HP, upon request by the NSPSO	Type (e.g. squirrel cage, wound rotor, synchronous)							
Rated capability (MVA or HP)									
Power factor									
Starting method (e.g. full-voltage, resistive, reduced voltage, delta-wye)									
Starts per day									
Induction Motors ≥ 25,000 HP or ≥ 500 HP upon request by the NSPSO	Identifier								
	Rated capability (MVA or HP)								
	Rated torque (per unit on machine base)								
	Rated slip (per unit on machine base)								
	Starting torque (per unit on machine base)								
	Starting current (per unit on machine base)								
	Starting power factor								
	Peak torque (per unit on machine base)								
Locked rotor current (per unit on machine base)									



Synchronous Motors ≥ 500 HP upon request by the NSPSO	Identifier								
	Rated capability (MVA or HP)								
	X''d (unsaturated subtransient reactance in per unit on machine base)								
	For each synchronous motor ≥ 5000 HP								
	Rotational inertia constant H of motor and load (s)								
	Unsaturated reactances (per unit on machine base)								
	Xd	X'd	X''d	Xq	X'q	X''q	Xl	X <sub>2</sub>	X <sub>o</sub>
	Unsaturated open circuit time constants (s)								
	T'do		T''do		T'qo		T''qo		
	Armature resistance (Ra) (per unit on machine base)								
	Saturation at rated voltage (S1.0) and 20% above (S1.2)								

### Embedded Generation Unit Data

The following information is to be provided for embedded generation units that are not separately registered as a Facility with the NSPSO and that:

- ◆ are capable of operating synchronized with the transmission system, and
  - have a combined capacity more than the lesser of 1 MW or half of the Load Facility's peak Demand, or
  - are intended to be used as the basis for the self-supply of Ancillary Services by the Load Facility.

For each generation unit	Type (e.g. salient pole, round rotor, induction)								
	Rated capability (MVA)								
	Rated voltage (kV)								
	Rated power factor								
	Maximum continuous rating (MW)								
	Maximum capability under emergency conditions (MW)								
	Fuel type								
	Emergency ramp rate (MW/minute)								

Operating philosophy and limitations (eg., base loaded subject to river flows, peak shaving, emergency backup).								
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### Interruptible Load Data

Description of any identifiable loads or processes that will be separately controlled in connection with interruptible load service, and of the associated monitoring or metering.								
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**APPENDIX C**  
**NSPSO Market Procedure MP 04**  
**Distribution Systems**  
**Information Requirements for Registration**

**General Information**

Submission Date		
Identification	Facility name	
	Facility identifier (as advised by the NSPSO for SCADA and other use)	
	Facility owner	
	Facility location	
	MW demand	
Transmission System	Point of Interconnection	
Service Dates	Initial in-service	
	Permanent in-service	
	Permanent out-of-service	
Single Line Diagram	<p>Single Line Diagram showing all primary electrical equipment at the Facility, including:</p> <ul style="list-style-type: none"> <li>◆ Main feeders, including identification of embedded generation unit connections</li> <li>◆ Transformers (step up and step down)</li> <li>◆ Switchgear at Transmission voltages and secondary voltage</li> <li>◆ Protection and monitoring equipment</li> <li>◆ Revenue metering equipment</li> </ul>	
Nameplate Data	Nameplate data on all primary electrical equipment (including conductor, cables etc.) shown in the Single Line Diagram.	
Protection System Description, if requested by the NSPSO	<p>A functional description of all protective schemes shall be provided to allow a detailed analysis of all credible contingencies, including:</p> <ul style="list-style-type: none"> <li>◆ Operating times for protection components (e.g. primary relaying, auxiliary relaying, communication)</li> <li>◆ General models for normal and delayed (breaker failure) fault clearing</li> <li>◆ Exceptions to the general model</li> </ul> <p>For all recognized contingencies, the functional description must enable fault clearing times at all terminals to be determined for both normal and delayed clearing.</p>	
Parameters and practices for thermal limitations	<p>All system operating limits of the facilities to the point of connection with NSPI, that could have a bearing on equipment operation shall be reported. These may include:</p> <ul style="list-style-type: none"> <li>◆ primary or secondary equipment rating limits</li> <li>◆ Conductor / connection limits</li> <li>◆ Indoor or outdoor location limits</li> </ul>	
Relay Information	Settings and characteristics to enable relay margin analysis of credible contingencies	
Test Results	Copies of all commissioning tests of all power system components to be available on request.	

**Load Data**

Load Schedule		Date	Peak Load	Power Factor	Load Factor				
	Commissioning		MW	%	%				
	Initial		MW	%	%				
	Ultimate		MW	%	%				
Nature of Load	Composition (e.g. % industrial, % commercial, %residential)								
	Requirement for dual supply								
	Description of unusual sensitivity to voltage or frequency fluctuations								
	Description of unusual consequences of power outages								
Power Quality upon request by the NSPSO	Harmonics (frequency, magnitude)								
	Flicker (voltage change, frequency)								
	Phase Imbalance (%)								
	Variable Speed Drives		Demand (kVA)		Description				
	Welding Equipment		Demand (kVA)		Description				
	Static Converters		Demand (kVA)		Description				
	Furnace		Demand (kVA)		Description				
	Other discontinuous or harmonic rich load		Demand (kVA)		Description				
	Capacitors		Demand (kVA)		Description				
Generators		Total Size (kVA)		Description					
Load Shape, Upon request by the NSPSO	Hours	Winter Maximum Demand				Summer Maximum Demand			
		Weekday		Weekend		Weekday		Weekend	
		MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
	00:00-04:00								
	04:00-08:00								
	08:00-12:00								
	12:00-16:00								
	16:00-20:00								
20:00-24:00									
Motors ≥ 500 HP, Upon request by the NSPSO	Type (e.g. squirrel cage, wound rotor, synchronous)								
	Rated capability (MVA or HP)								
	Power factor								
	Starting method (e.g. full-voltage, resistive, reduced voltage, delta-wye)								
	Starts per day								
Induction Motors ≥ 25,000 HP or ≥ 500 HP, Upon request by the NSPSO	Identifier								
	Rated capability (MVA or HP)								
	Rated torque (per unit on machine base)								
	Rated slip (per unit on machine base)								
	Starting torque (per unit on machine base)								
	Starting current (per unit on machine base)								
	Starting power factor								
	Peak torque (per unit on machine base)								
Locked rotor current (per unit on machine base)									

Synchronous Motors ≥ 500 HP, upon request by the NSPSO	Identifier								
	Rated capability (MVA or HP)								
	X''d (unsaturated subtransient reactance in per unit on machine base)								
	For each synchronous motor ≥ 5000 HP								
	Rotational inertia constant H of motor and load (s)								
	Unsaturated reactances (per unit on machine base)								
	Xd	X'd	X''d	Xq	X'q	X''q	Xl	X <sub>2</sub>	X <sub>o</sub>
	Unsaturated open circuit time constants (s)								
	T'do		T''do		T'qo		T''qo		
	Armature resistance (Ra) (per unit on machine base)								
	Saturation at rated voltage (S1.0) and 20% above (S1.2)								

### Load Transfer Data

Identify load transfer capabilities within feeders from this Facility and between this Facility and other Facilities, and the operating philosophy for their use.	
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### Embedded Generation Unit Data

The following information is to be provided for embedded generation units that are not separately registered as a Facility with the NSPSO, that are capable of operating synchronized with the SO-controlled Grid, and that have a combined capacity more than the lesser of 1 MW or half of the average gross demand of the feeder.

For each generation unit	Type (e.g. salient pole, round rotor, induction)								
	Rated capability (MVA)								
	Rated voltage (kV)								
	Rated power factor								
	Maximum continuous rating (MW)								
	Maximum capability under emergency conditions (MW)								
	Fuel type								
Emergency ramp rate (MW/minute)									

Operating philosophy and limitations (eg., Base loaded subject to river flows, peak shaving, emergency backup).	
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**APPENDIX D**  
**NSPSO Market Procedure MP 04**  
**Embedded Generating Facilities**  
**Information Requirements for Registration**  
**(Embedded Generating Facilities Greater than 5MW,**  
**Complete Appendices A and B)**

**General Information**

Submission Date		
Identification	Facility name	
	Facility identifier (as advised by the NSPSO for SCADA and other use)	
	Facility owner	
	Facility location	
	MW capacity, summer & winter	
Connection arrangements	Owner of host system Connection point to host system Host system connection point to transmission system (facility identifier) (note that this should include details of the complete connection between the Embedded Facility and the transmission system, even if not all under the same ownership or control.)	
Service Dates	Initial in-service	
	Permanent in-service	
	Permanent out-of-service	
Single Line Diagram	Single Line Diagram showing all primary electrical equipment at the Facility, including: <ul style="list-style-type: none"> <li>◆ Generating units</li> <li>◆ Transformers (step up and step down)</li> <li>◆ Switchgear at distribution voltage and any secondary voltage</li> <li>◆ Protection and monitoring equipment</li> <li>◆ Revenue metering equipment</li> </ul>	
Protection & Instrumentation Diagram(s)	Single Line and Three Phase P & I diagrams for all primary electrical equipment shown in the Single Line Diagram	
Nameplate Data	Nameplate data on all primary electrical equipment (including conductor, cables etc.) shown in the Single Line Diagram.	
Protection System Description, for all Generating Facilities greater than 10 MVA and for other Facilities if requested by the NSPSO	A functional description of all protective schemes shall be provided to allow a detailed analysis of all credible contingencies, including: <ul style="list-style-type: none"> <li>◆ Operating times for protection components (e.g. primary relaying, auxiliary relaying, communication)</li> <li>◆ General models for normal and delayed (breaker failure) fault clearing</li> <li>◆ Exceptions to the general model</li> </ul> <p>For all recognized contingencies, the functional description must enable fault clearing times at all terminals to be determined for both normal and delayed clearing.</p>	
Parameters and practices for thermal limitations	All system operating limits of the facilities to the point of connection with NSPI, that could have a bearing on equipment operation shall be reported. These may include: <ul style="list-style-type: none"> <li>◆ primary or secondary equipment rating limits</li> <li>◆ Conductor / connection limits</li> <li>◆ Indoor or outdoor location limits</li> </ul>	
Relay Information	Settings and characteristics to enable relay margin analysis of credible contingencies	
Test Results	Copies of all commissioning tests of all power system components to be available on request.	

**Unit Data**

For each generation unit	Type (e.g. salient pole, round rotor, induction)	
	Rated capability (MVA)	
	Rated voltage (kV)	
	Rated power factor	
	Maximum continuous rating (MW)	
	Maximum capability under emergency conditions (MW)	
	Fuel type	
	Emergency ramp rate (MW/minute)	

**Load Data**

Ratings of station service and other loads which comprise part of the Facility.	
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**Aggregation Data**

Description of the aggregation of units into a Facility or multiple Facilities at the same site.	
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