



Alexandra E. Blackmore  
Senior Attorney

September 29, 2006

**VIA HAND DELIVERY & ELECTRONIC MAIL**

Ms. Debra A. Howland  
Executive Director and Secretary  
New Hampshire Public Utilities Commission  
21 South Fruit Street, Suite 10  
Concord, NH 03301-2429

**Re: DE 06-061; Investigation into Federal Standards Pursuant to the Energy Policy Act of 2005**

Dear Ms. Howland:

On behalf of Granite State Electric Company d/b/a National Grid (“National Grid”), I am submitting an original and six (6) copies of National Grid’s Initial Comments in the above-captioned proceeding.

Thank you for your time and attention to this matter. If you have any questions, please feel free to contact me at 508-389-3243.

Very truly yours,

Alexandra E. Blackmore

Enclosures

cc: Donald Pfundstein, Esq.  
Service List (via electronic mail)

STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSION

Investigation of New Federal Standards Required by the Energy Policy Act of 2005	) ) ) )	Docket No. DE 06-061
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**COMMENTS OF NATIONAL GRID**

INTRODUCTION

On April 24, 2006, the New Hampshire Public Utilities Commission (“Commission”) issued an Order of Notice opening a proceeding to consider the five new federal standards that have been added to Title I of the Public Utility Regulatory Policies Act (“PURPA”) as a result of the enactment of the Energy Policy Act of 2005 (“EPACT”) on August 8, 2005. The EPACT standards relate to Net Metering, Fuel Sources, Fossil Fuel Generation Efficiency, Time-Based Metering and Communications (“Smart Metering”), and Interconnection.

As required by the Secretarial Letter dated September 14, 2006 in this proceeding, Granite State Electric Company d/b/a National Grid (“National Grid” or “Company”) now submits its comments on the first two standards to be considered; Smart Metering and Interconnection.

DISCUSSION

For both Smart Metering and Interconnection, set forth in Section 1252 and Section 1254 of EPACT respectively, there are exemptions from the requirement that the standards be implemented if certain conditions have occurred. Specifically, the Commission is not required to consider the Smart Metering standard if, before enactment of the standard (1) the State has

implemented for such utility the standard concerned (or a comparable standard); (2) the Commission has conducted a proceeding to consider implementation of the standard concerned (or a comparable standard) for the utility; or (3) the State legislature has voted on the implementation of such standard (or a comparable standard) for such utility within the previous 3 years. The exemptions for the Interconnection Standard are the same as for Smart Metering, except that there is no requirement that the State legislature's vote must have taken place within the previous 3 years.

National Grid's position with regard to the Smart Metering standard is that the Commission has previously considered some of the issues set forth in the standard in its investigation of Advanced Customer Metering and Demand Response in Docket DE 03-013. Furthermore, as part of National Grid's ongoing procurement of Default Service, we have committed to conduct an investigation of whether to offer hourly-pricing to National Grid's G-1 Default Service customers with average annual billing demands in excess of 1MW as well as the impact of offering hourly-pricing to those customers on the development of the competitive market. National Grid's report on the results of that investigation will be submitted to the Commission on November 1, 2006. To the extent that the Commission has already taken steps to investigate standards that are comparable to the Smart Metering standard in New Hampshire, and to the extent that there are already proceedings in place where those issues can be considered, National Grid does not believe that the Commission is required to take any further action to consider the Smart Metering standard at this time. National Grid's position with regard to the Interconnection standard is that the exemption for prior state action does not apply.

I. Time-Based Metering and Communications

EPACT requires each State regulatory authority to conduct an investigation and make a determination as to whether or not it is appropriate for electric utilities to provide and install time-based meters and communications devices for each of their customers which enable such customers to participate in time-based pricing rate schedules and other demand response programs.<sup>1</sup> Specifically, subparagraphs (A) and (C) of Section 1252 of EPACT state:

(A) Not later than 18 months after the date of enactment of this paragraph, each electric utility shall offer each of its customer classes, and provide individual customers upon customer request, a time-based rate schedule under which the rate charged by the electric utility varies during different time periods and reflects the variance, if any, in the utility's costs of generating and purchasing electricity at the wholesale level. The time-based rate schedule shall enable the electric consumer to manage energy use and cost through advanced metering and communications technology.

\* \* \*

(C) Each electric utility subject to subparagraph (A) shall provide each customer requesting a time-based rate with a time-based meter capable of enabling the utility and customer to offer and receive such rate, respectively.

Currently, National Grid's delivery Rates D-10 (Domestic Service Optional Peak Load) and G-1 (General Service Time-of-Use) contain a time-based component. Rate D-10 is available for all domestic purposes in an individual private dwelling or in an individual apartment and for farm purposes for certain customers. Under Rate D-10 customers pay a customer charge, and a time-differentiated distribution charge based upon on and off-peak kWh usage. Rate G-1 is mandatory for all customers whose estimated average usage is greater than or equal to 200kW of Demand. Under Rate G-1 customers pay a customer charge, a distribution demand charge, and a time-differentiated distribution charge based upon on and off-peak kWh usage.

In addition, all customers are eligible to purchase optional metering services which can provide hourly data to customers. These options are described below.

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<sup>1</sup> EPACT § 1252(b)(3)(i), amending PURPA § 115(i).

## **Optional Enhanced Metering Service**

Optional Enhanced Metering Service is available for all customers receiving metered retail delivery service. There are two service options available under this tariff.

Service Option 1 – Complete Service: Under this service option, the Company will provide equipment at the customer’s facility that will allow for periodic readings of the customer’s load through telephone lines. The Company will install, own and maintain the equipment in service. The customer, or its authorized representative, may receive the data through the optical port on the equipment or electronically. The Company will store load information on the meter for a period of 35 days and will read the meters daily.

The one-time customer fee for this service is as follows:

Residential rate schedules	\$155.31
General Service rate schedules	\$247.08

Service Option 2 – Pulse Service: Customers who wish to connect their own metering equipment or equipment provided by their authorized representative to the Company’s meter may elect this option. The Company will provide a pulse interface device through which the customer can access meter data. The customer, or its representative, must purchase, own and maintain a device or system which would connect to the pulse interface device in order to access meter pulses.

The one-time customer fee for this service is as follows:

Residential rate schedules	\$135.31
General Service rate schedules	\$122.07

## **Optional Interval Data Service**

Optional Interval Data Service is available to customers receiving service from the Company under the Company’s Optional Enhanced Metering Service provision, or customers receiving metered retail delivery service from the Company who have a Company-owned interval data recorder installed at their facilities. The fees for this service vary depending upon the number of accounts and frequency of requests for interval data. Access is available to the customer or its authorized agent.

One-Time Requests for Interval Data

Initial request covering a single calendar year	No Charge
Subsequent request within the same calendar year	
Single retail delivery service account	\$55.00
Additional retail delivery service account requested at the same time	\$23.00

Subscription Service for Interval Data over the Internet

The Company may offer subscriptions to eligible customers for access to interval data through an Internet account that is available for the customer's use. The minimum contract length is one year. The availability of this service will be subject to the Company's ability to render such service.

Single retail delivery service account	\$309.00 annually
Additional retail delivery service account Requested at the same time	\$277.00 per account, annually

**Optional Billing and Rate Data Service**

Optional Billing and Rate Data Service is available for customers receiving retail delivery service from the Company under any of the rate schedules contained in the Company's retail delivery service tariff. Any request for Billing and Rate Data Service may be made either by the customer of record or by another party having the customer of record's authorization to receive data to be released by the Company under Billing and Rate Data Service.

The Company makes available rate data, energy consumption and billing demand data for 13 months of service to customers for no fee. The Company also provides other data such as custom reports and additional bill and rate analyses to customers for a fee.

Currently, approximately 14 customers are using one or more of these optional services.

**Additional Communications Options**

The Company is exploring offering other communications options at this time. In order to participate in some of the ISO-NE Load Response programs, the customer must supply five (5)

minute interval data to the ISO-NE on a real-time basis. The current enhanced metering options only allow for either a monthly feed to the ISO-NE, or a daily feed to the ISO-NE, provided the customer has installed a phone line at their expense to the meter that is then used to download the meter data by the Company's Meter Data Services department.

In order to supply five-minute data in real-time, the Company is pursuing various wireless communications options. As the need for more frequent downloads occur, the cost of the communications increases. Currently, a landline phone connection can cost the customer \$10 to \$20 per month. The cost of a wireless communications option capable of providing interval data every five minutes can be as high as \$100 per month. Similar to existing cell phone plans, the more data transmitted, the higher the costs.

The discussion above has centered around simply offering time-based meters for customers at their option. In addition to providing time-based meters, there are also so-called "smart" meters. Smart meters can typically provide other data, i.e., power quality information, outage notification, on-demand reads, by using two-way communication between the customer and the utility. Smart meters have higher communications costs (similar to time-based meters) as well as higher initial purchase and programming costs, and additional data management costs.

Currently, the Company accepts load interval and billing data remotely. However the additional information from a smart meter (power quality information, outage notification, on-demand reads, etc.) cannot be processed without another or enhanced data management system that would need to be engineered, installed and maintained by the Company.

Smart metering technology is much more expensive than present means of recording customer usage. Although smart metering promises benefits, these benefits, along with associated costs, have not been evaluated in a regulatory forum. Many issues require close

examination to reach a determination that smart metering would be a reasonable investment for customers. Some of these issues would be customer acceptance, cost of the technology, savings from use of the technology, whether implementation should be mandatory or voluntary, etc. As such, EPACT was written to allow such review and does not mandate implementation.

In addition to reviewing various communications options as indicated above, the Company is reviewing the possibility of offering smart meters with various services to its customers.

### **Investigation of Hourly Pricing**

Notwithstanding the Commission's current investigation of the EPACT Smart Metering standard, pursuant to the Settlement Agreement approved by the Commission in Order No. 24,577 in Docket DE 05-126 (January 13, 2006), National Grid committed to investigate the costs of acquiring the capability to price Default Service for Rate G-1 customers with average annual billing demands in excess of 1MW based upon hourly wholesale market prices, as well as the potential impact on the development of the competitive retail market of offering such hourly pricing. The Company is preparing a report on the results of this investigation to the Commission that will be filed no later than November 1, 2006.

### **Analysis**

National Grid believes that its existing optional enhanced metering options comply with the EPACT requirement to offer customers time-based metering because these options are available to all customers. However, the EPACT states that electric utilities "shall offer each of its customer classes, and provide individual customers upon customer request, a time-based rate schedule under which the rate charged by the electric utility varies during different time periods *and reflects the variance, if any, in the utility's costs of generating and purchasing electricity at*



*the wholesale level.*” (*emphasis added*). Currently, National Grid procures commodity supply in the wholesale market under contracts that do not contain time-based charges. The supply for Default Service is procured by the Company periodically through competitive solicitation. Prices bid for this service are per kWh charges that either vary monthly for large commercial and industrial customers or are fixed for small commercial and residential customers and are applicable uniformly to all kWhs delivered. National Grid believes that the decision to change the current method of procuring Default Service to provide for time-based commodity rates should be based upon a reasonable expectation that the change will result in net benefits for customers.

## II. Interconnection

Section 1254 of EPACT requires the Commission to consider whether to adopt the following Interconnection standard:

Each utility shall make available upon request, interconnection service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term “interconnection service” means service to an electric consumer under which an on-site generating facility on the consumer’s premises shall be connected to the local distribution facilities. Interconnection services shall be offered based upon the standards developed by the Institute of Electrical and Electronics Engineers: IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems, as they may be amended from time to time. In addition, agreements and procedures shall be established whereby the services offered shall promote current best practices of interconnection for distributed generation, including but not limited to practices stipulated in model codes adopted by associations of state regulatory agencies.

The Company’s current interconnection application form for small renewables in New Hampshire, consistent with New Hampshire Code of Administrative Rules PUC 900, is attached as Attachment 1. For larger projects in New Hampshire, the Company would follow a process

similar to the policies that we use in Rhode Island and Massachusetts. The policy for interconnections used in Rhode Island is attached as Attachment 2. The policy for interconnections used in Massachusetts is attached as Attachment 3. The Company has not received requests for large interconnections in New Hampshire for many years.

The Company suggests that the interconnection policy approved by the Massachusetts Department of Telecommunications and Energy in Docket D.T.E 02-38 which is attached as Attachment 4 is a good approach to addressing future interconnections in New Hampshire that would not fall under the existing rules. Unitil, NU, and National Grid all participated in the proceedings that resulted in the new policy and now use this new policy for interconnection in Massachusetts. The policy is very similar to the new Small Generator Interconnection Policy proposed to be used by the ISO-NE for customers selling power to the wholesale market that the ISO-NE recently filed with FERC. A copy of this policy is attached as Attachment 5. In addition, this new policy is a direct out-growth of the NARUC Model Rule for Interconnection as well as the original Small Generator Working Group at FERC. This new interconnection policy allows for (1) ten business day turn-around for small renewables; (2) an expedited, or fast-track approach that has a twenty business day turn-around for Listed equipment as per the new IEEE 1547 standard, Standard for Interconnecting Distributed Resources with Electric Power Systems; and (3) three-month study times for non-qualified equipment and larger systems.

The policy's main premise is to use various screens to determine the impact of qualified equipment on the distribution system in order to accelerate and standardize interconnections for all customers. Listed equipment is generating equipment that has successfully passed the new UL 1741 testing procedures. Most inverters for small renewables are already Listed, but now larger

systems can now be Listed in order to qualify for the expedited or fast-track study process.

Consequently, National Grid believes that if the Commission were to approve the use of the new interconnection policy attached as Attachment 4 that has been implemented in Massachusetts for use in New Hampshire for large interconnections, the intent of Section 1254 of EPACT would be satisfied.

#### CONCLUSION

National Grid appreciates the opportunity to provide these comments to the Commission and looks forward to working with Staff, the OCA and other interested parties in this proceeding.

## **Attachment 1**

INTERCONNECTION APPLICATION-RENEWABLE GENERATION UP TO 25 KW

PURSUANT TO NEW HAMPSHIRE ADMINISTRATIVE RULE PUC 900, APPLICANT HEREBY GIVES NOTICE OF INTENT TO INSTALL AND OPERATE A GENERATING FACILITY

Section 1. Applicant Information

Name:
Mail Address:
City: State: Zip Code:
Facility Location (if different from above):
Daytime Phone #:
Distribution Utility: Account #:
Electricity Supplier (ES) Account #:
(if applicable)

Section 2. Generating Facility Information

Generator Type (check one): Solar, Wind, Hydro
Generator Manufacturer, Model Name & Number:
Number of Phases of Unit: Single, Three or Other:
Generation output rating in Kilowatts:
Inverter Manufacturer, Model Name & Number:
Battery Backup? (yes or no)
If power rating is greater than 10 kW, will a generator Disconnect Switch accessible to the utility be installed? (yes or no)
Proposed location of Disconnect Switch, if applicable:

Section 3. Installation Information & Certification

Check if owner-installed

Installation Date: Interconnection Date:
Installing Electrician: License #:
Mail Address:
City: State: Zip Code:
Daytime Phone #:

- 1. The system hardware is listed to Underwriters Laboratories standards to be in compliance with UL 1741:
Signed (Vendor): Date:
Name (printed) Company:
2. The system has been installed in compliance with the local Building/Electrical Code of
(City/County)
Signed (Inspector): Date:
In lieu of signature by inspector, a copy of final inspection certificate may be attached.
3. Utility and Electricity Supplier signatures signify only receipt of this form, in compliance with the Commission's net metering rules Puc 900.
Signed (Utility Representative): Date:
Signed (Electricity Supplier Representative): Date:
4. The initial start-up test required by Puc 905.04 has been successfully completed.
Applicant agrees to install and operate the system in accordance with Puc 900.

I hereby certify that, to the best of my knowledge, all of the information provided in this Application is true and correct.

# NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

**Signature of Applicant** \_\_\_\_\_ **Date:** \_\_\_\_\_

THE ELIGIBLE CUSTOMER-GENERATOR SHALL PROVIDE THE DISTRIBUTION UTILITY WITH A WRITTEN UPDATE OF THE INFORMATION ON THIS FORM AS ANY CHANGES OCCUR.

This form may be reproduced allowing for more space between lines.

## **Attachment 2**

# Narragansett Electric Company

## Interconnection Policy

### Customer-Owned Generating Facilities

*Published: April 2002*

**Capital District:**  
280 Melrose Street  
Providence, RI 02907

**Coastal District:**  
4145 Quaker Lane  
North Kingstown, RI 02852



## **INTERCONNECTION POLICY CUSTOMER-OWNED GENERATING FACILITIES**

**Published: April 2002**

### **1.0 Introduction**

This “Interconnection Policy” describes the process and requirements of Narragansett Electric for those instances when a Customer desires to connect a customer-owned Generating Facility to the Company’s Distribution System.

Significant damage to the Company’s or the Customer’s facilities can occur if a Generating Facility is interconnected in a manner that does not comply with the Company’s requirements. For that reason, it is very important for any Customer who plans to install any form of Generating Facility and remain connected to the Company’s Distribution System to comply with the Company’s requirements.

This Interconnection Policy addresses Generating Facilities that will be connected electrically to the Company’s Distribution System and operate in synchronism with the voltage and frequency maintained by the Company during normal operating conditions. Under such circumstances, the interconnection of the power source with the Company's Distribution System must meet the technical requirements of this Interconnection Policy and may require an upgrade or other modifications to the Distribution System in order to meet such requirements. Any costs incurred by the Company in making such modifications or upgrades would be reimbursed by Customer. Once the requirements contained in this Interconnection Policy are met, the Company will interconnect the Customer to the Distribution System, subject to the terms of an Interconnection Service Agreement.

This Interconnection Policy is published for the convenience of Customers in order to provide guidance as to what the Company will require. However, Customers should be aware that the procedures and requirements are subject to change from time to time. In addition, depending upon the size of the Generating Facility and the special circumstances faced in any given situation, the Company reserves the right to modify the processes and requirements contained in this publication.

NOTE: This Interconnection Policy uses special capitalized terms throughout the text.

For the convenience of the reader, a “Glossary of Capitalized Terms ” is provided at the end of the descriptive section of the Policy, prior to the Exhibits.

## **2.0 Transmission System Interconnections and Portable Generators Treated Differently**

2.1 *Generation Interconnecting Directly to Transmission System:* This Interconnection Policy does **not** apply to generating units that will be directly interconnected to the transmission system (as opposed to the Company’s Distribution System) for sales or transmission of power into the transmission grid. Any person or business entity contemplating such a generation project must contact the Transmission Department of National Grid USA. A Narragansett Electric representative will refer such generation projects to appropriate National Grid personnel upon request. However, Narragansett Electric would still be involved in the project on other technical issues and the Customer would need to make arrangements with the Company for station service that is back-fed over the transmission facilities when the generating units are not operating.

2.2 *Portable Generators:* The process and requirements contained in this Interconnection Policy are **not** applicable to portable emergency generators. Such generators must be installed in accordance with Article 700 of the *National Electrical Code* and Article 310 of the National Grid USA publication *Information and Requirements for Electric Service Handbook* in such a manner as to ensure that the generator cannot be operated in parallel with the Company’s Distribution System. Attempting to interconnect a generator of this type with the Company’s Distribution System, except as specified in the National Electrical Code and the publication referenced above, can cause significant damage to the Company’s Distribution System and catastrophic damage to the Customer’s generator and premises.

### 3.0 Process Leading to Execution of Interconnection Service Agreement

The process of interconnecting a Generating Facility with the Company's Distribution System is as follows:

- a. The Customer submits a Notice of Intent to Interconnect ("Notice of Intent") to the Company. The information that is required in the Notice of Intent is provided in Exhibit 1. Such notice should be sent to:

Narragansett Electric:

Capital District

280 Melrose Street

Providence, RI 02907

Attn: Vice President, Business Services

Coastal District

4145 Quaker Lane

North Kingstown, RI 02852

Attn: Vice President, Business Services

- b. After receiving the Notice of Intent, the Company will assign an Account Manager to work with the Customer and serve as the point of contact for all future activities. The Notice of Intent will be reviewed for completeness and to verify that the request is for an interconnection to the Company's Distribution System. In addition, if the Notice of Intent is for an Inverter-based Generating Facility, the Company will determine if the Generating Facility complies with UL Standard 1741. If any of these requirements are not met, the Company will inform the Customer and the application process will be delayed until the Customer has remedied any deficiencies.
- c. The Company will need to perform an engineering review of the project before allowing the interconnection. Depending upon the size, location, and operational characteristics of the project, the Company may need to perform up to two engineering studies. One study is referred to as a "Distribution Facilities Impact Study" (or "Impact Study"). The second is referred to as a "Distribution Facilities

Detailed Study” (or “Detailed Study”). The Impact Study is a first phase engineering study conducted by the Company to determine the required modifications to its Distribution System, resulting in study grade cost estimates (+/- 25%) and an approximate estimate of the time required for such modifications that will be required

to provide the requested interconnection service. The Impact Study is not suitable for finalizing agreements, contracts or commitments. The Detailed Study is a final phase engineering study conducted by the Company to determine the required detailed modifications to its Distribution System, resulting in project grade cost estimates (+/- 10%) and an estimate of the time required for such modifications that will be required to provide the requested interconnection service.

- d. Upon reviewing the Notice of Intent, the Company will determine if an Impact Study is required. In some cases, the Company may determine that an Impact Study is not required and may proceed directly with a Detailed Study. In rare instances, if an Impact Study is not required, the Company may determine that the Generating Facility meets the requirements for immediate interconnection to the Company’s system. In such rare cases, the Company may permit the Customer to immediately interconnect, subject to executing an Interconnection Service Agreement.
- e. If an Impact Study is required, the Company will prepare a cost estimate to perform the study and will submit such estimate to the Customer.
- f. If the Customer elects to proceed with the Impact Study, the Customer and the Company will execute a Distribution Facilities Impact Study Agreement, a sample short form of which is provided in Exhibit 3. However, the Company reserves its right to include additional provisions and use a longer form of agreement to the extent necessary to address any specific circumstances of the project. The Customer will be required to pay the Company for the costs incurred in performing the study.
- g. Upon execution of the Distribution Facilities Impact Study Agreement and receipt of payment in full, the Company will conduct the Impact Study and, upon completion of

- the work, issue a Distribution Facilities Impact Study Report to the Customer. The Report will indicate whether a Detailed Study is required.
- h. If a Detailed Study is required and the Customer elects to proceed with the project, the Company will prepare a cost estimate to perform the study and will submit such estimate to the Customer.
  - i. If the Customer elects to proceed with the Detailed Study, the Customer and the Company will execute a Distribution Facilities Detailed Study Agreement, a form of which is provided in Exhibit 4. However, the Company reserves its right to change the terms or include additional provisions to address the specific circumstances of the project. The Customer will be required to pay the costs incurred by the Company in performing the study.
  - j. Upon execution of the Distribution Facilities Detailed Study Agreement and receipt of payment in full, the Company will conduct the Detailed Study and, upon completion of the work, issue a Distribution Facilities Detailed Study Report to the Customer.
  - k. If, after reviewing the Distribution Facilities Detailed Study Report, the Customer elects to proceed with the construction of facilities to interconnect the Generating Facility, the Company may require the Customer to execute an Interconnection Service Agreement.
  - l. Upon execution of the Interconnection Service Agreement and receipt of any payments owed, the Company will construct the required facilities.
  - m. The terms of the Interconnection Service Agreement will depend upon the size of the Generating Facility, the expected operating characteristics of the Generating Facility, and the configuration of the Company's Distribution System in the area, as well as other factors. The Agreement also will require the Customer to pay for certain costs

incurred by the Company in constructing and/or upgrading facilities (See Section 5 below).

**IMPORTANT NOTE: In performing its engineering reviews, the Company will not be reviewing or making recommendations relating to the protection of the Generating Facility or other Customer facilities against possible damage resulting from parallel operation with the Company. The Company's review is designed to determine what must be constructed or installed to protect the Company's Distribution System. The Customer is responsible for installing its own protective relays or other equipment to protect itself against damage that can be caused by the unexpected flow of electricity back fed from the Company's Distribution System into the Generating Facility or other Customer facilities.**

#### 4.0 Generating Facility Classification

The interconnection requirements for a Generating Facility or Inverter are dependent on its capacity and the type of power production technology utilized.

To determine the requirements for a given Generating Facility, the following Categories and Types have been established:

Categor y	Maximum Output (kW)
1	<= 10
2	> 10 and <= 60
3	> 60 and <= 300
4	> 300 and <= 1,000
5	> 1,000

Type	Technology
A-1	Inverter-based, single phase
A-3	Inverter-based, three phase
B-1	Induction generator, single phase
B-3	Induction generator, three phase
C-1	Synchronous generator, single phase
C-3	Synchronous generator, three phase

Tables 1-A and 1-B provide an overview of the applicable interconnection requirements for Category 1, 2, 3 and 4 Facilities. Category 5 Facilities are subject to the full extent of requirements contained in this Interconnection Policy.

**TABLE 1A  
 OVERVIEW OF INTERCONNECTION REQUIREMENTS**

Category 1 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System*		Distribution Facilities Impact Study
Type A-1	Requirement 1	Requirements 1 & 2		Not Required
Type A-3	Requirement 1	Requirements 1 & 2		Not Required
Type B-1	Requirement 3	Requirements 2 & 3		Required **
Type B-3	Requirement 3	Requirements 2 & 3		Required **
Type C-1	Requirement 4	Requirements 2 & 4		Required
Type C-3	Requirement 4	Requirements 2 & 4		Required

Category 2 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System		Distribution Facilities Impact Study
Type A-1	Requirement 1	Requirements 1 & 2		Required (Note A)
Type A-3	Requirement 1	Requirements 1 & 2		Required (Notes A & B)
Type B-1	Requirement 3	Requirements 2 & 3		Required (Note A)
Type B-3	Requirement 3	Requirements 2 & 3		Required (Notes A & B)
Type C-1	Requirement 4	Requirements 2 & 4		Required (See Note A)
Type C-3	Requirement 4	Requirements 2 & 4		Required (Notes A & B)

\* Most distribution systems are radial in nature; however, network systems are employed in some urban areas. Contact the Company to determine whether the proposed Generating Facility site is served by a Radial Distribution System or Network Distribution System.

\*\* The scope of the study is expected to be minimal.

Requirement. 1: The Inverter must comply with UL Standard 1741.  
 A photovoltaic system must also comply with IEEE Standard 929-2000.

Requirement. 2: For installations in which the Facility minimum load is less than fifteen (15) times the peak output of the generating system, a reverse power flow relay will be required as part of the protection system. If the Facility minimum load is at least fifteen (15) times the peak output of the generating system, a reverse power flow relay will not be required.

Requirement. 3: The Generating Facility must meet the protection requirements specified for induction generators as shown in Exhibit 2.

Requirement. 4: The Generating Facility must meet the protection requirements specified for synchronous generators as shown in Exhibit 2.

Note A: If the Customer proposes to install a Generating Facility with a capacity greater than 100% of the capacity of the distribution transformer providing site service, a Distribution Facilities Impact Study and Distribution Facilities Detailed Study would be required and an upgrade charge would apply.

Note B: If the Customer receives single-phase electrical service from the Company but desires to install a three-phase power Generating Facility, a Distribution Facilities Impact Study and Distribution Facilities Detailed Study would be required and an upgrade charge would apply.



**TABLE 1B  
 OVERVIEW OF INTERCONNECTION REQUIREMENTS**

Category 3 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System*		Distribution Facilities Impact Study
Type A-3	Requirement 1	Requirements 1 & 2		Required (Note A)
Type B-3	Requirement 3	Requirements 2 & 3		Required
Type C-3	Requirement 4	Requirements 2 & 4		Required

Category 4 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System*		Distribution Facilities Impact Study
Type A-3	Requirement 1	Requirements 1 & 2		Required
Type B-3	Requirement 3	Requirements 2 & 3		Required
Type C-3	Requirement 4	Requirements 2 & 4		Required

\* Most distribution systems are radial in nature; however, network systems are employed in some urban areas. Contact the Company to determine whether the proposed Generating Facility site is served by a Radial Distribution System or Network Distribution System.

Requirement. 1: The Inverter must comply with UL Standard 1741.

Requirement. 2: For installations in which the Facility minimum load is less than fifteen (15) times the peak output of the generating system, a reverse power flow relay will be required as part of the protection system. If the Facility minimum load is at least fifteen (15) times the peak output of the generating system, a reverse power flow relay will not be required.

Requirement 3: The Generating Facility must meet the protection requirements specified for induction generators as shown in Exhibit 2.

Requirement 4: The Generating Facility must meet the protection requirements specified for synchronous generators as shown in Exhibit 2.

Note A: If the Customer proposes to install a Generating Facility with a capacity greater than 100% of the capacity of the distribution transformer providing service to the site, a Distribution Facilities Impact Study and Distribution Facilities Detailed Study would be required and an upgrade charge would apply.

## **5.0 Construction of the Distribution Facilities Upgrades**

**5.1 General Considerations:** The Company will arrange to construct the Distribution Facilities Upgrades at the Customer's expense. The Company will determine a schedule for construction and final interconnection. The Company will use reasonable efforts to meet the schedule in order to permit interconnection with the Generating Facility in a timely manner. However, the Company cannot guarantee the project will be met by the given date in the schedule. The earlier the Company receives the Notice of Intent, the more likely that project schedules desired by the Customer can be met. The Company will use, or specify that the selected contractor use, standard equipment customarily employed by the Company for its own system in accordance with Good Utility Practice in making the final interconnection.

The Customer will be required to pay the Company for all reasonable costs incurred by the Company in constructing a reliable and safe interconnection that has no adverse impacts on the Distribution System. Those costs may include: (i) engineering design, (ii) construction costs, (iii) tax liability (see Section 5.2 below), (iv) the costs and fees of all permits, licenses, franchises or regulatory or other approvals necessary for the construction and operation of the Distribution Facilities Upgrades and (v) any such costs and fees for any ancillary facilities.

**5.2 CIAC Tax Liability:** Payments to the Company relating to construction or upgrades will be deemed a contribution in aid of construction ("CIAC") under federal tax law and, as a result, are taxable to the Company, unless the Customer meets the requirements for a limited generation project exemption under IRS rules. (See Section 5.3 below regarding the exemption) Customers with non-exempt projects will be required to reimburse the Company for that tax liability as a part of the project costs. The Customer must agree to pay the Company in advance for all taxes owed on the CIAC. Such payment will be made within ten (10) days of notice from the Company of the estimated taxes owed, based on the Company's then effective gross-

up factor times the amount of the CIAC. The Company will refuse final interconnection with the Generating Facility until such payment is made.

**5.3 CIAC Exemption:** Current IRS rulings have established a limited exemption from CIAC liability for generation projects that are constructed for the primary purpose of selling power into the transmission grid. It is unlikely that a Customer considering a self-generation project designed to serve all or a portion of the Customer's on-site electricity requirements would qualify. If a Customer believes it is eligible, the Customer will be required to provide certified engineering reports of projected power flows to and from the Customer's facilities over specified periods, to determine whether the exemption is met. For example, under current IRS rules, if more than 5% of the power expected to flow over the interconnection flows from the Distribution System into the Customer's facilities, the exemption would not be met. This summary, however, is not intended to set forth a complete explanation of the exemption.

**5.4 Land Interests:** The Customer recognizes that Distribution Facilities Upgrades may require acquisition of land interests, which may require individual agreements between the Company and third party landowners. The Customer will be required to pay to the Company all reasonable costs incurred associated with these acquisition agreements in advance of their execution. The Company reserves the right to draft any and all documents creating land interests that it will receive to effectuate interconnection service under this Interconnection Policy. In the event the Customer acquires the land, permits, licenses, franchises or regulatory or other approvals necessary for the construction and operation of the Distribution Facilities Upgrades, the Company has the right to approve or reject any terms and conditions related to such acquisition prior to the start of service.

## **6.0 Distribution Facilities Upgrades Charge**

If Distribution Facilities Upgrades are required to accommodate installation of the Generating Facility, the Customer will be required to pay a Distribution Facilities Upgrades Charge that reimburses the Company for its costs. Any such charges will be reflected in the terms of the Interconnection Service Agreement.

## **7.0 Delivery and Measurement of Electricity**

**7.1 Voltage Level:** All electricity across the Interconnection Point will be in the form of single-phase or three-phase sixty-hertz alternating current at a voltage class determined by mutual agreement of the Company and the Customer.

### **7.2 Machine Reactive Capability**

**7.2.1 Category 1, 2, 3 and 4 Facilities:** Category 1, 2, 3 or 4 Facilities will not be required to provide reactive capability.

**7.2.2 Category 5 Facilities:** Each Category 5 Generating Facility interconnected with the Company's Distribution System will be required to provide reactive capability to regulate and maintain system voltage at the Interconnection Point. The Company and NEPOOL will establish a scheduled range of voltages to be maintained by the Generating Facility. The reactive capability requirements will be reviewed as part of the Distribution Facility Impact Study and Distribution Facility Detailed Study.

**7.3 Metering, Related Equipment and Billing Options:** The Company will furnish, read and maintain all revenue metering equipment. In most cases, the Company will own the meter and the Customer will pay to the Company a monthly charge to cover taxes, meter maintenance, incremental reading and billing costs, the allowable return on the invoice cost of the meter and the depreciation of the meter.

The Customer will provide suitable space within the Generating Facility for installation of the metering, telemetering and communication equipment at no cost to the Company.

The Customer will be responsible for purchasing and installing software, hardware and/or other technology that may be required by the Company to read billing meters.

All metering equipment installed pursuant to this Interconnection Policy and associated with the Generating Facility will be routinely tested by the Company at Customer's expense, in accordance with applicable Company and/or ISO-New England criteria, rules and standards. If, at any time, any metering equipment is found to be inaccurate by a margin greater than that allowed under applicable criteria, rules and standards, the Company will cause such metering equipment to be made accurate or replaced. The cost to repair or replace the meter will be borne by the Company, if the Company owns the meter, or by the Customer if the Customer owns the meter.

If the Metering Point and the Point of Receipt or Point of Delivery are not at the same location, the metering equipment will record delivery of electricity in a manner that accounts for losses occurring between the Metering Point and the Point of Receipt or Point of Delivery. Losses between the Metering Point and Point of Receipt will be reflected pursuant to applicable Company, NEPOOL or ISO-New England criteria, rules or standards.

The type of metering equipment to be installed at a Generating Facility is dependent on the Category (size) of the facility and how and to whom the net Generating Facility output will be sold. One of the following equipment options and associated requirements will apply, depending upon the size of the Generating Facility:

- Net Metering – in which a standard distribution class meter is installed and is enabled to run in a normal direction during periods of net consumption and to run backwards during periods of net generator output. All metering equipment included in this type of installation, including self-contained meters and instrument transformers and meters, shall meet ANSI C12.1

Metering Accuracy Standards and ANSI C57.13 accuracy requirements for instrument transformers.

- Bi-directional, non-interval meter without remote access – in which a distribution class meter with multiple registers is installed. One set of registers will record energy flows from the Company to the Generating Facility during periods when the Generating Facility is a net consumer of energy (the other register will record no flow during these periods) and a second set of registers will flow energy flows from the Generating Facility to the Company during periods when the Generating Facility is a net producer of energy (the other register will record no flow during these periods). Each set of registers will record total flows only and will not record flows during specific intervals. All metering equipment included in this type of installation, including self-contained meters and instrument transformers and meters, shall meet ANSI C12.1 Metering Accuracy Standards and ANSI C57.13 accuracy requirements for instrument transformers.
- Bi-directional, interval meter with remote access – in which a distribution class meter with multiple registers is installed. One set of registers will record energy flows from the Company to the Generating Facility during periods when the Generating Facility is a net consumer of energy (the other register will record no flow during these periods) and a second set of registers will flow energy flows from the Generating Facility to the Company during periods when the Generating Facility is a net producer of energy (the other register will record no flow during these periods). Each set of registers will record total flows as well as flows during hourly intervals. In addition, the meters will be equipped with remote access capability that may include telemetering to the extent required by applicable NEPOOL standards. All metering equipment included in this type of installation will meet the requirements contained in NEPOOL

Operating Procedure No. 18, “Metering and Telemetry Criteria” and  
the

Company’s “Policy and Practices for Metering and Telemetry Requirements for New or Modified Interconnections”. Copies of both publications are available from the Company upon request. The Customer will be responsible for providing all necessary leased telephone lines and any necessary protection for leased lines and will furthermore be responsible for all communication required by ISO-New England, or by ISO-New England’s designated satellite. The Customer will maintain all telemetry and transducer equipment at the Generating Facility in accordance with ISO-New England criteria, rules and standards. The Company will purchase, own and maintain all telemetry equipment located on the Customer’s facilities, if the Customer desires, at the Customer’s expense. The Customer will provide, install and own Company-approved or Company-specified test switches in the transducer circuits.

**7.3.1 Qualifying Facilities of 25 kVA or Less:** Only Qualifying Facilities of 25 kVA or less are entitled to Net Metering. All other Generating Facilities will be equipped with bi-directional metering.

**7.3.2 Category 1, 2, 3, and 4 Facilities:** Category 1, 2, 3, and 4 Facilities will be equipped with a bi-directional, non-interval meter without remote access; provided, however a bi-directional, interval meter with remote access will be installed if the Customer elects to install such meter at its expense or the sale of energy from the Generating Facility requires such a meter (such as in the case of a sale from the Generating Facility to the NEPOOL markets or to a third party).

**7.3.3 Category 5 Facilities:** Category 5 Facilities will only be equipped with bi-directional, interval meters with remote access. In addition, Category 5 Facilities which are 5 MW or greater are required by NEPOOL Operating Procedure No. 18 to

provide telemetering equipment and to supply accurate and reliable information to system operators regarding metered values for MW, MVAR, volt, amp, frequency,

breaker status and all other information deemed necessary by ISO-NE and the NEPOOL Satellite (REMVEC).

**8.0 Access and Control:** Properly accredited representatives of the Company or its Affiliate will at all reasonable times need to have access to the Generating Facility to make reasonable inspections and obtain information required in connection with this Interconnection Policy. Representatives will, of course, make themselves known to the Customer's personnel, state the object of their visit, and conduct themselves in a manner that will not interfere with the construction or operation of the Generating Facility. The Company or its Designated Agent will have control such that it may open or close the circuit breaker or disconnect and place safety grounds at the Point of Receipt, Point of Delivery, or at the station if the Point of Delivery is remote from the station.

**9.0 Back Up Rates:** To the extent that a Customer will rely upon the Company to deliver electricity to the Customer when the Generating Facility is not self-supplying the Customer, one of the Company's Back Up Service Rates will apply. The Account Manager assigned to the project can provide information to the Customer about these rates, upon request.

**10.0 Insurance:** For Category 2 Facilities, except Category 2 Facilities that are Net Metered, and all Category 3, 4 and 5 Facilities, the Customer may be required to provide and maintain insurance coverage as described in Exhibit 5, attached hereto and incorporated by reference.



## GLOSSARY OF CAPITALIZED TERMS

The following words and terms have the following meanings when used in this Interconnection Policy:

**Company:** The Narragansett Electric Company.

**Designated Agent:** Any entity that performs actions or functions on behalf of the Company or the Customer required under this Interconnection Policy and/or the Exhibits.

**Detailed Study:** See the definition of “Distribution Facilities Detailed Study”.

**Distribution Facilities Upgrades:** Modifications or additions to distribution-related facilities that are integrated with and support the Company’s Distribution System for the benefit of the Customer.

**Distribution Facilities Impact Study:** The first phase of engineering study conducted by the Company to determine the required modifications to its Distribution System, resulting in study grade cost estimates (+/- 25%) and an approximate estimate of the time required for such modifications that will be required to provide the requested interconnection service. The Distribution Facilities Impact Study is not suitable for finalizing agreements, contracts or commitments.

**Distribution Facilities Detailed Study:** The final phase of engineering study conducted by the Company to determine the required detailed modifications to its Distribution System, resulting in project grade cost estimates (+/- 10%) and an estimate of the time required for such modifications that will be required to provide the requested interconnection service.

**Distribution Facilities Upgrades Charge:** A charge to be paid by the Customer equal to all costs incurred by the Company that are associated with upgrading or modifying the Distribution System to assure a safe and reliable interconnection of the Generating Facility with the Company’s Distribution System that has no adverse impacts on the Distribution System.

**Distribution System:** The facilities owned, controlled or operated by the Company that are used to provide service to its customers.

**Generating Facility:** A customer-owned source of electricity, which may be an Inverter or a rotating generator of the synchronous or induction type and all facilities ancillary and appurtenant thereto, which the Customer requests to interconnect to the Distribution System. This term excludes portable generators (See Section 2).

**Good Utility Practice:** Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Impact Study:** See the definition of “Distribution Facilities Impact Study”.

**Customer:** A customer desiring to install an independently-operated Generating Facility, which is interconnected with the Company’s Distribution System.

**Interconnection Service Agreement:** A legally binding agreement for interconnection service entered into between the Customer and the Company that sets forth the obligations and responsibilities of the Customer in operating its Generating Facility while it is interconnected to the Company’s Distribution System. The agreement also will require the Customer to pay for certain costs incurred by the Company in constructing and/or upgrading facilities (See Section 5).

**Inverter:** An electrical device that accepts direct current as input, and produces alternating current as output.

**ISO-New England:** The Independent System Operator established in accordance with the New England Power Pool (“NEPOOL”) Agreement, which is responsible for managing the bulk power generation and transmission systems in New England.

**Metering Point:** For meters that do not utilize instrumentation transformers, the point at which the billing meter is connected. For meters that utilize instrumentation transformers, the point at which the instrumentation transformers are connected.

**Network Distribution System:** Electrical service where two or more distribution transformers have their secondary windings connected in parallel to form a network of conductors supplying service voltage to customers. Primary voltage to the transformers may come from a number of independent circuits, so that loss of one primary circuit will not generally cause a loss of service voltage to customers.

**Notice of Intent to Interconnect:** A written notification provided by Customer to the Company, which initiates the interconnection process. The Company may require a Notification of the type found in Exhibit 1 to this Interconnection Policy.

**Point of Delivery:** A point on the Company's Distribution System where the Customer's Generating Facility delivers electricity into the Company's Distribution System when generation output exceeds the customer's total load. The point of Delivery will be specified in the Interconnection Service Agreement.

**Point of Receipt:** A point on the Company's Distribution System where the Company delivers electricity to the Customer when the customer's total load exceeds its generation output. The Point of Receipt will be specified in the Interconnection Service Agreement.

**Qualifying Facility:** A generation facility that has received certification as a Qualifying Facility from the Federal Energy Regulatory Commission in accordance with the Federal Power Act, as amended by the 1978 Public Utilities Regulatory Policies Act.

**Radial Distribution System:** Electrical service from a system consisting of one or more primary circuits extending from a single substation or transmission supply point arranged such that each primary circuit serves customers in a particular local area.

**EXHIBIT 1**

**NOTICE OF INTENT TO INTERCONNECT**

The following information must be provided with the Customer's Notice of Intent to Interconnect:

- a) The name and address of the Customer and location of the generating facility;
- b) A brief description of the generating facility, including a statement indicating whether the generating facility is a small power production facility or cogeneration facility;
- c) The primary energy source used or to be used by the generating facility;
- d) The power production capacity of the generating facility and the maximum net capacity that may be delivered to the Company's system;
- e) The owners of the generating facility, including the percentage ownership by any electric utility or public utility holding company, or by any entity owned by either;
- f) The expected date of installation and the anticipated on-line date;
- g) The anticipated purchaser of the output of excess output of the generating facility (the Company or other third party) and the anticipated form (simultaneous purchase and sale, net purchase and sale, net metering, or other method);
- h) A description of any power conditioning equipment to be located between the generating facility and the Company's system;
- i) A description of the type of generator used in the generating facility installation (synchronous, induction, photovoltaic, or other).
- j) A description of the extent to which the customer will continue to rely upon the Company for delivering electricity to the Customer from sources other than the generating facility.

## EXHIBIT 2

### **Policy and Practices for Protection Requirements For New or Modified Generation Interconnections with the Distribution System**

Any Generating Facility desiring to interconnect with the Company's Distribution System or modify an existing interconnection must meet the technical specifications and requirements set forth in this Protection Policy. Once interconnected, the Company, in keeping with Good Utility Practice and in its sole discretion, may disconnect from the Generating Facility if the Generating Facility deviates from the technical specifications and requirements contained in this Protection Policy. The Generating Facility must return to full compliance with this Protection Policy prior to reconnecting with the Company's system.

The specifications and requirements listed in this Interconnection Policy are intended solely to mitigate possible adverse impacts caused by the Generating Facility on the Company's equipment and on other customers of the Company. They are not intended to address protection of the Generating Facility itself or the Customer's internal load. It is the responsibility of the Generating Facility to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect itself and its loads.

To determine the protection requirements for a given Generating Facility, the following Categories have been established:

Category	Maximum Output (kW)
1	$\leq 10$
2	$> 10$ and $\leq 60$
3	$> 60$ and $\leq 300$
4	$> 300$ and $\leq 1,000$
5	$> 1,000$

## **I Protection Requirements**

### **Category 1 Facilities**

#### **General Requirements:**

If, due to the interconnection of the Generating Facility, when combined with preexisting facilities interconnected to the Company's system, the rating of any of the Company's equipment or the equipment of others connected to the Company's system will be exceeded or its control function will be adversely affected, the Company will have the right to require the Customer to pay for the purchase, installation, replacement or modification of equipment to eliminate the condition. Where such action is deemed necessary by the Company, the Company will, where possible, permit the Customer to choose among two or more options for meeting the Company's requirements as described in this Protection Policy.

#### **Requirements for Inverter-based (Type A) installations:**

- a. The Company's distribution circuits generally operate with automatic reclosing following a trip with automatic reclosing times as short as five seconds without regard to whether the Generating Facility is keeping the circuit energized. The Generating Facility is responsible for protecting its equipment from being re-connected out of synchronism with the Company's system by an automatic line reclosure operation.
- b. The following information must be submitted by the Customer for review and acceptance by the Company prior to the Company's approving the Customer's request for interconnection:
  - An electrical one-line diagram or sketch depicting how the inverter will be interconnected relative to the service entrance panel and the electric meter.
  - The make, model and manufacturer's specification sheet for the inverter.
- c. For Facilities that utilize photovoltaic technology, it is required that the system be installed in compliance with IEEE Standard 929-2000, "IEEE Recommended Practice for

Utility Interface of Photovoltaic (PV) Systems”. The inverter will meet the Underwriters Laboratories Inc. Standard UL 1741, “Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems”. Based on the information supplied by the Customer, if the Company determines the inverter is in compliance with UL 1741, the Customer’s request for interconnection will be approved without the need to conduct a Distribution Facilities Impact Study or a Distribution Facilities Detailed Study.

- d. For Facilities that utilize wind technology or other direct current energy sources and employ inverters for production of alternating current, the inverter will meet the Underwriters Laboratories Inc. Standard UL 1741, “Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems”. Based on the information supplied by the Customer, if the Company determines the inverter is in compliance with UL 1741 the Customer’s request for interconnection will be approved without the need to conduct a Distribution Facilities Impact Study or a Distribution Facilities Detailed Study.

**Requirements for Induction Generator (Type B) installations:**

- a. The following information must be submitted by the Customer for review and acceptance by the Company prior to the Customer finalizing the Generating Facility’s protection design and the Company’s approving the Customer’s request for interconnection:
  - Three copies of a Generating Facility one-line drawing.
  - Three copies of a one-line drawing showing the relays, if required in this Interconnection Policy, and metering including current transformer (“CT”) and voltage transformer (“VT”) connections and ratios.
  - Three copies of a three-line drawing for three phase units or a two-line drawing for single phase units showing the AC connections to the relays, if required in this Interconnection Policy, and meters.
  - The generator nameplate information including rated voltage, rated current, power factor, HP/kW, rated speed and locked rotor current.
  - If the Generating Facility owns the transformer between the Company and the Generating Facility, the generator step up transformer nameplate information

including rated voltage, rated kVA, proposed winding connections, positive sequence impedance plus zero sequence impedance and zero sequence equivalent circuit.

- A list of protective relay equipment proposed to be furnished to conform to this Protection Policy including relay types, styles, manufacturer's catalog numbers, ranges and descriptive bulletins. Three copies of applicable relay instruction manuals may also be required if the Company does not already possess them.
  - Schematic drawings showing the control circuits for the interconnection breaker(s) or contactor(s).
  - Specifications for CTs and VTs relevant to the interconnection including their make, model, accuracy class, ratio, and available taps.
  - The proposed grounding method for the stator winding of the generator.
  - Other information that may be determined by the Company as required for a specific interconnection.
- b. The Customer must submit to the Company relay settings for all Generating Facility protective relays that affect the interconnection with the Company's system at least four weeks prior to the scheduled date for setting the relays for review and acceptance by the Company.
- c. A Generating Facility using induction generator(s) connected in the vicinity of capacitance sufficient to self-excite the generator(s) must meet the requirements for synchronous machines of the same Category. The capacitors that enable self-excitation may actually be external to the Generating Facility and may belong to the Company or to other customers of the Company. The Company will not restrict the existing or future application of capacitors on its lines nor restrict their use by other customers to accommodate a Generating Facility with induction machines.
- d. As changes occur in the location and size of capacitors, the Generating Facility may be required in the future to upgrade its interface to meet the requirements for synchronous machines if self-excitation becomes possible even if not initially possible.
- e. A circuit breaker or contactor will be installed to isolate the Generating Facility from the Company's system ("Interconnection Breaker" or "Interconnection Contactor"). If there



is more than one Interconnection Breaker or Interconnection Contactor, the requirements of this Protection Policy will apply to each one individually.

- f. The Company will review the relay settings as submitted to assure adequate protection for the Company's facilities. The Company will not be responsible for the protection of the Generating Facility or Customer's other facilities. The Generating Facility will be responsible for protection of its system against possible damage resulting from parallel operation with the Company. If requested by the Customer, the Company will provide system protection information for the line terminal(s) directly related to the interconnection. This protection information is provided exclusively for use by the Customer in evaluating protection of the Generating Facility or Customer's other facilities during parallel operation.
- g. The Company reserves the right to specify the winding connections for the transformer between the Company's voltage and the Generating Facility's voltage ("Step Up Transformer") as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company reserves the right to specify whether the generator stator is to be grounded or not grounded. The Customer will be responsible for procuring equipment with a level of insulation and fault withstand capability compatible with the specified grounding method.
- h. In general, across the line starting of rotating machines is not permitted unless it can be demonstrated that the resultant voltage flicker is within the Company's limits for starting of similar sized motors. If an Interconnection Breaker or latching type contactor is to be tripped by protective relays to satisfy this Protection Policy, then the Interconnection Breaker or Interconnection Contactor control circuits will be DC powered from a station battery or Company-approved equivalent.
- i. A control interlock scheme that detects voltage on the Company's line(s) will be used to prevent the Generating Facility from energizing or attempting to energize the Company's line(s). The logic for this scheme should be hardwired to prevent the Interconnection Breaker (or Interconnection Contactor where appropriate) from closing. No interposing computer or programmable logic controller or the like will be used in this logic.

- j. The Generating Facility will provide a disconnect switch at the interconnection point with the Company that is accessible to Company personnel at all times that can be opened for isolation. The Company will have the right to open this disconnect switch during emergency conditions or with reasonable notice to the Customer at other times. The Company will exercise such right in accordance with Good Utility Practice. The switch will be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch will be of a manufacture and type generally accepted for use by the Company.
- k. Where protective relays are required by this Protection Policy, their control circuits will be DC powered from a station battery. Solid-state relays will be self-powered or DC powered from a station battery. If the Generating Facility uses a non-latching interconnection contactor, AC powered relaying satisfying the requirements of this Protection Policy may be allowed provided the relay and its method of application is fail safe, meaning that if the relay fails or if the voltage and/or frequency of its AC power source deviate from the relay's design requirements for power, the relay will immediately trip the generator by opening the coil circuit of the Interconnection Contactor.
- l. CT ratios and accuracy classes will be chosen such that secondary current is less than 100 amperes and transformation errors are less than 10% under maximum fault conditions.
- m. If the interconnection voltage requires, a voltage transformer will be provided by the Generating Facility and will be connected to the Company side of the Interconnecting Breaker or Interconnecting Contactor. The voltage from this VT will be used in the interlock as specified above. For three phase applications, a VT for each phase is required.
- n. All protective relays required by this Protection Policy will meet ANSI/IEEE Standard C37.90, C37.90.1 and C37.90.2 and be of a manufacturer and type generally accepted for use by the Company.
- o. Voltage relays will be frequency compensated to provide a uniform response in the range of 40 to 70Hz.
- p. Tripping by protective relays required to satisfy this Protection Policy must be hardwired

to the device they are tripping. No interposing computer or programmable logic controller or the like is permitted in the trip chain between the relay and the device being tripped.

- p. On three phase installations where voltage relaying is required by this Protection Policy, all three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company, the unit will be tripped.
- q. The Generating Facility will provide an undervoltage relay sensing voltage, preferably on the Company's side of the Interconnection Breaker or Interconnection Contactor, which trips the Interconnection Breaker or Interconnection Contactor; provided, however, for single phase units, an undervoltage relay is not required, provided the generator is interconnected through a non-latching contactor whose coil is held by AC voltage from the Company's side of the contactor such that the contactor drops out and will not close in the absence of Company voltage.

**Requirements for Synchronous Generator (Type C) installations:**

Category 1 Facilities utilizing synchronous generators will meet all the requirements that are applicable to synchronous generators for Category 2, 3, 4 and 5 Facilities.

**Category 2 Facilities**

**General Requirements:** The Generating Facility will provide a disconnect switch at the interconnection point with the Company that can be opened for isolation. The switch will be in a location accessible to Company personnel at all times. The Company will have the right to open this disconnect switch during emergency conditions and with reasonable notice to the Customer at other times. The Company will exercise such right in accordance with Good Utility Practice. The switch will be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch will be of a type generally accepted for use by the Company.

**Requirements for Inverter-based (Type A) installations:**

- a. The Company's distribution circuits generally operate with automatic reclosing following a trip with automatic reclosing times as short as five seconds without regard to whether the Generating Facility is keeping the circuit energized. The Generating Facility is responsible for protecting its equipment from being re-connected out of synchronism with the Company's system by an automatic line reclosure operation.
- b. b. The following information must be submitted by the Customer for review and acceptance by the Company prior to the Company's approving the Customer's request for interconnection:
  - X An electrical one line diagram or sketch depicting how the inverter will be interconnected relative to the service entrance panel and the electric meter.
  - X The make, model and manufacturer's specification sheet for the inverter.

- c. For Facilities that utilize photovoltaic technology, it is required that the system be installed in compliance with IEEE Standard 929-2000, “IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems”. It is required that the inverter meet the Underwriters Laboratories Inc. Standard UL 1741, “Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems”.
- d. For Facilities that utilize wind technology, fuel cell technology or other inverter-based systems, the inverter must meet the Underwriters Laboratories Inc. Standard UL 1741, “Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems”.

**Requirements for Induction Generator (Type B) installations:**

- a. The following information must be submitted by the Customer for review and acceptance by the Company prior to the Customer finalizing the Generating Facility’s protection design and the Company’s approving the Customer’s request for interconnection:
  - Three copies of a Generating Facility one-line drawing.
  - Three copies of a one-line drawing showing the relays, if required in this Interconnection Policy, and metering including current transformer (“CT”) and voltage transformer (“VT”) connections and ratios.
  - Three copies of a three-line drawing for three phase units or a two-line drawing for single phase units showing the AC connections to the relays, if required in this Interconnection Policy, and meters.
  - The generator nameplate information including rated voltage, rated current, power factor, HP/kW, rated speed and locked rotor current.
  - If the Generating Facility owns the transformer between the Company and the Generating Facility, the generator step up transformer nameplate information including rated voltage, rated kVA, proposed winding connections, positive sequence impedance plus zero sequence impedance and zero sequence equivalent circuit.
  - A list of protective relay equipment proposed to be furnished to conform to this Protection Policy including relay types, styles, manufacturer’s catalog numbers,

- ranges and descriptive bulletins. Three copies of applicable relay instruction manuals may also be required if the Company does not already possess them.
- Schematic drawings showing the control circuits for the interconnection breaker(s) or contactor(s).
  - Specifications for CTs and VTs relevant to the interconnection including their make, model, accuracy class, ratio, and available taps.
  - The proposed grounding method for the stator winding of the generator.
  - Other information that may be determined by the Company as required for a specific interconnection.
- b. Relay settings for all Generating Facility protective relays that affect the interconnection with the Company's system must be submitted at least four weeks prior to the scheduled date for setting the relays for review and acceptance by the Company.
- c. A Generating Facility using induction generator(s) connected in the vicinity of capacitance sufficient to self-excite the generator(s) must meet the requirements for synchronous machines of the same Category. The capacitors that enable self-excitation may actually be external to the Generating Facility and may belong to the Company or to other customers of the Company. The Company will not restrict the existing or future application of capacitors on its lines nor restrict their use by other customers to accommodate a Generating Facility with induction machines.
- d. As changes occur in the location and size of capacitors, the Generating Facility may be required in the future to upgrade its interface to meet the requirements for synchronous machines if self-excitation becomes possible even if not initially possible.
- e. A circuit breaker or contactor will be installed to isolate the Generating Facility from the Company's system ("Interconnection Breaker" or "Interconnection Contactor"). If there is more than one Interconnection Breaker or Interconnection Contactor, the requirements of this Protection Policy will apply to each one individually.
- f. The Company will review the relay settings as submitted by the Customer to assure adequate protection for the Company's facilities. The Company will not be responsible for the protection of the Generating Facility or Customer's other facilities. The Generating Facility will be responsible for protection of its system against possible

damage resulting from parallel operation with the Company. If requested by the Customer, the Company will provide system protection information for the line terminal(s) directly related to the interconnection. This protection information is provided exclusively for use by the Customer in evaluating protection of the Generating Facility or Customer's other facilities during parallel operation.

- g. The Company reserves the right to specify the winding connections for the transformer between the Company's voltage and the Generating Facility's voltage ("Step Up Transformer") as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company reserves the right to specify whether the generator stator is to be grounded or not grounded. The Customer will be responsible for procuring equipment with a level of insulation and fault withstand capability compatible with the specified grounding method.
- h. In general, across the line starting of rotating machines is not permitted unless it can be demonstrated that the resultant voltage flicker is within the Company's limits for starting of similar sized motors. If an Interconnection Breaker or latching type contactor is to be tripped by protective relays to satisfy the requirements of this Protection Policy, then the Interconnection Breaker or Interconnection Contactor control circuits will be DC powered from a station battery or Company-approved equivalent.
- i. A control interlock scheme that detects voltage on the Company's line(s) will be used to prevent the Generating Facility from energizing or attempting to energize the Company's line(s). The logic for this scheme should be hardwired to prevent the Interconnection Breaker (or Interconnection Contactor where appropriate) from closing. No interposing computer or programmable logic controller or the like will be used in this logic.
- j. The Generating Facility will provide a disconnect switch at the interconnection point with the Company that is accessible to Company personnel at all times that can be opened for isolation. The Company will have the right to open this disconnect switch during emergency conditions and with reasonable notice to the Customer at other times. The Company will exercise such right in accordance with Good Utility Practice. The switch will be gang operated, have a visible break when open, be rated to interrupt the maximum

generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch will be of a manufacture and type generally accepted for use by the Company.

- k. Where protective relays are required by this Protection Policy, their control circuits will be DC powered from a station battery. Solid-state relays will be self-powered or DC powered from a station battery. If the Generating Facility uses a non-latching interconnection contactor, AC powered relaying satisfying the requirements of this Protection Policy may be allowed provided the relay and its method of application is fail safe, meaning that if the relay fails or if the voltage and/or frequency of its AC power source deviate from the relay's design requirements for power, the relay will immediately trip the generator by opening the coil circuit of the Interconnection Contactor.
- l. CT ratios and accuracy classes will be chosen such that secondary current is less than 100 amperes and transformation errors are less than 10% under maximum fault conditions.
- m. If the interconnection voltage requires, a voltage transformer will be provided by the Generating Facility and will be connected to the Company side of the interconnecting breaker or contactor. The voltage from this VT will be used in the interlock as specified above. For three phase applications, a VT for each phase is required.
- n. All protective relays required by this Protection Policy will meet ANSI/IEEE Standard C37.90, C37.90.1 and C37.90.2 and be of a manufacturer and type generally accepted for use by the Company.
- o. Voltage relays will be frequency compensated to provide a uniform response in the range of 40 to 70Hz.
- p. Tripping by protective relays required to satisfy the requirements of this Protection Policy must be hardwired to the device they are tripping. No interposing computer or programmable logic controller or the like is permitted in the trip chain between the relay and the device being tripped.
- q. On three phase installations where voltage relaying is required by this Protection Policy, all three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company, the unit will be tripped.



- r. The Generating Facility will provide an undervoltage relay sensing voltage, preferably on the Company's side of the interconnection breaker or contactor, which trips the interconnection breaker or contactor.

**Requirements for Synchronous Generator (Type C) installations:**

Category 2 Facilities utilizing synchronous generators will meet all the requirements that are applicable to synchronous generators for Category 3, 4 and 5 Facilities.

## **CATEGORY 3, 4 and 5 Facilities**

### **Protection related information**

- a. The following information must be submitted by the Customer for review and acceptance by the Company prior to the Customer finalizing the Generating Facility's protection design and the Company's approving the Customer's request for interconnection:
  - II Three copies of a station one-line drawing.
  - II Three copies of a one-line drawing showing the relays and metering including current transformer (CT) and voltage transformer (VT) connections and ratios.
  - II Three copies of a three-line drawing showing the AC connections to the relays and meters.
  - II If the Generating Facility is a synchronous generator, the nameplate information including rated voltage, rated current, rated kVA and power factor plus transient, sub-transient and synchronous impedances and zero sequence impedance.
  - II If the Generating Facility is an induction generator, the nameplate information including rated voltage, rated current, power factor, HP/kW, rated speed, locked rotor current, stator reactance, stator resistance, rotor reactance, rotor resistance and magnetizing reactance.
  - II If the Generating Facility owns the transformer between the Company and the Generating Facility, the nameplate information including rated voltage, rated kVA, proposed winding connections, positive sequence impedance plus zero sequence impedance and zero sequence equivalent circuit.
    - A list of protective relay equipment proposed to be furnished to conform to this Protection Policy including relay types, styles, manufacturer's catalog numbers, ranges and descriptive bulletins. Three copies of applicable relay instruction manuals may also be required if the Company does not already possess them.
  - II Schematic drawings showing the control circuits for the interconnection breaker(s) and synchronizing breaker(s).

- II Specifications for CTs and VTs relevant to the interconnection including their make, model, accuracy class, ratio, and available taps.
  - II Interconnection breaker operating time if it is tripped by protective relays required by this Protection Policy.
  - II The proposed grounding method for the stator winding.
  - II Other information that may be determined by the Company as required for a specific interconnection.
- b.** Relay settings for all Generating Facility protective relays that affect the interconnection with the Company's system must be submitted at least four weeks prior to the scheduled date for setting the relays for review and acceptance by the Company.
- c.** If, due to the interconnection of the Generating Facility to the line, the fault interrupting, continuous, momentary or other rating of any of the Company's equipment or the equipment of other customers connected to the Company's system is exceeded, the Company will have the right to require the Customer to pay for the purchase, installation, replacement or modification of equipment to eliminate the condition. Likewise, when the proposed interconnection may result in reversed load flow through the Company's load tap changing transformer(s), line voltage regulator(s) or secondary network protector(s), control modifications necessary to mitigate the effects may be made to these devices by the Company at the Customer's expense or the Generating Facility may be required to limit its output so reverse load flow cannot occur or to provide reverse power relaying that trips the Generating Facility. Where such action is deemed necessary by the Company, the Company will, where possible, permit the Customer to choose among two or more options for meeting the Company's requirements as described in this Protection Policy.

### **Protection requirements**

- a.** A circuit breaker will be installed to isolate the Generating Facility from the Company's system ("Interconnection Breaker"). If there is more than one Interconnection Breaker, the requirements of this Protection Policy apply to each one individually.

- b.** The Customer will designate one or more breakers to be used to synchronize the Generating Facility's generator to the Company's system. This "synchronizing breaker" could be a breaker other than the Interconnection Breaker. In some induction generator applications a contactor may serve this function.
- c.** The Company's lines generally have automatic reclosing following a trip with reclosing times as short as five seconds without regard to whether the Generating Facility is keeping the circuit energized. The Customer is responsible for protecting the Generating Facility's equipment from being re-connected out of synchronism with the Company's system by an automatic line reclosure operation. The Customer may choose to install additional equipment such as direct transfer tripping from the Company's station(s) to insure the Generating Facility is off the line prior to the line reclosing. However this option is not feasible in all cases, particularly where the Company uses pole-mounted reclosers between its substation and the Generating Facility.
- d.** The Company will review the relay settings as submitted by the Customer to assure adequate protection for the Company's facilities. The Company will not be responsible for the protection of the Generating Facility or Customer's other facilities. The Customer will be responsible for protection of the Generating Facility's system against possible damage resulting from parallel operation with the Company. If requested by the Customer, the Company will provide system protection information for the line terminal(s) directly related to the interconnection. This protection information is provided exclusively for use by the Customer in evaluating protection of the Generating Facility or the Customer's other facilities during parallel operation.
- e.** The Company reserves the right to specify the winding connections for the transformer between the Company's voltage and the Generating Facility's voltage ("Step Up Transformer") as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company also reserves the right to specify if and how the generator stator is to be grounded. The Generating Facility will be responsible for procuring its equipment with a level of insulation and fault withstand capability compatible with the specified grounding method.

- f. Across the line starting of rotating machines is not permitted unless it can be demonstrated that the resultant voltage flicker is within the Company's limits for starting of similar sized motors.

**Protection equipment requirements**

- a. Where the Interconnection Breaker (or Interconnection Contactor as may be the case with some smaller induction machines) is to be tripped by protective relays required to meet the requirements of this Protection Policy then the Interconnection Breaker (or Interconnection Contactor) control circuits will be DC powered from a station battery.
- b. The synchronizing breaker(s) must be capable of withstanding at least twice rated system voltage and must be capable of interrupting the current produced when the Generating Facility is connected out of phase with the Company's system.
- c. A control interlock scheme that detects voltage on the Company's line(s) will be used to prevent the Generating Facility from energizing or attempting to energize the Company's line(s). The logic for this scheme should be hardwired to prevent the synchronizing breaker, Interconnection Breaker (or Interconnection Contactor where appropriate) from closing. No interposing computer or programmable logic controller or the like is to be used in this logic.
- d. The Generating Facility will be equipped with a switch at the interconnection point with the Company that can be opened for isolation. The Company will have the right to open the interconnection during emergency conditions and with reasonable notice to the Customer at other times. The Company will exercise such right in accordance with Good Utility Practice. The switch will be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch will be of a manufacture and type generally accepted for use by the Company.
- e. Protective relaying control circuits will be DC powered from a station battery. Solid-state relays will be self-powered or DC powered from a station battery.

- f. CT ratios and accuracy classes will be chosen such that secondary current is less than 100 amperes and transformation errors are less than 10% under maximum fault conditions.
- g. The Generating Facility will be equipped with a voltage transformer, connected to the Company side of the interconnecting breaker. The voltage from this VT will be used in the interlock as specified in this Protection Policy. If the Generating Facility's step up transformer is ungrounded at the Company voltage, this VT will be a single three-phase device or three single-phase devices connected from each phase to ground on the Company's side of the Generating Facility's step up transformer, rated for phase-to-phase voltage and provided with two secondary windings. One winding will be connected in open delta, have a loading resistor to prevent ferroresonance, and be used for the relay specified in this Protection Policy.
- h. All protective relays required by this Protection Policy will meet ANSI/IEEE Standard C37.90, C37.90.1 and C37.90.2 and be of a manufacture and type generally accepted for use by the Company.
- i. Voltage relays will be frequency compensated to provide a uniform response in the range of 40 to 70Hz.
- j. Protective relays utilized by the Generating Facility as required per this Protection Policy will be sufficiently redundant and functionally separate so as to provide adequate protection, as determined by the Company, upon the failure of any one component. The use of a single all-inclusive relay package is not acceptable.
- k. The Company may require the Generating Facility to be equipped with two independent, redundant relaying systems in accordance with NPCC criteria for the protection of the bulk power system if the interconnection is to the bulk power system or if it is determined that delayed clearing of faults within the Generating Facility adversely affects the bulk power system.
- l. A direct transfer tripping system, if one is required by either the Customer or by the Company, will use equipment generally accepted for use by the Company and will, at the option of the Company, use dual channels.
- m. Tripping by protective relays required to satisfy the requirements of this Protection Policy must be hardwired to the device they are tripping. No interposing computer or

programmable logic controller or the like is permitted in the trip chain between the relay and the device being tripped.

- n. On three phase installations when voltage relaying is required by this Protection Policy, all three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company the unit will be tripped.

#### **Requirements for Induction Generator (Type B) installations**

- a. A Generating Facility using induction generators connected in the vicinity of capacitance sufficient to self-excite the generator(s) will meet the requirements for synchronous machines in this Protection Policy. The capacitors that enable self-excitation may actually be external to the Generating Facility. The Company will not restrict its existing or future application of capacitors on its lines nor restrict their use by other customers of the Company to accommodate a Generating Facility with induction machines. As changes occur in the location and size of capacitors, the Generating Facility may be required in the future to upgrade its interface to meet the requirements for synchronous machines if self-excitation becomes possible, even if not initially possible.

The Generating Facility may be required to install capacitors to limit the adverse effects of drawing reactive power from the system for excitation of the generator. Capacitors for supply of reactive power at or near the induction generator with a kVAR rating greater than 30% of the generator's kW rating may cause the generator to become self-excited.

Narragansett Electric  
Interconnection Requirements  
For Customer-Owned Generation

Exhibit 2  
Sheet 40



(If self-excitation can occur, the Generating Facility will be required to provide protection as specified in this Protection Policy for synchronous machines.)

- b. The Generating Facility will be equipped with the following relays for island detection supplied from a voltage transformer that may be connected to either the generator or Company voltage:

	<u>minimum setting range</u>	<u>minimum time delay range</u>
X overfrequency	60 - 62Hz	.1 - 2 secs
X underfrequency	60 - 58Hz	.1 - 2 secs
X overvoltage	105 - 115% normal	.1 - 4 secs
X undervoltage	85 - 95% normal	.1 - 4 secs

- c. During system conditions where local area load exceeds system generation, NPCC Emergency Operation Criteria requires a program of phased automatic underfrequency load shedding of up to 25% of area load to assist in arresting frequency decay and to minimize the possibility of system collapse. Depending on the point of connection of the Generating Facility to the Company's system and in conformance with the NPCC Emergency Operating Criteria, the Generating Facility may be required to remain connected to the system during the frequency decline to allow the objectives of the automatic load shedding program to be achieved, or to otherwise provide compensatory load reduction, equivalent to the Generating Facility's generation lost to the system, if the Customer elects to disconnect the Generating Facility at a higher underfrequency set point.

#### **Requirements for Synchronous Generator (Type C) installations**

- a. A synchronous generator is a source of current for faults occurring on the Company's line(s). The Generating Facility must be equipped with protective relays to detect any faults, whether phase-to-phase or phase-to-ground, on the Company's line(s) or within

the Generating Facility, and isolate the Generating Facility from the Company's line(s) such that the following criteria are met, as determined by the Company:

- X The existing sensitivity of fault detection is not substantially degraded.
- X The existing speed of fault clearing is not substantially degraded.
- X The coordination margin between relays is not substantially reduced.
- X The sustained unfaulted phase voltage during a line-to-ground fault is not increased beyond the design value for the existing system insulation levels and overvoltage protection.
- X Non-directional line relays will not operate for faults external to the line due to the Generating Facility's contribution.
- X Proper settings for existing relays are achievable within their ranges.

The Company may perform engineering studies to evaluate the Generating Facility's protection compliance with respect to the above and may make recommendations to the Customer on methods to achieve compliance. If, due to the interconnection of the Generating Facility to the Company's system, any of the above criteria is violated for the Company's facilities or for the facilities of others connected to the Company's system, the Company will have the right to require the Customer to pay for the purchase, installation, replacement or modification of protective equipment to eliminate the violation and restore the level of protection existing prior to the interconnection. This may include the addition of pilot relaying systems involving communications between all terminals. Where such action is deemed necessary by the Company, the Company will, where possible, permit the Customer to choose among two or more options for meeting the Company's requirements as described in this Protection Policy.

- b.** The Customer is responsible for procuring any communications channels necessary between the Generating Facility and the Company's stations and for providing protection from transients and overvoltages at all ends of these communication channels. The Customer will also bear the ongoing cost to lease these communication channels.

- c. If the Generating Facility’s step up transformer connection is ungrounded, the Generating Facility will be equipped with a zero sequence overvoltage relay fed from the open delta of the three phase VT specified in this Protection Policy.
- d. The Generating Facility will be equipped to provide protection to limit sustained abnormal frequency and/or voltage conditions to the Company’s customers directly supplied from the interconnection circuit should the Generating Facility and its interconnection circuit become isolated from the Company’s system. The protection can consist of either the following relays supplied from a voltage transformer connected to either the generator or the Company’s voltage or other means if the Generating Facility can demonstrate sufficient control of abnormal frequency and voltage excursions as seen by the Company’s customers:

	<u>minimum setting range</u>	<u>minimum time delay range</u>
X overfrequency	60 - 62Hz	.1 - 2 secs
X underfrequency	60 - 56Hz	.5 - 30 secs
X overvoltage	105 - 115% normal	.1 - 4 secs
X undervoltage	85 - 95% normal	.1 - 4 secs

- e. During system conditions where local area load exceeds system generation, NPCC Emergency Operation Criteria requires a program of phased automatic underfrequency load shedding of up to 25% of area load to assist in arresting frequency decay and to minimize the possibility of system collapse. Depending on the point of connection of the Generating Facility to the Company’s system and in conformance with the Emergency Operating Criteria, the Generating Facility may be required to remain connected to the system during the frequency decline to allow the objectives of the automatic load shedding program to be achieved, or to otherwise provide compensatory load reduction, equivalent to the Generating Facility’s generation lost to the system, if the Customer elects to disconnect the Generating Facility at a higher underfrequency set point.

- e. The Generating Facility may be required to use high-speed protection if time-delayed protection would result in degradation in the existing sensitivity or speed of the protection systems on the Company's lines.
- g. The Generating Facility may be required to be equipped to provide local breaker failure protection which may include direct transfer tripping to the Company's line terminal(s) in order to detect and clear faults within the Generating Facility that cannot be detected by the Company's back-up protection.
- h. The Generating Facility will be equipped to provide protective relaying to prevent the closing of the synchronizing breaker(s) while the Generating Facility's generation is out-of-synchronization with the Company's system.

## **II Protection System Testing and Maintenance**

The Company will have the right to witness the testing of selected protective relays and control circuits at the completion of construction and to receive a copy of all test data.

The Customer will provide the Company with at least a one-week notice prior to the final scheduling of these tests. Testing will consist of:

- X CT and CT circuit polarity, ratio, insulation, excitation, continuity and burden tests.
- X VT and VT circuit polarity, ratio, insulation and continuity tests.
- X Relay pick-up and time delay tests.
- X Functional breaker trip tests from protective relays.
- X Relay in-service test to check for proper phase rotation and magnitudes of applied currents and voltages.
- X Breaker closing interlock tests.
- X Paralleling and de-paralleling operation.
- X Other relay commissioning tests typically performed for the relay types involved.
- X An inverter with field adjustable settings for its internal protective elements will

be tested to verify these settings if those internal elements are being used by the Generating Facility to satisfy the requirements of this Protection Policy. The Generating Facility will be equipped with whatever equipment is required to perform this test. If a simulated utility is required to perform such testing the Company is unable to provide the equipment required to perform the test.

The protective relays will be tested and maintained by the Customer on a periodic basis but not less than once every four years or as otherwise determined by the Company. For relays installed in accordance with the NPCC Criteria for the Protection of the Bulk Power System, maintenance intervals will be in accordance with such criteria. The results of these tests will be summarized by the Customer and reported in writing to the Company.

Inverters with field adjustable settings for their internal protective elements will be periodically tested if those internal elements are being used by the Generating Facility to satisfy the requirements of this Protection Policy. If a Asimulated utility≡ is required to perform such testing the Company is unable to provide the equipment required to perform the test.

In its sole discretion, the Company may waive all or some of these requirements.

### **III. Protection Requirements – Momentary Paralleling of Standby Generators**

Protective relays to isolate the Generating Facility for faults in the Company's system are not required if the paralleling operation is automatic and takes place for less than one-half of a second.

Parallel operation of the Generating Facility with the Company's system will be prevented when the Company's line is dead or out of phase with the Generating Facility.

The control scheme for automatic paralleling must be submitted by the Customer for review and acceptance by the Company prior to the Generating Facility being allowed to interconnect with the Company's system.

### **IV. Protection System Changes**

The Customer must provide the Company with reasonable advance notice of any proposed changes to be made to the protective relay system, relay settings, operating procedures or equipment that affect the interconnection. The Company will determine if such proposed changes require re-acceptance of the interconnection per the requirements of this Protection Policy.

In the future, should the Company implement changes to the system to which the Generating Facility is interconnected, the Customer will be responsible at its own expense for identifying and incorporating any necessary changes to its protection system. These changes to the Generating Facility's protection system are subject to review and approval by the Company.

In its sole discretion, the Company may waive all or some of these requirements.

**EXHIBIT 3**  
**Form of Distribution Facilities Impact Study Agreement**

This Agreement dated \_\_\_\_\_, is entered into between \_\_\_\_\_  
(the Customer) and The Narragansett Electric Company (the Company), for the purpose of  
setting forth the terms, conditions and costs for conducting a Distribution Facilities Impact Study  
relative to \_\_\_\_\_.

1. The Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for the Company to conduct the Distribution Facilities Impact Study. The Customer understands that it must provide all such information and data prior to the Company's commencement of the Distribution Facilities Impact Study. Such information and technical data is specified in Attachment 1 to this Agreement.
2. All work pertaining to the Distribution Facilities Impact Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Customer. Each party will inform the other in writing of its designated and authorized representative.
3. The Company will advise the Customer of any additional studies, as it may in its sole discretion deem necessary, in accordance with Good Utility Practice. The Company will not proceed with additional studies without the Customer's consent.
4. The Company contemplates that it will require [specify time] to complete the Distribution Facilities Impact Study. Upon completion of the Distribution Facilities Impact Study by the Company, the Company will provide a Distribution Facilities Impact Study Report to the Customer based on the information provided and developed as a result of this effort.



If, upon review of the Distribution Facilities Impact Study Report, the Customer decides to pursue its interconnection request, the Company will, at the Customer's direction, tender a Distribution Facilities Detailed Study Agreement within thirty (30) days if deemed additionally necessary by the Company. The Distribution Facilities Impact Study and Distribution Facilities Detailed Study, together with any additional studies contemplated in Paragraph 3, will form the basis for the Customer's proposed use of the Company's Distribution System and will be furthermore utilized in obtaining necessary third-party approvals of any required facilities and requested distribution services. The Customer understands and acknowledges that any use of study results by the Customer or its agents, whether in preliminary or final form, prior to NEPOOL 18.4 approval, should such approval be required, is completely at the Customer's risk and that the Company will not guarantee or warrant the completeness, validity or utility of study results prior to NEPOOL 18.4 approval.

5. The estimated costs contained within this Agreement are the Company's good faith estimate of its costs to perform the Distribution Facilities Impact Study contemplated by this Agreement. The Company's estimates do not include any estimates for wheeling charges that may be associated with the transmission of Generating Facility output to third parties or with rates for station service. The actual costs charged to the Customer by the Company may change as set forth in this Agreement. Prepayment will be required for all study, analysis, and review work performed by the Company or its Affiliate, all of which will be billed by the Company to the Customer in accordance with Paragraph 6 of this Agreement.
6. The payment required is \$ \_\_\_\_\_ from the Customer to the Company for the primary system analysis, coordination, and monitoring of the Distribution Facilities Impact Study. Such amount will be payable in full to the Company prior to the Company beginning the work. The Company will, in writing, advise the Customer in advance of any cost increases for work to be performed if the total amount increases by 10% or more. Any such changes to the Company's costs for the study work will be subject to the Customer's

consent. The Customer will, within thirty (30) days of the Company's notice of increase, both authorize such increases and make payment in the amount set forth in such notice, or the Company will suspend the Distribution Facilities Impact Study and this Agreement will terminate.

In the event this Agreement is terminated for any reason, the Company will refund to the Customer the portion of the above credit or any subsequent payment to the Company by the Customer that the Company did not expend or commit in performing its obligations under this Agreement. Any additional billings under this Agreement will be subject to an interest charge equal to \_\_% per year. Payments for work performed will not be subject to refunding except in accordance with Paragraph 7 below.

7. If the actual costs for the work exceed prepaid estimated costs, the Customer will make payment to the Company for such actual costs within thirty (30) days of the date of the Company's invoice for such costs. If the actual costs for the work are less than those prepaid, the Company will credit such difference toward the Company costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned to the Customer with interest computed as stated in Paragraph 6 of this Agreement, from the date of reconciliation.
8. Nothing in this Agreement will be interpreted to give the Customer immediate rights to wheel over or interconnect with the Company's Distribution System.
9. Within one (1) year following the Company's issuance of a final bill under this Agreement, the Customer will have the right to audit the Company's accounts and records at the offices where such accounts and records are maintained, during normal business hours; provided that appropriate notice will have been given prior to any audit and provided that the audit will be limited to those portions of such accounts and records that relate to service under this Agreement. The Company reserves the right to assess a

reasonable fee to compensate for the use of its personnel time in assisting any inspection or audit of its books, records or accounts by the Customer or its Designated Agent.

10. The Customer agrees to indemnify and hold the Company and its affiliated companies and directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including attorney's fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen as a result of any acts or omissions by the Company or its Affiliates under this Agreement. The Customer hereby waives recourse against the Company and its Affiliates for, and releases the Company and its Affiliates from, any and all Liabilities for or arising from damage to its property due to a performance under this Agreement by the Company or its Affiliates.
11. If either party materially breaches any of its covenants hereunder, the other party may terminate this Agreement by serving notice of same on the other party to this Agreement.
12. This agreement will be construed and governed in accordance with the laws of the State of Rhode Island.
13. All amendments to this Agreement will be in written form executed by both parties.
14. The terms and conditions of this Agreement will be binding on the successors and assigns of either party.
15. This Agreement will remain in effect for a period of up to two years from its effective date and is subject to extension by mutual agreement. Either party may terminate this Agreement by thirty (30) days' notice except as is otherwise provided herein.

Narragansett Electric  
Interconnection Requirements  
For Customer-Owned Generation

Exhibit 3  
Sheet 52

Customer:

The Company:

Name: \_\_\_\_\_

Name:

Title: \_\_\_\_\_

Title:

Date: \_\_\_\_\_

Date:

## Attachment 1

### Information to be provided to the Company by the Customer for the Distribution Facilities Impact Study

*Note: For Category 1, 2 or 3 Facilities, the Company will accept the material requested in Exhibit 2 in lieu of the information requested in this attachment.*

#### 1.0 Facilities Identification

- 1.1 Requested capability in MW and MVA; summer and winter
- 1.2 Site location and plot plan with clear geographical reference
- 1.3 Preliminary one-line diagram showing major equipment and extent of Customer
- 1.4 Auxiliary power system requirements
- 1.5 Back-up facilities such as standby generation or alternate supply sources

#### 2.0 Major Equipment

- 2.1 Power transformer(s): rated voltage, MVA and BIL of each winding, LTC and or NLTC taps and range,  $Z_1$  (positive sequence) and  $Z_0$  (zero sequence) impedances, and winding connections. Provide normal, long-time emergency and short time emergency thermal ratings.
- 2.2 Generator(s): rated MVA, speed and maximum and minimum MW output, reactive capability curves, open circuit saturation curve, power factor (V) curve, response (ramp) rates, H (inertia), D (speed damping), short circuit ratio,  $X_1$  (leakage),  $X_2$  (negative sequence), and  $X_0$  (zero sequence) reactances and other data:

	Direct Axis	Quadrature Axis
saturated synchronous reactance	$X_{dv}$	$X_{qv}$
unsaturated synchronous reactance	$X_{di}$	$X_{qi}$
saturated transient reactance	$X_{=dv}$	$X_{=qv}$
unsaturated transient reactance	$X_{=di}$	$X_{=qi}$
saturated subtransient reactance	$X_{\cong dv}$	$X_{\cong qv}$
unsaturated subtransient reactance	$X_{\cong di}$	$X_{\cong qi}$
transient open-circuit time constraint	$T_{=do}$	$T_{=qo}$
transient short-circuit time constraint	$T_{=d}$	$T_{=q}$
subtransient open-circuit time constraint	$T_{\cong do}$	$T_{\cong qo}$
subtransient short-circuit time constraint	$T_{\cong d}$	$T_{\cong q}$

- 2.3 Excitation system, power system stabilizer and governor: manufacturer's data in sufficient detail to allow modeling in transient stability simulations.
- 2.4 Prime mover: manufacturer's data in sufficient detail to allow modeling in transient stability simulations, if determined necessary.
- 2.5 Busses: rated voltage and ampacity (normal, long-time emergency and short-time emergency thermal ratings), conductor type and configuration.
- 2.6 Transmission lines: overhead line or underground cable rated voltage and impeached (normal, long-time emergency and short-time emergency thermal rates),  $Z_1$  (positive sequence) and  $Z_0$  (zero sequence) impedances, conductor type, configuration, length and termination points.

- 2.7 Motors greater than 150 kWh 3-phase or 50 kW single-phase: type (induction or synchronous), rated hp, speed, voltage and current, efficiency and power factor at 2, 3/4 and full load, stator reactance and reactance, rotor reactance and reactance, magnetizing reactance.
- 2.8 Circuit breakers and switches: rated voltage, interrupting time and continuous, interrupting and momentary currents. Provide normal, long-time emergency and short-time emergency thermal ratings.
- 2.9 Protective relays and systems: ANSI function number, quantity manufacturer's catalog number, range, descriptive bulletin, tripping diagram and three-line diagram showing AC connections to all relaying and metering.
- 2.10 CTs and VTs: location, quantity, rated voltage, current and ratio.
- 2.11 Surge protective devices: location, quantity, rated voltage and energy capability.
- 3.0 Other
  - 3.1 Additional data to perform the Distribution Facilities Impact Study will be provided by the Customer as requested by the Company.
  - 3.2 The Company reserves the right to require specific equipment settings or characteristics necessary to meet NEPOOL and NPCC criteria and standards.

#### **EXHIBIT 4**

##### **Form of Distribution Facilities Detailed Study Agreement**

This agreement dated \_\_\_\_\_, is entered into between \_\_\_\_\_ (the Customer) and The Narragansett Electric Company (the Company) for the purpose of setting forth the terms, conditions and costs for conducting a Distribution Facilities Detailed Study relative to \_\_\_\_\_. The Distribution Facilities Detailed Study will determine the detailed engineering, design and cost of the facilities necessary to satisfy the Customer's request for service interconnecting with the Company's Distribution System.

1. The Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for the Company to conduct the Distribution Facilities Detailed Study. Where such information and technical data was provided for the Distribution Facilities Impact Study, it should be reviewed and updated with current information, as required.
2. All work pertaining to the Distribution Facilities Detailed Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Customer. Each party will inform the other in writing of its designated and authorized representative.
3. The Company will advise the Customer of additional studies, as in its sole discretion deem necessary, in accordance with Good Utility Practice. The Company will not proceed with additional studies without the Customer's consent.
4. The Company contemplates that it will require [specify time] to complete the Distribution Facilities Detailed Study. Upon completion of the Distribution Facilities Detailed Study, the Company will provide a Distribution Facilities Detailed Study Report to the Customer



based on the information provided and developed as a result of this effort. If, upon review of the Distribution Facilities Detailed Study Report, the Customer decides to pursue its interconnection service request, the Customer must sign an Interconnection Service Agreement with the Company. The Distribution Facilities Impact Study and Distribution Facilities Detailed Study, together with any additional studies contemplated in Paragraph 3, will form the basis for the Customer's proposed use of the Company's Distribution System and will be furthermore utilized in obtaining necessary third-party approvals of any facilities and requested services. The Customer understands and acknowledges that any use of the study results by the Customer or its agents, whether in preliminary or final form should such approval be required, prior to NEPOOL 18.4 approval, is completely at the Customer's risk and that the Company will not guarantee or warrant the completeness, validity or utility of the study results prior to NEPOOL 18.4 approval.

5. The estimated costs contained within this Agreement are the Company's good faith estimate of its costs to perform the Distribution Facilities Detailed Study contemplated by this Agreement. The Company's estimates do not include any estimates for wheeling charges that may be associated with the transmission of Generating Facility output to third parties or with rates for station service. The actual costs charged to the Customer by the Company may change as set forth in this Agreement. Prepayment will be required for all study, analysis, and review work performed by the Company or its Designated Agent's personnel, all of which will be billed by the Company to the Customer in accordance with Paragraph 6 of this Agreement.
  
6. The payment required is \$\_\_\_\_\_ from the Customer to the Company for the primary system analysis, coordination, and monitoring of the Distribution Facilities Detailed Study to be performed by the Company for the Customer's requested service. Such amount will be payable in full to the Company prior to the Company beginning the work. The Company will, in writing, advise the Customer in advance of any cost increases for

work to be performed if the total amount increases by 10% or more. Any such changes to the Company's costs for the study work to be performed will be subject to the Customer's consent. The Customer will, within thirty (30) days of the Company's notice of increase, both authorize such increases and make payment in the amount set forth in such notice, or the Company will suspend the Distribution Facilities Detailed Study and this Agreement will terminate.

In the event this Agreement is terminated for any reason, the Company will refund to the Customer the portion of the above credit or any subsequent payment to the Company by the Customer that the Company did not expend or commit in performing its obligations under this Agreement. Any additional billings under this Agreement will be subject to an interest charge equal to \_\_% per year. Payments for work performed will not be subject to refunding except in accordance with Paragraph 7 below.

7. If the actual costs for the work exceed prepaid estimated costs, the Customer will make payment to the Company for such actual costs within thirty (30) days of the date of the Company's invoice for such costs. If the actual costs for the work are less than that prepaid, the Company will credit such difference toward the Company costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned to the Customer with interest computed in accordance with the provisions of the Interconnection Policy.
8. Nothing in this Agreement will be interpreted to give the Customer immediate rights to wheel over or interconnect with the Company's Distribution System.
9. Within one (1) year following the Company's issuance of a final bill under this Agreement, the Customer will have the right to audit the Company's accounts and records at the offices where such accounts and records are maintained, during normal business hours; provided that appropriate notice will have been given prior to any audit

and provided that the audit will be limited to those portions of such accounts and records that relate to service under this Agreement. The Company reserves the right to assess a reasonable fee to compensate for the use of its personnel time in assisting any inspection or audit of its books, records or accounts by the Customer or its Designated Agent.

10. The Customer agrees to indemnify and hold the Company and its affiliated companies and directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including attorney's fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen as a result of any acts or omissions of the Company or its Affiliates under this Agreement. The Customer hereby waives recourse against the Company and its Affiliates for, and releases the Company and its Affiliates from, any and all Liabilities for or arising from damage to its property due to a performance under this Agreement by the Company or its Affiliates.
11. If either party materially breaches any of its covenants hereunder, the other party may terminate this Agreement by serving notice of same on the other party to this Agreement.
12. This agreement will be construed and governed in accordance with the laws of the State of Rhode Island.
13. All amendments to this Agreement will be in written form executed by both parties.
14. The terms and conditions of this Agreement will be binding on the successors and assigns of either party.
15. This Agreement will remain in effect for a period of up to two years from its effective date and is subject to extension by mutual agreement. Either party may terminate this Agreement by thirty (30) days' notice except as is otherwise provided herein.

Narragansett Electric  
Interconnection Requirements  
For Customer-Owned Generation

Exhibit 4  
Sheet 60

Customer:

The Company:

Name: \_\_\_\_\_

Name:

Title: \_\_\_\_\_

Title:

Date: \_\_\_\_\_

Date:

**EXHIBIT 5**  
**Insurance Requirements**

These Insurance Requirements apply to all Category 2 Facilities, except Category 2 Facilities that are Net Metered, and all Category 3, 4, and 5 Facilities. The Customer, at its own cost and expense, will procure and maintain insurance in the forms and amounts acceptable to the Company at the following minimum levels of coverage:

- a) For Category 2 Facilities installed at a residential location:
  - Comprehensive General Liability Coverage including Operations, Contractual Liability and Broad Form Property Damage Liability written with limits no less than \$1,000,000.00 combined single limit for Bodily Injury Liability and Property Damage Liability.
  
- b) For Category 2 Facilities installed at a non-residential location and for all Category 3, 4 and 5 Facilities:
  - Statutory coverage for workers' compensation, and Employer's Liability Coverage with a limit no less than \$500,000.00 per accident;
  
  - Comprehensive General Liability Coverage including Operations, Contractual Liability and Broad Form Property Damage Liability written with limits no less than \$5,000,000.00 combined single limit for Bodily Injury Liability and Property Damage Liability; and
  
  - Automobile Liability for Bodily Injury and Property Damage to cover all vehicles used in connection with the work with limits no less than

\$1,000,000.00 combined single limit for Bodily Injury and Property Damage  
Injury.

Prior to commencing the work on a Category 2 Generating Facility at a residential location, the Customer will have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above.

Prior to commencing the work on a Category 2 Generating Facility at a non-residential location or on a category 3, 4 or 5 Generating Facility, the Customer will have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above and the Customer will notify and send copies to the Company of any policies maintained hereunder written on a "claims-made" basis. The Company may at its discretion require the Customer to maintain tail coverage for five years on all policies written on a "claims-made" basis.

Every contract of insurance providing the coverages required in this provision will contain the following or equivalent clause: "No reduction, cancellation or expiration of the policy will be effective until thirty (30) days from the date written notice thereof is actually received by the Customer.≡ Upon receipt of any notice of reduction, cancellation or expiration, the Customer will immediately notify the Company.

The Company and its Affiliates will be named as additional insureds, as their interests may appear, on the Comprehensive General Liability and Automobile Liability policies described above.

The Customer will waive all rights of recovery against the Company for any loss or damage covered by said policies. Evidence of this requirement will be noted on all certificates of insurance provided to the Company.

**Attachment 3**

## **INTERCONNECTION REQUIREMENTS DOCUMENT CUSTOMER-OWNED GENERATING FACILITIES**

### **1.0 Preamble**

This document (“Interconnection Requirements Document”) describes the process and requirements for a customer to connect a Facility, as defined herein, to the Company’s Distribution System.

The process and requirements contained herein are applicable to all Facilities interconnecting with the Company’s Distribution System including Qualifying Facilities, as defined in 220 CMR 8.02, and On-Site Generating Facilities, as defined in 220 CMR 8.02.

The process and requirements contained herein are not applicable to portable emergency generators. Such generators must be installed in accordance with Article 700 of the National Electrical Code and Article 310 of the National Grid USA publication Information and Requirements for Electric Service Handbook in such a manner as to ensure that the generator cannot be operated in parallel with the Company’s Distribution System. Attempting to interconnect a generator of this type with the Company’s Distribution System, except as specified above, can cause significant damage to the Company’s Distribution System and catastrophic damage to the Interconnecting Customer’s generator and premises.

The Company will work closely and promptly with any customer who desires to install a Facility.

### **2.0 Definitions**

The following words and terms shall be understood to have the following meanings when used in this Interconnection Requirements Document:

**Affiliate:** Any company that is a subsidiary of National Grid USA.

**Company:** Massachusetts Electric Company or Nantucket Electric Company, as applicable.



**Department:** The Massachusetts Department of Telecommunications and Energy

**Designated Agent:** Any entity that performs actions or functions on behalf of the Company or the Interconnecting Customer required under this Interconnection Requirements Document and/or the Exhibits hereto.

**Distribution Facilities Upgrades:** Modifications or additions to distribution-related facilities that are integrated with and support the Company's Distribution System for the benefit of the Interconnecting Customer.

**Distribution Facilities Impact Study:** The first phase of engineering study conducted by the Company to determine the required modifications to its Distribution System, resulting in study grade cost estimates (+/- 25%) and an approximate estimate of the time required for such modifications that will be required to provide the requested interconnection service. The Distribution Facilities Impact Study is not suitable for finalizing agreements, contracts or commitments.

**Distribution Facilities Detailed Study:** The final phase of engineering study conducted by the Company to determine the required detailed modifications to its Distribution System, resulting in project grade cost estimates (+/- 10%) and an estimate of the time required for such modifications that will be required to provide the requested interconnection service.

**Distribution Facilities Upgrades Charge:** A charge to be paid by an Interconnecting Customer equal to all costs associated with the upgrade or modification of the Distribution System for safe interconnection of the Facility with the Company's Distribution System.

**Distribution System:** The facilities owned, controlled or operated by the Company that are used to provide distribution service to its customers.

**Facility:** A customer-owned source of electricity, which may be an Inverter or a rotating generator of the synchronous or induction type and all facilities ancillary and appurtenant thereto, which the Interconnecting Customer requests to interconnect to the Distribution System.

**Good Utility Practice:** Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish

the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**In-Service Date:** The date on which the Facility and Distribution Facilities Upgrades (if applicable) are complete and ready for service, even if the Facility is not placed in service on or by that date.

**Interconnecting Customer:** A customer desiring to install an independently-operated Generating Facility, which is interconnected with the Company's Distribution System.

**Interconnection Service Agreement:** An agreement for interconnection service, the form of which is provided in Exhibit 2, between the Interconnecting Customer and the Company. The agreement also includes any amendments or supplements thereto entered into by the Interconnecting Customer and the Company.

**Inverter:** An electrical device that accepts direct current as input, and produces alternating current as output.

**ISO-New England:** The Independent System Operator established in accordance with the New England Power Pool ("NEPOOL") Agreement, which is responsible for managing the bulk power generation and transmission systems in New England.

**Metering Point:** For meters that do not utilize instrumentation transformers, the point at which the billing meter is connected. For meters that utilize instrumentation transformers, the point at which the instrumentation transformers are connected.

**Network Distribution System:** Electrical service where two or more distribution transformers have their secondary windings connected in parallel to form a network of conductors supplying service voltage to customers. Primary voltage to the transformers may come from a number of independent circuits, so that loss of one primary circuit will not generally cause a loss of service voltage to customers.

**Notice of Intent to Interconnect:** Notice provided by Interconnecting Customer to the Company, the form of which is shown in Exhibit 1, which initiates the interconnection process.

**On-Site Generating Facility:** A class of customer-owned generating facilities with peak capacity of 60 kW or less, as defined in 220 CMR 8.02.

**Parties:** The Company and the Interconnecting Customer.

**Policy and Practices for Protection Requirements for New or Modified**

**Interconnections:** The Company’s policy concerning protection requirements for new or modified interconnections to power sources, which is included in Exhibit 3 to this Interconnection Requirements Document and attached and incorporated by reference.

**Point of Delivery:** A point on the Company’s Distribution System where the Interconnecting Customer makes capacity and energy available to the Company. The point of Delivery shall be specified in the Interconnection Service Agreement.

**Point of Receipt:** A point on the Company’s Distribution System where the Company delivers capacity and energy to the Interconnecting Customer. The Point of Receipt shall be specified in the Interconnection Service Agreement.

**Qualifying Facility:** A generation facility that has received certification as a Qualifying Facility from the Federal Energy Regulatory Commission in accordance with the Federal Power Act, as amended by the 1978 Public Utilities Regulatory Policies Act, as defined in 220 CMR 8.02.

**Radial Distribution System:** Electrical service from a system consisting of one or more primary circuits extending from a single substation or transmission supply point arranged such that each primary circuit serves customers in a particular local area.

### 3.0 Process Overview

The process of interconnecting a Facility with the Company’s system is as follows:

- a. The Interconnecting Customer submits a Notice of Intent to Interconnect (“Notice of Intent”) to the Company. The information that is required to be provided in the Notice of Intent is provided in Exhibit 1. Such notice shall be sent to:

55 Bearfoot Road  
Northboro, MA 01532  
Attn: Senior Vice President – Business Services

- b. Upon receipt of the Notice of Intent, the Company will assign an Account Manager to work with the Interconnecting Customer and serve as the point of contact for all future activities. The Notice of Intent will be reviewed for completeness and to verify that the request is for an interconnection to the Company's Distribution System. In addition, if the Notice of Intent is for an Inverter-based Facility, the Company will determine if the Facility complies with UL Standard 1741. If any of these requirements are not met, the Interconnecting Customer will be provided written notice and the application process will be suspended until the Interconnecting Customer has remedied any deficiencies.
- c. Upon verification and within 45 days of the Company's receipt of the Notice of Intent, the Company will conduct an initial site inspection of the proposed Facility to determine if a Distribution Facilities Impact Study is required. If a Distribution Facilities Impact Study is not required and the Facility meets the requirements for immediate interconnection to the Company's system, the Interconnecting Customer and the Company shall execute an Interconnection Service Agreement, the form of which is provided in Exhibit 2, and the Interconnecting Customer shall pay the Company the amount specified in such agreement. In some cases, the Company may determine that a Distribution Facilities Impact Study is not required and may proceed directly with a Distribution Facilities Detailed Study.
- d. If a Distribution Facilities Impact Study is required, the Company will prepare a cost estimate to perform a Distribution Facilities Impact Study and will submit such estimate to the Interconnecting Customer. For a Distribution Facilities Impact Study involving a Qualifying Facility or On-Site Generating Facility, the Company will provide the estimate within 45 days of the Company's receipt of the Notice of Intent.

- e. If the Interconnecting Customer elects to proceed with the Distribution Facilities Impact Study, the Interconnecting Customer and the Company shall execute a Distribution Facilities Impact Study Agreement, the form of which is provided in Exhibit 4, and the Interconnecting Customer shall pay the Company the amount specified in such agreement.
- f. Upon execution of the Distribution Facilities Impact Study Agreement and receipt of payment in full, the Company will conduct the Distribution Facilities Impact Study and upon completion of the work issue a Distribution Facilities Impact Study Report to the Interconnecting Customer. A Distribution Facilities Impact Study involving a Qualifying Facility or On-Site Generating Facility will be completed within 90 days of the Company's receipt of the executed Distribution Facilities Impact Study Agreement and payment in full or such later date as agreed to between the Company and the Interconnecting Customer.
- g. If a Distribution Facilities Detailed Study is required and the Interconnecting Customer elects to proceed with such study, the Company will prepare a cost estimate to perform a Distribution Facilities Detailed Study and will submit such estimate to the Interconnecting Customer. For a Distribution Facilities Detailed Study involving a Qualifying Facility or On-Site Generating Facility, the Company will provide the estimate (i) within 45 days of the Company's receipt of the Notice of Intent, if a Distribution Facilities Impact Study is not required, or (ii) at the conclusion of the Distribution Facilities Impact Study, if a Distribution Facilities Impact Study is performed.
- h. If the Interconnecting Customer elects to proceed with the Distribution Facilities Detailed Study, the Interconnecting Customer and the Company shall execute a Distribution Facilities Detailed Study Agreement, the form of which is provided in Exhibit 5, and the Interconnecting Customer shall pay the Company the amount specified in such agreement.

- i. Upon execution of the Distribution Facilities Detailed Study Agreement and receipt of payment in full, the Company will conduct the Distribution Facilities Detailed Study and upon completion of the work issue a Distribution Facilities Detailed Study Report to the Interconnecting Customer. A Distribution Facilities Detailed Study involving a Qualifying Facility or On-Site Generating Facility will be completed within 90 days of the Company's receipt of the executed Distribution Facilities Detailed Study Agreement and payment in full or such later date as agreed to between the Company and the Interconnecting Customer.
- j. If, upon receipt of the Distribution Facilities Detailed Study Report, the Interconnecting Customer elects to proceed with the construction of facilities to interconnect the Facility the Interconnecting Customer and the Company shall execute an Interconnection Service Agreement and the Interconnecting Customer shall pay the Company the amount specified in such Agreement. If the Interconnecting Customer is a Qualifying Facility or an On-Site Generating Facility and does not agree with the Company's cost estimate, the Interconnecting Customer or the Company may petition the Department to review the reasonableness of the Company's cost estimate.
- k. Upon execution of the Interconnection Service Agreement and receipt of payment in full, the Company will construct the required facilities.

#### **4.0 Basic Understandings**

The Interconnecting Customer intends to install a Facility on the Interconnecting Customer's premises. This power source will be connected electrically to the Company's Distribution System and operate in synchronism with the voltage and frequency maintained by the Company during normal operating conditions. The interconnection of the power source with the Company's Distribution System must meet the technical requirements of this Interconnection Requirements Document and may require an upgrade or other modifications to the Distribution System in order to meet such requirements. Subject to the requirements contained in this

Interconnection Requirements Document, the Company or its Affiliate shall, at Interconnecting Customer's expense, modify the Distribution System accordingly.

**4.1 Facility Classification**

The interconnection requirements for a Facility or Inverter are dependent on its capacity and the type of power production technology utilized.

To determine the requirements for a given Facility, the following Categories and Types have been established:

Category	Maximum Output (kW)
1	$\leq 10$
2	$> 10$ and $\leq 60$
3	$> 60$ and $\leq 300$
4	$> 300$ and $\leq 1,000$
5	$> 1,000$

Type	Technology
A-1	Inverter-based, single phase
A-3	Inverter-based, three phase
B-1	Induction generator, single phase
B-3	Induction generator, three phase
C-1	Synchronous generator, single phase
C-3	Synchronous generator, three phase

Tables 1-A and 1-B provide an overview of the applicable interconnection requirements for Category 1, 2, 3 and 4 Facilities. Category 5 Facilities are subject to the full extent of requirements contained in this Interconnection Requirements Document

**TABLE 1A  
OVERVIEW OF INTERCONNECTION REQUIREMENTS**

Category 1 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System*	Net Metering	Distribution Facilities Impact Study
Type A-1	Requirement 1	Requirements 1 & 2	Allowed	Not Required
Type A-3	Requirement 1	Requirements 1 & 2	Allowed	Not Required
Type B-1	Requirement 3	Requirements 2 & 3	Allowed	Required **
Type B-3	Requirement 3	Requirements 2 & 3	Allowed	Required **
Type C-1	Requirement 4	Requirements 2 & 4	Allowed	Required
Type C-3	Requirement 4	Requirements 2 & 4	Allowed	Required

Category 2 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System	Net Metering	Distribution Facilities Impact Study
Type A-1	Requirement 1	Requirements 1 & 2	Allowed	Required (Note A)
Type A-3	Requirement 1	Requirements 1 & 2	Allowed	Required (Notes A & B)
Type B-1	Requirement 3	Requirements 2 & 3	Allowed	Required (Note A)
Type B-3	Requirement 3	Requirements 2 & 3	Allowed	Required (Notes A & B)
Type C-1	Requirement 4	Requirements 2 & 4	Allowed	Required (See Note A)
Type C-3	Requirement 4	Requirements 2 & 4	Allowed	Required (Notes A & B)

* Most distribution systems are radial in nature; however, network systems are employed in some urban areas. Contact the Company to determine whether the proposed Facility site is served by a Radial Distribution System or Network Distribution System.
** The scope of the study is expected to be minimal.
Requirement. 1: The Inverter must comply with UL Standard 1741. A photovoltaic system must also comply with IEEE Standard 929-2000.
Requirement. 2: For installations in which the Facility minimum load is less than fifteen (15) times the peak output of the generating system, a reverse power flow relay will be required as part of the protection system. If the Facility minimum load is at least fifteen (15) times the peak output of the generating system, a reverse power flow relay will not be required.
Requirement. 3: The Facility must meet the protection requirements specified for induction generators as shown in Exhibit 3.
Requirement. 4: The Facility must meet the protection requirements specified for synchronous generators as shown in Exhibit 3.
Note A: If the Interconnecting Customer proposes to install a Facility with a capacity greater than 100% of the capacity of the distribution transformer providing site service, a Distribution Facilities Impact Study and Distribution Facilities Detailed Study would be required and an upgrade charge would apply.
Note B: If the Interconnecting Customer receives single-phase electrical service from the Company but desires to install a three-phase power Facility, a Distribution Facilities Impact Study and Distribution Facilities Detailed Study would be required and an upgrade charge would apply.



**TABLE 1B  
OVERVIEW OF INTERCONNECTION REQUIREMENTS**

Category 3 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System*	Net Metering	Distribution Facilities Impact Study
Type A-3	Requirement 1	Requirements 1 & 2	Not Allowed	Required (Note A)
Type B-3	Requirement 3	Requirements 2 & 3	Not Allowed	Required
Type C-3	Requirement 4	Requirements 2 & 4	Not Allowed	Required

Category 4 Facilities				
	If Connected to Radial Distribution System*	If Connected to Network Distribution System*	Net Metering	Distribution Facilities Impact Study
Type A-3	Requirement 1	Requirements 1 & 2	Not Allowed	Required
Type B-3	Requirement 3	Requirements 2 & 3	Not Allowed	Required
Type C-3	Requirement 4	Requirements 2 & 4	Not Allowed	Required

\* Most distribution systems are radial in nature; however, network systems are employed in some urban areas. Contact the Company to determine whether the proposed Facility site is served by a Radial Distribution System or Network Distribution System.

Requirement. 1: The Inverter must comply with UL Standard 1741.

Requirement. 2: For installations in which the Facility minimum load is less than fifteen (15) times the peak output of the generating system, a reverse power flow relay will be required as part of the protection system. If the Facility minimum load is at least fifteen (15) times the peak output of the generating system, a reverse power flow relay will not be required.

Requirement 3: The Facility must meet the protection requirements specified for induction generators as shown in Exhibit 3.

Requirement 4: The Facility must meet the protection requirements specified for synchronous generators as shown in Exhibit 3.

Note A: If the Interconnecting Customer proposes to install a Facility with a capacity greater than 100% of the capacity of the distribution transformer providing service to the site, a Distribution Facilities Impact Study and Distribution Facilities Detailed Study would be required and an upgrade charge would apply.

## **5.0 Construction of the Distribution Facilities Upgrades**

**5.1 General Considerations:** The Company or its Affiliate or another party selected pursuant to this section shall construct the Distribution Facilities Upgrades at the Interconnecting Customer's expense. The Company shall determine a schedule for construction and final interconnection. The Company shall use reasonable efforts to fulfill its obligations under this schedule in order to permit interconnection with the Facility in a timely manner. If the Company cannot interconnect a Qualifying Facility or On-Site Generating Facility within 90 days of the Company's receipt of the executed Interconnection Service Agreement and payment in full or such later date as agreed to between the Company and the Interconnecting Customer, that Interconnecting Customer or the Company may petition the Department to determine the time frame for the completion of the interconnection, in accordance with 220 C.M.R. 8.04(6)(a). The Company shall use, or specify that the selected contractor use, standard equipment customarily employed by the Company or its Affiliate for its own system in accordance with Good Utility Practice in making the final interconnection.

Pursuant to 220 CMR 8.04(3), the Interconnecting Customer also agrees to pay the Company for all reasonable costs and fees required to enable the Company to fulfill its obligations, including any tax liability, the costs and fees of all permits, licenses, franchises or regulatory or other approvals necessary for the construction and operation of the Distribution Facilities Upgrades and any facilities ancillary or appurtenant to them. The Company shall consult with the Interconnecting Customer on decisions involving substantial additional costs to be incurred by the Company in fulfillment of its obligations.

**5.2 QF Certification and Engineer's Report:** If the Interconnecting Customer is a Qualifying Facility, it shall provide the Company with proof that its facility has received certification as a Qualifying Facility from the Federal Energy Regulatory Commission in accordance with the Federal Power Act, as amended by the Public Utilities Regulatory Policies Act of 1978. Such proof shall be provided to the Company within the thirty (30) day period prior to the in-service date of the Facility. The Interconnecting Customer shall also provide the

Company with notice of any change in its Qualifying Facility status within fifteen (15) days of any such change.

Further, within the thirty (30) day period prior to the In-Service Date, the Interconnecting Customer, at its expense, shall submit an independent engineer's report to the Company stating that it is reasonably projected that during the ten-year period, beginning with the year in which the Facility is placed in service, and, at the Interconnecting Customer's option, not including data from the first year of this ten-year period, no more than 5% of the total power flows (Athe 5% test as defined by IRS Notice 88-129) over the interconnection to the Interconnecting Customer. Acceptance of this report shall be subject to the Company's review and concurrence. The Company may require that a second report be provided, at the Interconnecting Customer's expense, if the Company reasonably concludes that the first report is unreliable for purposes of anticipating the taxability of the services provided **hereunder**. In order to meet the requirements of IRS Notice 88-129 by March 1 of the year following the start of Interconnection Service, and annually thereafter, the Interconnecting Customer shall provide to the Company a report of the total bi-directional power flows over the interconnection during the previous calendar year.

The Interconnecting Customer agrees that payments to the Company hereunder will be deemed a contribution in aid of construction ("CIAC") and taxable to the Company if the Facility does not receive Qualifying Facility certification or the engineer's report concludes that the 5% test will not be met. In either event, the Interconnecting Customer agrees to pay the Company in advance for all taxes owed on the CIAC. Such payment shall be made within ten (10) days of notice from the Company of the estimated taxes owed, based on the Company's then effective gross-up factor times the amount of the CIAC. The Company may refuse final interconnection with the Facility until such payment is made.

**5.3 Land Interests:** The Interconnecting Customer recognizes that Distribution Facilities Upgrades may require acquisition of land interests, which may require individual agreements between the Company or its Affiliate and the landowners. The Interconnecting Customer agrees to pay to the Company all reasonable costs incurred by it or its Affiliate

associated with these acquisition agreements in advance of their execution. The Company reserves the right to draft any and all documents creating land interests that it will receive to effectuate interconnection service under this Interconnection Requirements Document.

In the event the Interconnecting Customer acquires the land, permits, licenses, franchises or regulatory or other approvals necessary for the construction and operation of the Distribution Facilities Upgrades, the Company has the right, at Interconnecting Customer's expense, to approve or reject any terms and conditions related thereto prior to the start of service.

## **6.0 Distribution Facilities Upgrades Charge**

If Distribution Facilities Upgrades are required to accommodate installation of the Facility, the Interconnecting Customer shall be required to pay a Distribution Facilities Upgrades Charge. Such charge may be billed as an incremental monthly charge based upon the total costs of the facilities upgrade, with the total upgrade cost amortized over three years. The Interconnecting Customer also has the option of paying the total Distribution Facilities Upgrades Charge prior to interconnection. In the event that other customers of the Company are served by the upgraded facilities at the time the upgrade is implemented, the Interconnecting Customer shall pay its allocated share of the Distribution Facilities Upgrades Charge.

## **7.0 Delivery and Measurement of Electricity**

**7.1 Voltage Level:** All electricity across the **Interconnection Point** shall be in the form of single-phase or three-phase sixty-hertz alternating current at a voltage class determined by mutual agreement of the Parties.

### **7.2 Machine Reactive Capability**

**7.2.1 Category 1, 2, 3 and 4 Facilities:** Category 1, 2, 3 or 4 Facilities will not be required to provide reactive capability.

**7.2.2 Category 5 Facilities:** Each Category 5 Facility interconnected with the Company's Distribution System shall be required to provide reactive capability to regulate and maintain system voltage at the **Interconnection Point**. The Company and NEPOOL shall establish a scheduled range of voltages to be maintained by the Facility. The reactive capability requirements shall be reviewed as part of the Distribution Facility Impact Study and Distribution Facility Detailed Study.

**7.3 Metering, Related Equipment and Billing Options:** The Company shall furnish, read and maintain all revenue metering equipment. Except as provided below, the Company shall own the meter and the Interconnecting Customer shall pay to the Company a monthly charge to cover taxes, meter maintenance, incremental reading and billing costs, the allowable return on the invoice cost of the meter and the depreciation of the meter. These charges are set forth in Schedule B of the Company's Qualifying Facility Power Purchase Rate P, M. D. T. E. No. 1032-C, as amended from time to time. If the Facility is a Qualifying Facility or On-Site Generating Facility the Interconnecting Customer may elect to own the meter, in which case, the Interconnecting Customer shall pay to the Company a monthly charge to cover meter maintenance and incremental reading and billing costs. These charges are set forth in Schedule B of the Company's Qualifying Facility Power Purchase Rate P, as amended from time to time.

The Interconnecting Customer shall provide suitable space within the Facility for installation of the metering, telemetering and communication equipment at no cost to the Company.

The Interconnecting Customer shall be responsible for purchasing and installing software, hardware and/or other technology that may be required by the Company to read billing meters.

All metering equipment installed pursuant to this Interconnection Requirements Document and associated with the Facility shall be routinely tested by the Company at Interconnecting Customer's expense, in accordance with applicable Company and/or ISO-New England criteria, rules and standards. If, at any time, any metering equipment is found to be

inaccurate by a margin greater than that allowed under applicable criteria, rules and standards, the Company shall cause such metering equipment to be made accurate or replaced. The cost to repair or replace the meter shall be borne by the Company, if the Company owns the meter, or by the Interconnecting Customer if the Interconnecting Customer owns the meter. Meter readings for the period of inaccuracy shall be adjusted so far as the same can be reasonably ascertained; provided, however, no adjustment prior to the beginning of the preceding month shall be made except by agreement of the Parties. Each party shall comply with any reasonable request of the other concerning the sealing of meters, the presence of a representative of the other party when the seals are broken and the tests are made, and other matters affecting the accuracy of the measurement of electricity delivered from the Facility. If either party believes that there has been a meter failure or stoppage, it shall immediately notify the other.

If the Metering Point and the Point of Receipt or Point of Delivery are not at the same location, the metering equipment shall record delivery of electricity in a manner that accounts for losses occurring between the Metering Point and the Point of Receipt or Point of Delivery. Losses between the Metering Point and Point of Receipt will be reflected pursuant to applicable Company, NEPOOL or ISO-New England criteria, rules or standards.

The type of metering equipment to be installed at a Facility is dependent on the Category (size) of the facility and how and to whom the net Facility output will be sold. The available equipment options and associated requirements are:

- Net Metering – in which a standard distribution class meter is installed and is enabled to run in a normal direction during periods of net consumption and to run backwards during periods of net generator output. All metering equipment included in this type of installation, including self-contained meters and instrument transformers and meters, shall meet ANSI C12.1 Metering Accuracy Standards and ANSI C57.13 accuracy requirements for instrument transformers.

- Bi-directional, non-interval meter without remote access – in which a distribution class meter with multiple registers is installed. One set of registers will record energy flows from the Company to the Facility during periods when the Facility is a net consumer of energy (the other register will record no flow during these periods) and a second set of registers will flow energy flows from the Facility to the Company during periods when the Facility is a net producer of energy (the other register will record no flow during these periods). Each set of registers will record total flows only and will not record flows during specific intervals. All metering equipment included in this type of installation, including self-contained meters and instrument transformers and meters, shall meet ANSI C12.1 Metering Accuracy Standards and ANSI C57.13 accuracy requirements for instrument transformers.
- Bi-directional, interval meter with remote access – in which a distribution class meter with multiple registers is installed. One set of registers will record energy flows from the Company to the Facility during periods when the Facility is a net consumer of energy (the other register will record no flow during these periods) and a second set of registers will flow energy flows from the Facility to the Company during periods when the Facility is a net producer of energy (the other register will record no flow during these periods). Each set of registers will record total flows as well as flows during hourly intervals. In addition, the meters will be equipped with remote access capability that may include telemetering to the extent required by applicable NEPOOL standards. All metering equipment included in this type of installation shall meet the requirements contained in NEPOOL Operating Procedure No. 18, “Metering and Telemetering Criteria” and the Company’s “Policy and Practices for Metering and Telemetering Requirements for New or Modified Interconnections”. Copies of both publications are available from the Company upon request. The Interconnecting Customer shall be responsible for providing all necessary leased telephone lines and any necessary protection for leased lines and shall furthermore be responsible for all

communication required by ISO-New England, or by ISO-New England's designated satellite. The Interconnecting Customer shall maintain all telemetering and transducer equipment at the Facility in accordance with ISO-New England criteria, rules and standards. The Company will purchase, own and maintain all telemetering equipment located on the Interconnecting Customer's facilities, if the Interconnecting Customer desires, at the Interconnecting Customer's expense. The Interconnecting Customer shall provide, install and own Company-approved or Company-specified test switches in the transducer circuits.

**7.3.1 Category 1 and 2 Facilities:** Unless the Interconnecting Customer elects another form of metering, Category 1 and 2 Facilities will be equipped with Net Metering.

**7.3.2 Category 3 and 4 Facilities:** Category 3 and 4 Facilities shall not be entitled to utilize Net Metering. Category 3 and 4 Facilities will be equipped with a bi-directional, non-interval meter without remote access; provided, however a bi-directional, interval meter with remote access shall be installed if the Interconnecting Customers elects to install such meter at its expense or the sale of energy from the Facility requires such a meter (such as in the case of a sale from the Facility to the NEPOOL markets or to a third party).

**7.3.3 Category 5 Facilities:** Category 5 Facilities shall only be equipped with bi-directional, interval meters with remote access. In addition, Category 5 Facilities which are 5 MW or greater are required by NEPOOL Operating Procedure No. 18 to provide telemetering equipment and to supply accurate and reliable information to system operators regarding metered values for MW, MVAR, volt, amp, frequency, breaker status and all other information deemed necessary by ISO-NE and the NEPOOL Satellite (REMVEC).



**8.0 Notice Provisions:** If at any time, in the reasonable exercise of the Company's judgment, operation of the Facility adversely affects the quality of service to the Company's customers or interferes with the safe and reliable operation of the Distribution System, the Company may discontinue interconnection service to the Interconnecting Customer until the condition has been corrected. Unless an emergency exists or the risk of one is imminent, the Company shall give Interconnecting Customer reasonable notice of its intention to discontinue service and, where practical, allow suitable time for Interconnecting Customer to remedy the offending condition. The Company's judgment with regard to discontinuance of deliveries or disconnection of facilities under this paragraph shall be made in accordance with Good Utility Practice. In the case of such discontinuance, the Company shall immediately confer with Interconnecting Customer regarding the conditions causing such discontinuance and its recommendation concerning the timely correction thereof.

**9.0 Access and Control:** Properly accredited representatives of the Company or its Affiliate shall at all reasonable times have access to the Facility to make reasonable inspections and obtain information required in connection with this Interconnection Requirements Document. At the Facility, such representatives shall make themselves known to the Interconnecting Customer's personnel, state the object of their visit, and conduct themselves in a manner that will not interfere with the construction or operation of the Facility. The Company or its Designated Agent will have control such that it may open or close the circuit breaker or disconnect and place safety grounds at the Point of Receipt, Point of Delivery, or at the station if the Point of Delivery is remote from the station.

## **10.0 Force Majeure and Indemnification**

**10.1 Force Majeure:** An event of Force Majeure means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond either party's control. A Force Majeure event does not include an act of negligence or

intentional wrongdoing. Neither the Company nor the Interconnecting Customer will be considered in default as to any obligation under this Interconnection Requirements Document if prevented from fulfilling the obligation due to an event of Force Majeure. However, a party whose performance is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Interconnection Requirements Document.

**10.2 Indemnification:** The Interconnecting Customer shall at all times indemnify, defend, and save the Company 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, demands, 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 Company's performance of its obligations under this Interconnection Requirements Document on behalf of the Interconnecting Customer, except in cases of gross negligence or intentional wrongdoing by the Company.

**10.3 Insurance:** For Category 2 Facilities, except Category 2 Facilities that are Net Metered, and all Category 3, 4 and 5 Facilities, the Interconnecting Customer shall be required to provide and maintain insurance coverage as described in Exhibit 6, attached hereto and incorporated by reference.

Effective: February 15, 2002

**EXHIBIT 1**

**NOTICE OF INTENT TO INTERCONNECT**

The following information must be provided with the Interconnecting Customer's Notice of Intent to Interconnect:

- a) The name and address of the Interconnecting Customer and location of the generating facility;
- b) A brief description of the generating facility, including a statement indicating whether the generating facility is a small power production facility or cogeneration facility;
- c) The primary energy source used or to be used by the generating facility;
- d) The power production capacity of the generating facility and the maximum net capacity that may be delivered to the Company's system;
- e) The owners of the generating facility, including the percentage ownership by any electric utility or public utility holding company, or by any entity owned by either;
- f) The expected date of installation and the anticipated on-line date;
- g) The anticipated purchaser of the output of excess output of the generating facility (the Company or other third party) and the anticipated form (simultaneous purchase and sale, net purchase and sale, net metering, or other method);
- h) A description of any power conditioning equipment to be located between the generating facility and the Company's system;
- i) A description of the type of generator used in the generating facility installation (synchronous, induction, photovoltaic, or other).

To the extent practical, the above information may be submitted using the accompanying form.

**NOTICE OF INTENT TO INTERCONNECT**

APPLICANT		TELEPHONE #	DATE
STREET (MAILING) ADDRESS		CITY, STATE & ZIP CODE	
FACILITY LOCATION (IF NOT ADDRESS ABOVE)		CITY, STATE & ZIP CODE	
UTILITY PROVIDING SERVICE		ACCOUNT NUMBER	
ENERGY SOURCE	PEAK POWER RATING-KW	INVERTER TYPE <sup>1</sup> (if applicable)	GENERATOR TYPE <sup>2</sup> (if applicable)
<p>1. Only inverters meeting IEEE Standard 929-2000 and UL Standard 1741 are qualified for interconnection. The Company will determine from this application if your inverter is qualified and contact you.</p> <p>2. Any rotating generator requires protective equipment at the point of interconnection. If you have this type of generator, the Company will contact you regarding required equipment based upon this application.</p>			
<p>If an ownership connection exists between the applicant and this utility or National Grid USA, please provide details below and on the back of this form.</p>			
ESTIMATED INSTALLATION DATE		ESTIMATED OPERATION DATE	
<p>If the generating facility is rated at 60 KW or less you are eligible for monthly net energy billing.</p> <p>If eligible, do you request single-meter net energy billing/sales? YES ___ NO ___</p>			

I hereby certify that, to the best of my knowledge, all of the information provided in this Notice is true.

Signature of Applicant \_\_\_\_\_

**EXHIBIT 2**  
**Interconnection Service Agreement**

- 1.0 This Interconnection Service Agreement, dated as of \_\_\_\_\_ is entered into, by and between either Massachusetts Electric Company or the Nantucket Electric Company, as appropriate, (hereinafter referred to as the “Company”), and \_\_\_\_\_ (“Interconnecting Customer”).
- 2.0 The Interconnecting Customer has been determined by the Company to have tendered a Notice of Intent to Interconnect, pursuant to 220 C.M.R. ̄8.04 to interconnect the Facility described in Attachment 1.
- 3.0 The Company agrees to provide and the Interconnecting Customer agrees to take and pay for Interconnection Service in accordance with the provisions of the Company’s Interconnection Requirements Document, as may be amended from time to time, this Interconnection Service Agreement, and any Attachments to this Interconnection Service Agreement.
- 4.0 The Interconnecting Customer agrees at all times to operate and maintain the Facility in accordance with the requirements of the Company’s Interconnection Requirements Document.
- 5.0 The Company agrees to construct the Distribution Facilities Upgrades identified in Attachment 2 that are required to accommodate the interconnection of the Facility to the Company’s Distribution System. The Interconnecting Customer agrees to pay to the Company the amounts shown in Attachment 3 for the construction of the Distribution Facilities Upgrades.
- 6.0 The Interconnecting Customer has elected to (initial one) ( ) own ( ) have the Company own the associated meter and agrees, in addition to the amounts specified in paragraph 5 above, to pay to the Company each month the applicable metering charge as set forth in the Company’s P-Rate, as approved by the Massachusetts Department of Telecommunications and Energy from time to time.
- 7.0 Any notice or request made to or by either party regarding this Interconnection Service Agreement shall be made to the representative of the other party as indicated below:

Nantucket Electric Company  
Massachusetts Electric Company  
55 Bearfoot Road  
Northborough, MA 01532  
Attn: Senior Vice President – Business Services

Interconnecting Customer:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8.0 The Terms and Conditions for Distribution Service, where not in conflict with the terms hereof, are incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the parties have caused this Interconnection Service Agreement to be executed by their respective authorized officials.

Nantucket Electric Company \_\_\_\_: or Massachusetts Electric Company \_\_\_\_:

By: \_\_\_\_\_  
Name Title Date

Interconnecting Customer:

By: \_\_\_\_\_  
Name Title Date

Attachment 1

Description of Facilities

Attachment 2

Distribution Facilities Upgrades



Attachment 3

Costs for the Construction of the Distribution Facilities Upgrades

### EXHIBIT 3

#### **Policy and Practices for Protection Requirements For New or Modified Generation Interconnections with the Distribution System**

Any Facility desiring to interconnect with the Company's Distribution System or modify an existing interconnection must meet the technical specifications and requirements set forth in this Protection Policy. Once interconnected, the Company, in keeping with Good Utility Practice and in its sole discretion, may disconnect from the Facility if the Facility deviates from the technical specifications and requirements contained in this Protection Policy. The Facility must return to full compliance with this Protection Policy prior to reconnecting with the Company's system.

The specifications and requirements listed herein are intended solely to mitigate possible adverse impacts caused by the Facility on the Company's equipment and on other customers of the Company. They are not intended to address protection of the Facility itself or its internal load. It is the responsibility of the Facility to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect itself and its loads.

To determine the protection requirements for a given Facility, the following Categories have been established:

Category	Maximum Output (kW)
1	$\leq 10$
2	$> 10$ and $\leq 60$
3	$> 60$ and $\leq 300$
4	$> 300$ and $\leq 1,000$
5	$> 1,000$

## **I Protection Requirements**

### **Category 1 Facilities**

#### **General Requirements:**

If, due to the interconnection of the Facility, when combined with preexisting facilities interconnected to the Company's system, the rating of any of the Company's equipment or the equipment of others connected to the Company's system will be exceeded or its control function will be adversely affected, the Company shall have the right to require the Interconnecting Customer to pay for the purchase, installation, replacement or modification of equipment to eliminate the condition. Where such action is deemed necessary by the Company, the Company will, where possible, permit the Interconnecting Customer to choose among two or more options for meeting the Company's requirements as described in this Protection Policy.

#### **Requirements for Inverter-based (Type A) installations:**

- a. The Company's distribution circuits generally operate with automatic reclosing following a trip with automatic reclosing times as short as five seconds without regard to whether the Facility is keeping the circuit energized. The Facility is responsible for protecting its equipment from being re-connected out of synchronism with the Company's system by an automatic line reclosure operation.
- b. The following information must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Company's approving the Interconnecting Customer's request for interconnection:
  - An electrical one-line diagram or sketch depicting how the inverter will be interconnected relative to the service entrance panel and the electric meter.
  - The make, model and manufacturer's specification sheet for the inverter.
- c. For Facilities that utilize photovoltaic technology, it is required that the system be installed in compliance with IEEE Standard 929-2000, "IEEE Recommended Practice for Utility

Interface of Photovoltaic (PV) Systems”. The inverter shall meet the Underwriters Laboratories Inc. Standard UL 1741, “Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems”. Based on the information supplied by the Interconnecting Customer, if the Company determines the inverter is in compliance with UL 1741, the Interconnecting Customer’s request for interconnection will be approved without the need to conduct a Distribution Facilities Impact Study or a Distribution Facilities Detailed Study.

- d. For Facilities that utilize wind technology or other direct current energy sources and employ inverters for production of alternating current, the inverter shall meet the Underwriters Laboratories Inc. Standard UL 1741, “Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems”. Based on the information supplied by the Interconnecting Customer, if the Company determines the inverter is in compliance with UL 1741 the Interconnecting Customer’s request for interconnection will be approved without the need to conduct a Distribution Facilities Impact Study or a Distribution Facilities Detailed Study.

**Requirements for Induction Generator (Type B) installations:**

- a. The following information must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Interconnecting Customer finalizing the Facility’s protection design and the Company’s approving the Interconnecting Customer’s request for interconnection:
  - Three copies of a Facility one-line drawing.
  - Three copies of a one-line drawing showing the relays, if required herein, and metering including current transformer (“CT”) and voltage transformer (“VT”) connections and ratios.
  - Three copies of a three-line drawing for three phase units or a two-line drawing for single phase units showing the AC connections to the relays, if required herein, and meters.
  - The generator nameplate information including rated voltage, rated current, power

- factor, HP/kW, rated speed and locked rotor current.
- If the Facility owns the transformer between the Company and the Facility, the generator step up transformer nameplate information including rated voltage, rated kVA, proposed winding connections, positive sequence impedance plus zero sequence impedance and zero sequence equivalent circuit.
  - A list of protective relay equipment proposed to be furnished to conform to this Protection Policy including relay types, styles, manufacturer's catalog numbers, ranges and descriptive bulletins. Three copies of applicable relay instruction manuals may also be required if the Company does not already possess them.
  - Schematic drawings showing the control circuits for the interconnection breaker(s) or contactor(s).
  - Specifications for CTs and VTs relevant to the interconnection including their make, model, accuracy class, ratio, and available taps.
  - The proposed grounding method for the stator winding of the generator.
  - Other information that may be determined by the Company as required for a specific interconnection.
- b. The Interconnecting Customer must submit to the Company relay settings for all Facility protective relays that affect the interconnection with the Company's system at least four weeks prior to the scheduled date for setting the relays for review and acceptance by the Company.
- c. A Facility using induction generator(s) connected in the vicinity of capacitance sufficient to self-excite the generator(s) must meet the requirements for synchronous machines of the same Category. The capacitors that enable self-excitation may actually be external to the Facility and may belong to the Company or to other customers of the Company. The Company will not restrict the existing or future application of capacitors on its lines nor restrict their use by other customers to accommodate a Facility with induction machines.
- d. As changes occur in the location and size of capacitors, the Facility may be required in the future to upgrade its interface to meet the requirements for synchronous machines if self-excitation becomes possible even if not initially possible.
- e. A circuit breaker or contactor shall be installed to isolate the Facility from the Company's

system (“Interconnection Breaker” or “Interconnection Contactor”). If there is more than one Interconnection Breaker or Interconnection Contactor, the requirements of this Protection Policy shall apply to each one individually.

- f. The Company will review the relay settings as submitted to assure adequate protection for the Company’s facilities. The Company shall not be responsible for the protection of the Facility’s facilities. The Facility shall be responsible for protection of its system against possible damage resulting from parallel operation with the Company. If requested by the Interconnecting Customer, the Company will provide system protection information for the line terminal(s) directly related to the interconnection. This protection information is provided exclusively for use by the Interconnecting Customer in evaluating protection of the Facility’s facilities during parallel operation.
- g. The Company reserves the right to specify the winding connections for the transformer between the Company’s voltage and the Facility’s voltage (“Step Up Transformer”) as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company reserves the right to specify whether the generator stator is to be grounded or not grounded. The Interconnecting Customer shall be responsible for procuring equipment with a level of insulation and fault withstand capability compatible with the specified grounding method.
- h. In general, across the line starting of rotating machines is not permitted unless it can be demonstrated that the resultant voltage flicker is within the Company’s limits for starting of similar sized motors. If an Interconnection Breaker or latching type contactor is to be tripped by protective relays to satisfy this Protection Policy, then the Interconnection Breaker or Interconnection Contactor control circuits shall be DC powered from a station battery or Company-approved equivalent.
- i. A control interlock scheme that detects voltage on the Company’s line(s) shall be used to prevent the Facility from energizing or attempting to energize the Company’s line(s). The logic for this scheme should be hardwired to prevent the Interconnection Breaker (or Interconnection Contactor where appropriate) from closing. No interposing computer or programmable logic controller or the like shall be used in this logic.

- j. The Facility shall provide a disconnect switch at the **interconnection point with the Company** that is accessible to Company personnel at all times that can be opened for isolation. The Company shall have the right to open this disconnect switch during emergency conditions or with reasonable notice to the Interconnecting Customer at other times. The Company shall exercise such right in accordance with Good Utility Practice. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch shall be of a manufacture and type generally accepted for use by the Company.
- k. Where protective relays are required by this Protection Policy, their control circuits shall be DC powered from a station battery. Solid-state relays shall be self-powered or DC powered from a station battery. If the Facility uses a non-latching interconnection contactor, AC powered relaying satisfying the requirements of this Protection Policy may be allowed provided the relay and its method of application is fail safe, meaning that if the relay fails or if the voltage and/or frequency of its AC power source deviate from the relay's design requirements for power, the relay will immediately trip the generator by opening the coil circuit of the Interconnection Contactor.
- l. CT ratios and accuracy classes shall be chosen such that secondary current is less than 100 amperes and transformation errors are less than 10% under maximum fault conditions.
- m. If the interconnection voltage requires, a voltage transformer shall be provided by the Facility and shall be connected to the Company side of the Interconnecting Breaker or Interconnecting Contactor. The voltage from this VT shall be used in the interlock as specified **above**. For three phase applications, a VT for each phase is required.
- n. All protective relays required by this Protection Policy shall meet ANSI/IEEE Standard C37.90, C37.90.1 and C37.90.2 and be of a manufacturer and type generally accepted for use by the Company.
- o. Voltage relays shall be frequency compensated to provide a uniform response in the range of 40 to 70Hz.
- p. Tripping by protective relays required to satisfy this Protection Policy must be hardwired to the device they are tripping. No interposing computer or programmable logic

controller or the like is permitted in the trip chain between the relay and the device being tripped.

- p. On three phase installations where voltage relaying is required by this Protection Policy, all three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company, the unit shall be tripped.
- q. The Facility shall provide an undervoltage relay sensing voltage, preferably on the Company's side of the Interconnection Breaker or Interconnection Contactor, which trips the Interconnection Breaker or Interconnection Contactor; provided, however, for single phase units, an undervoltage relay is not required, provided the generator is interconnected through a non-latching contactor whose coil is held by AC voltage from the Company's side of the contactor such that the contactor drops out and will not close in the absence of Company voltage.

**Requirements for Synchronous Generator (Type C) installations:**

Category 1 Facilities utilizing synchronous generators shall meet all the requirements that are applicable to synchronous generators for Category 2, 3, 4 and 5 Facilities.

**Category 2 Facilities**

**General Requirements:** The Facility shall provide a disconnect switch at the interconnection point with the Company that can be opened for isolation. The switch shall be in a location accessible to Company personnel at all times. The Company shall have the right to open this disconnect switch during emergency conditions and with reasonable notice to the Interconnecting Customer at other times. The Company shall exercise such right in accordance with Good Utility Practice. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch shall be of a type generally accepted for use by the Company.



**Requirements for Inverter-based (Type A) installations:**

- a. The Company's distribution circuits generally operate with automatic reclosing following a trip with automatic reclosing times as short as five seconds without regard to whether the Facility is keeping the circuit energized. The Facility is responsible for protecting its equipment from being re-connected out of synchronism with the Company's system by an automatic line reclosure operation.
- b. The following information must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Company's approving the Interconnecting Customer's request for interconnection:
  - X An electrical one line diagram or sketch depicting how the inverter will be interconnected relative to the service entrance panel and the electric meter.
  - X The make, model and manufacturer's specification sheet for the inverter.
- c. For Facilities that utilize photovoltaic technology, it is required that the system be installed in compliance with IEEE Standard 929-2000, "IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems". It is required that the inverter meet the Underwriters Laboratories Inc. Standard UL 1741, "Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems".
- d. For Facilities that utilize wind technology, fuel cell technology or other inverter-based systems, the inverter must meet the Underwriters Laboratories Inc. Standard UL 1741, "Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems".

**Requirements for Induction Generator (Type B) installations:**

- a. The following information must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Interconnecting Customer finalizing the Facility's protection design and the Company's approving the Interconnecting Customer's request for interconnection:
  - Three copies of a Facility one-line drawing.

- Three copies of a one-line drawing showing the relays, if required herein, and metering including current transformer (“CT”) and voltage transformer (“VT”) connections and ratios.
  - Three copies of a three-line drawing for three phase units or a two-line drawing for single phase units showing the AC connections to the relays, if required herein, and meters.
  - The generator nameplate information including rated voltage, rated current, power factor, HP/kW, rated speed and locked rotor current.
  - If the Facility owns the transformer between the Company and the Facility, the generator step up transformer nameplate information including rated voltage, rated kVA, proposed winding connections, positive sequence impedance plus zero sequence impedance and zero sequence equivalent circuit.
  - A list of protective relay equipment proposed to be furnished to conform to this Protection Policy including relay types, styles, manufacturer’s catalog numbers, ranges and descriptive bulletins. Three copies of applicable relay instruction manuals may also be required if the Company does not already possess them.
  - Schematic drawings showing the control circuits for the interconnection breaker(s) or contactor(s).
  - Specifications for CTs and VTs relevant to the interconnection including their make, model, accuracy class, ratio, and available taps.
  - The proposed grounding method for the stator winding of the generator.
  - Other information that may be determined by the Company as required for a specific interconnection.
- b. Relay settings for all Facility protective relays that affect the interconnection with the Company’s system must be submitted at least four weeks prior to the scheduled date for setting the relays for review and acceptance by the Company.
- c. A Facility using induction generator(s) connected in the vicinity of capacitance sufficient to self-excite the generator(s) must meet the requirements for synchronous machines of the same Category. The capacitors that enable self-excitation may actually be external to the Facility and may belong to the Company or to other customers of the Company. The

Company will not restrict the existing or future application of capacitors on its lines nor restrict their use by other customers to accommodate a Facility with induction machines.

- d. As changes occur in the location and size of capacitors, the Facility may be required in the future to upgrade its interface to meet the requirements for synchronous machines if self-excitation becomes possible even if not initially possible.
- e. A circuit breaker or contactor shall be installed to isolate the Facility from the Company's system ("Interconnection Breaker" or "Interconnection Contactor"). If there is more than one Interconnection Breaker or Interconnection Contactor, the requirements of this Protection Policy shall apply to each one individually.
- f. The Company will review the relay settings as submitted by the Interconnecting Customer to assure adequate protection for the Company's facilities. The Company shall not be responsible for the protection of the Facility's facilities. The Facility shall be responsible for protection of its system against possible damage resulting from parallel operation with the Company. If requested by the Interconnecting Customer, the Company will provide system protection information for the line terminal(s) directly related to the interconnection. This protection information is provided exclusively for use by the Interconnecting Customer in evaluating protection of the Facility's facilities during parallel operation.
- g. The Company reserves the right to specify the winding connections for the transformer between the Company's voltage and the Facility's voltage ("Step Up Transformer") as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company reserves the right to specify whether the generator stator is to be grounded or not grounded. The Interconnecting Customer shall be responsible for procuring equipment with a level of insulation and fault withstand capability compatible with the specified grounding method.
- h. In general, across the line starting of rotating machines is not permitted unless it can be demonstrated that the resultant voltage flicker is within the Company's limits for starting of similar sized motors. If an Interconnection Breaker or latching type contactor is to be tripped by protective relays to satisfy the requirements of this Protection Policy, then the

Interconnection Breaker or Interconnection Contactor control circuits shall be DC powered from a station battery or Company-approved equivalent.

- i. A control interlock scheme that detects voltage on the Company's line(s) shall be used to prevent the Facility from energizing or attempting to energize the Company's line(s). The logic for this scheme should be hardwired to prevent the Interconnection Breaker (or Interconnection Contactor where appropriate) from closing. No interposing computer or programmable logic controller or the like shall be used in this logic.
- j. The Facility shall provide a disconnect switch at the **interconnection point with the Company** that is accessible to Company personnel at all times that can be opened for isolation. The Company shall have the right to open this disconnect switch during emergency conditions and with reasonable notice to the Interconnecting Customer at other times. The Company shall exercise such right in accordance with Good Utility Practice. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch shall be of a manufacture and type generally accepted for use by the Company.
- k. Where protective relays are required by this Protection Policy, their control circuits shall be DC powered from a station battery. Solid-state relays shall be self-powered or DC powered from a station battery. If the Facility uses a non-latching interconnection contactor, AC powered relaying satisfying the requirements of this Protection Policy may be allowed provided the relay and its method of application is fail safe, meaning that if the relay fails or if the voltage and/or frequency of its AC power source deviate from the relay's design requirements for power, the relay will immediately trip the generator by opening the coil circuit of the Interconnection Contactor.
- l. CT ratios and accuracy classes shall be chosen such that secondary current is less than 100 amperes and transformation errors are less than 10% under maximum fault conditions.
- m. If the interconnection voltage requires, a voltage transformer shall be provided by the Facility and shall be connected to the Company side of the interconnecting breaker or contactor. The voltage from this VT shall be used in the interlock as specified **above**. For three phase applications, a VT for each phase is required.

- n. All protective relays required by this Protection Policy shall meet ANSI/IEEE Standard C37.90, C37.90.1 and C37.90.2 and be of a manufacturer and type generally accepted for use by the Company.
- o. Voltage relays shall be frequency compensated to provide a uniform response in the range of 40 to 70Hz.
- p. Tripping by protective relays required to satisfy the requirements of this Protection Policy must be hardwired to the device they are tripping. No interposing computer or programmable logic controller or the like is permitted in the trip chain between the relay and the device being tripped.
- q. On three phase installations where voltage relaying is required by this Protection Policy, all three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company, the unit shall be tripped.
- r. The Facility shall provide an undervoltage relay sensing voltage, preferably on the Company's side of the interconnection breaker or contactor, which trips the interconnection breaker or contactor.

**Requirements for Synchronous Generator (Type C) installations:**

Category 2 Facilities utilizing synchronous generators shall meet all the requirements that are applicable to synchronous generators for Category 3, 4 and 5 Facilities.

**CATEGORY 3, 4 and 5 Facilities**

**Protection related information**

- a. The following information must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Interconnecting Customer finalizing the Facility's protection design and the Company's approving the Interconnecting Customer's request for interconnection:
  - II Three copies of a station one-line drawing.

- Π Three copies of a one-line drawing showing the relays and metering including current transformer (CT) and voltage transformer (VT) connections and ratios.
- Π Three copies of a three-line drawing showing the AC connections to the relays and meters.
- Π If the Facility is a synchronous generator, the nameplate information including rated voltage, rated current, rated kVA and power factor plus transient, sub-transient and synchronous impedances and zero sequence impedance.
- Π If the Facility is an induction generator, the nameplate information including rated voltage, rated current, power factor, HP/kW, rated speed, locked rotor current, stator reactance, stator resistance, rotor reactance, rotor resistance and magnetizing reactance.
- Π If the Facility owns the transformer between the Company and the Facility, the nameplate information including rated voltage, rated kVA, proposed winding connections, positive sequence impedance plus zero sequence impedance and zero sequence equivalent circuit.
- A list of protective relay equipment proposed to be furnished to conform to this Protection Policy including relay types, styles, manufacturer's catalog numbers, ranges and descriptive bulletins. Three copies of applicable relay instruction manuals may also be required if the Company does not already possess them.
- Π Schematic drawings showing the control circuits for the interconnection breaker(s) and synchronizing breaker(s).
- Π Specifications for CTs and VTs relevant to the interconnection including their make, model, accuracy class, ratio, and available taps.
- Π Interconnection breaker operating time if it is tripped by protective relays required by this Protection Policy.
- Π The proposed grounding method for the stator winding.
- Π Other information that may be determined by the Company as required for a specific interconnection.

- b. Relay settings for all Facility protective relays that affect the interconnection with the Company's system must be submitted at least four weeks prior to the scheduled date for setting the relays for review and acceptance by the Company.
- c. If, due to the interconnection of the Facility to the line, the fault interrupting, continuous, momentary or other rating of any of the Company's equipment or the equipment of other customers connected to the Company's system is exceeded, the Company shall have the right to require the Interconnecting Customer to pay for the purchase, installation, replacement or modification of equipment to eliminate the condition. Likewise, when the proposed interconnection may result in reversed load flow through the Company's load tap changing transformer(s), line voltage regulator(s) or secondary network protector(s), control modifications necessary to mitigate the effects may be made to these devices by the Company at the Interconnecting Customer's expense or the Facility may be required to limit its output so reverse load flow cannot occur or to provide reverse power relaying that trips the Facility. Where such action is deemed necessary by the Company, the Company will, where possible, permit the Interconnecting Customer to choose among two or more options for meeting the Company's requirements as described in this Protection Policy.

### **Protection requirements**

- a. A circuit breaker shall be installed to isolate the Facility from the Company's system ("Interconnection Breaker"). If there is more than one Interconnection Breaker, the requirements of this Protection Policy apply to each one individually.
- b. The Interconnecting Customer shall designate one or more breakers to be used to synchronize the Facility's generator to the Company's system. This "synchronizing breaker" could be a breaker other than the Interconnection Breaker. In some induction generator applications a contactor may serve this function.
- c. The Company's lines generally have automatic reclosing following a trip with reclosing times as short as five seconds without regard to whether the Facility is keeping the circuit energized. The Interconnecting Customer is responsible for protecting the Facility's

equipment from being re-connected out of synchronism with the Company's system by an automatic line reclosure operation. The Interconnecting Customer may choose to install additional equipment such as direct transfer tripping from the Company's station(s) to insure the Facility is off the line prior to the line reclosing. However this option is not feasible in all cases, particularly where the Company uses pole-mounted reclosers between its substation and the Facility.

- d. The Company will review the relay settings as submitted by the Interconnecting Customer to assure adequate protection for the Company's facilities. The Company shall not be responsible for the protection of the Facility's facilities. The Interconnecting Customer shall be responsible for protection of the Facility's system against possible damage resulting from parallel operation with the Company. If requested by the Interconnecting Customer, the Company will provide system protection information for the line terminal(s) directly related to the interconnection. This protection information is provided exclusively for use by the Interconnecting Customer in evaluating protection of the Facility's facilities during parallel operation.
- e. The Company reserves the right to specify the winding connections for the transformer between the Company's voltage and the Facility's voltage ("Step Up Transformer") as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company also reserves the right to specify if and how the generator stator is to be grounded. The Facility will be responsible for procuring its equipment with a level of insulation and fault withstand capability compatible with the specified grounding method.
- f. Across the line starting of rotating machines is not permitted unless it can be demonstrated that the resultant voltage flicker is within the Company's limits for starting of similar sized motors.

#### **Protection equipment requirements**

- a. Where the Interconnection Breaker (or Interconnection Contactor as may be the case with some smaller induction machines) is to be tripped by protective relays required to meet the



requirements of this Protection Policy then the Interconnection Breaker (or Interconnection Contactor) control circuits shall be DC powered from a station battery.

- b.** The synchronizing breaker(s) must be capable of withstanding at least twice rated system voltage and must be capable of interrupting the current produced when the Facility is connected out of phase with the Company's system.
- c.** A control interlock scheme that detects voltage on the Company's line(s) shall be used to prevent the Facility from energizing or attempting to energize the Company's line(s). The logic for this scheme should be hardwired to prevent the synchronizing breaker, Interconnection Breaker (or Interconnection Contactor where appropriate) from closing. No interposing computer or programmable logic controller or the like is to be used in this logic.
- d.** The Facility shall be equipped with a switch at the interconnection point with the Company that can be opened for isolation. The Company shall have the right to open the interconnection during emergency conditions and with reasonable notice to the Interconnecting Customer at other times. The Company shall exercise such right in accordance with Good Utility Practice. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The switch shall be of a manufacture and type generally accepted for use by the Company.
- e.** Protective relaying control circuits shall be DC powered from a station battery. Solid-state relays shall be self-powered or DC powered from a station battery.
- f.** CT ratios and accuracy classes shall be chosen such that secondary current is less than 100 amperes and transformation errors are less than 10% under maximum fault conditions.
- g.** The Facility shall be equipped with a voltage transformer, connected to the Company side of the interconnecting breaker. The voltage from this VT shall be used in the interlock as specified in this Protection Policy. If the Facility's step up transformer is ungrounded at the Company voltage, this VT shall be a single three-phase device or three single-phase devices connected from each phase to ground on the Company's side of the Facility's step up transformer, rated for phase-to-phase voltage and provided with two secondary

windings. One winding shall be connected in open delta, have a loading resistor to prevent ferroresonance, and be used for the relay specified in this Protection Policy.

- h. All protective relays required by this Protection Policy shall meet ANSI/IEEE Standard C37.90, C37.90.1 and C37.90.2 and be of a manufacture and type generally accepted for use by the Company.
- i. Voltage relays shall be frequency compensated to provide a uniform response in the range of 40 to 70Hz.
- j. Protective relays utilized by the Facility as required per this Protection Policy shall be sufficiently redundant and functionally separate so as to provide adequate protection, as determined by the Company, upon the failure of any one component. The use of a single all-inclusive relay package is not acceptable.
- k. The Company may require the Facility to be equipped with two independent, redundant relaying systems in accordance with NPCC criteria for the protection of the bulk power system if the interconnection is to the bulk power system or if it is determined that delayed clearing of faults within the Facility adversely affects the bulk power system.
- l. A direct transfer tripping system, if one is required by either the Interconnecting Customer or by the Company, shall use equipment generally accepted for use by the Company and shall, at the option of the Company, use dual channels.
- m. Tripping by protective relays required to satisfy the requirements of this Protection Policy must be hardwired to the device they are tripping. No interposing computer or programmable logic controller or the like is permitted in the trip chain between the relay and the device being tripped.
- n. On three phase installations when voltage relaying is required by this Protection Policy, all three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company the unit shall be tripped.

**Requirements for Induction Generator (Type B) installations**

- a.** A Facility using induction generators connected in the vicinity of capacitance sufficient to self-excite the generator(s) shall meet the requirements for synchronous machines in this Protection Policy. The capacitors that enable self-excitation may actually be external to the Facility. The Company will not restrict its existing or future application of capacitors on its lines nor restrict their use by other customers of the Company to accommodate a Facility with induction machines. As changes occur in the location and size of capacitors, the Facility may be required in the future to upgrade its interface to meet the requirements for synchronous machines if self-excitation becomes possible, even if not initially possible.

The Facility may be required to install capacitors to limit the adverse effects of drawing reactive power from the system for excitation of the generator. Capacitors for supply of reactive power at or near the induction generator with a kVAR rating greater than 30% of the generator's kW rating may cause the generator to become self-excited. (If self-excitation can occur, the Facility shall be required to provide protection as specified in this Protection Policy for synchronous machines.)

- b.** The Facility shall be equipped with the following relays for island detection supplied from a voltage transformer that may be connected to either the generator or Company voltage:

	<u>minimum setting range</u>	<u>minimum time delay range</u>
X overfrequency	60 - 62Hz	.1 - 2 secs
X underfrequency	60 - 58Hz	.1 - 2 secs
X overvoltage	105 - 115% normal	.1 - 4 secs
X undervoltage	85 - 95% normal	.1 - 4 secs

- c.** During system conditions where local area load exceeds system generation, NPCC Emergency Operation Criteria requires a program of phased automatic underfrequency load shedding of up to 25% of area load to assist in arresting frequency decay and to minimize the possibility of system collapse. Depending on the point of connection of the

Facility to the Company's system and in conformance with the NPCC Emergency Operating Criteria, the Facility may be required to remain connected to the system during the frequency decline to allow the objectives of the automatic load shedding program to be achieved, or to otherwise provide compensatory load reduction, equivalent to the Facility's generation lost to the system, if the Interconnecting Customer elects to disconnect the Facility at a higher underfrequency set point.

### **Requirements for Synchronous Generator (Type C) installations**

- a. A synchronous generator is a source of current for faults occurring on the Company's line(s). The Facility must be equipped with protective relays to detect any faults, whether phase-to-phase or phase-to-ground, on the Company's line(s) or within the Facility, and isolate the Facility from the Company's line(s) such that the following criteria are met, as determined by the Company:
- X The existing sensitivity of fault detection is not substantially degraded.
  - X The existing speed of fault clearing is not substantially degraded.
  - X The coordination margin between relays is not substantially reduced.
  - X The sustained unfaulted phase voltage during a line-to-ground fault is not increased beyond the design value for the existing system insulation levels and overvoltage protection.
  - X Non-directional line relays will not operate for faults external to the line due to the Facility's contribution.
  - X Proper settings for existing relays are achievable within their ranges.

The Company may perform engineering studies to evaluate the Facility's protection compliance with respect to the above and may make recommendations to the Interconnecting Customer on methods to achieve compliance. If, due to the interconnection of the Facility to the Company's system, any of the above criteria is violated for the Company's facilities or for the facilities of others connected to the Company's system, the Company shall have the right to require the Interconnecting

Customer to pay for the purchase, installation, replacement or modification of protective equipment to eliminate the violation and restore the level of protection existing prior to the interconnection. This may include the addition of pilot relaying systems involving communications between all terminals. Where such action is deemed necessary by the Company, the Company will, where possible, permit the Interconnecting Customer to choose among two or more options for meeting the Company's requirements as described in this Protection Policy.

- b.** The Interconnecting Customer is responsible for procuring any communications channels necessary between the Facility and the Company's stations and for providing protection from transients and overvoltages at all ends of these communication channels. The Interconnecting Customer will also bear the ongoing cost to lease these communication channels.
- c.** If the Facility's step up transformer connection is ungrounded, the Facility shall be equipped with a zero sequence overvoltage relay fed from the open delta of the three phase VT specified in this Protection Policy.
- d.** The Facility shall be equipped to provide protection to limit sustained abnormal frequency and/or voltage conditions to the Company's customers directly supplied from the interconnection circuit should the Facility and its interconnection circuit become isolated from the Company's system. The protection can consist of either the following relays supplied from a voltage transformer connected to either the generator or the Company's voltage or other means if the Facility can demonstrate sufficient control of abnormal frequency and voltage excursions as seen by the Company's customers:

	<u>minimum setting range</u>	<u>minimum time delay range</u>
X overfrequency	60 - 62Hz	.1 - 2 secs
X underfrequency	60 - 56Hz	.5 - 30 secs
X overvoltage	105 - 115% normal	.1 - 4 secs
X undervoltage	85 - 95% normal	.1 - 4 secs

- e. During system conditions where local area load exceeds system generation, NPCC Emergency Operation Criteria requires a program of phased automatic underfrequency load shedding of up to 25% of area load to assist in arresting frequency decay and to minimize the possibility of system collapse. Depending on the point of connection of the Facility to the Company's system and in conformance with the Emergency Operating Criteria, the Facility may be required to remain connected to the system during the frequency decline to allow the objectives of the automatic load shedding program to be achieved, or to otherwise provide compensatory load reduction, equivalent to the Facility's generation lost to the system, if the Interconnecting Customer elects to disconnect the Facility at a higher underfrequency set point.
- e. The Facility may be required to use high-speed protection if time-delayed protection would result in degradation in the existing sensitivity or speed of the protection systems on the Company's lines.
- g. The Facility may be required to be equipped to provide local breaker failure protection which may include direct transfer tripping to the Company's line terminal(s) in order to detect and clear faults within the Facility that cannot be detected by the Company's back-up protection.
- h. The Facility shall be equipped to provide protective relaying to prevent the closing of the synchronizing breaker(s) while the Facility's generation is out-of-synchronization with the Company's system.

## **II Protection System Testing and Maintenance**

The Company shall have the right to witness the testing of selected protective relays and control circuits at the completion of construction and to receive a copy of all test data.

The Interconnecting Customer shall provide the Company with at least a one week notice prior to the final scheduling of these tests. Testing shall consist of:

- X CT and CT circuit polarity, ratio, insulation, excitation, continuity and burden tests.
- X VT and VT circuit polarity, ratio, insulation and continuity tests.

- X Relay pick-up and time delay tests.
- X Functional breaker trip tests from protective relays.
- X Relay in-service test to check for proper phase rotation and magnitudes of applied currents and voltages.
- X Breaker closing interlock tests.
- X Paralleling and de-paralleling operation.
- X Other relay commissioning tests typically performed for the relay types involved.
- X An inverter with field adjustable settings for its internal protective elements shall be tested to verify these settings if those internal elements are being used by the Facility to satisfy the requirements of this Protection Policy . The Facility shall be equipped with whatever equipment is required to perform this test. If a Asimulated utility≅ is required to perform such testing the Company is unable to provide the equipment required to perform the test.

The protective relays shall be tested and maintained by the Interconnecting Customer on a periodic basis but not less than once every four years or as otherwise determined by the Company. For relays installed in accordance with the NPCC Criteria for the Protection of the Bulk Power System, maintenance intervals shall be in accordance with such criteria. The results of these tests shall be summarized by the Interconnecting Customer and reported in writing to the Company.

Inverters with field adjustable settings for their internal protective elements shall be periodically tested if those internal elements are being used by the Facility to satisfy the requirements of this Protection Policy. If a Asimulated utility≅ is required to perform such testing the Company is unable to provide the equipment required to perform the test.

In its sole discretion, the Company may waive all or some of these requirements.

### **III. Protection Requirements – Momentary Paralleling of Standby Generators**

Protective relays to isolate the Facility for faults in the Company's system are not required if the paralleling operation is automatic and takes place for less than one-half of a second.

Parallel operation of the Facility with the Company's system shall be prevented when the Company's line is dead or out of phase with the Facility.

The control scheme for automatic paralleling must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Facility being allowed to interconnect with the Company's system.

#### **IV. Protection System Changes**

The Interconnecting Customer must provide the Company with reasonable advance notice of any proposed changes to be made to the protective relay system, relay settings, operating procedures or equipment that affect the interconnection. The Company will determine if such proposed changes require re-acceptance of the interconnection per the requirements of this Protection Policy.

In the future, should the Company implement changes to the system to which the Facility is interconnected, the Interconnecting Customer will be responsible at its own expense for identifying and incorporating any necessary changes to its protection system. These changes to the Facility's protection system are subject to review and approval by the Company.

In its sole discretion, the Company may waive all or some of these requirements.



## EXHIBIT 4

### Form of Distribution Facilities Impact Study Agreement

This Agreement dated \_\_\_\_\_, is entered into by  
(the Interconnecting Customer) and the Company, for the purpose of setting forth the terms,  
conditions and costs for conducting a Distribution Facilities Impact Study relative to

\_\_\_\_\_.

1. The Interconnecting Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for the Company to conduct the Distribution Facilities Impact Study. The Interconnecting Customer understands that it must provide all such information and data prior to the Company's commencement of the Distribution Facilities Impact Study. Such information and technical data is specified in Attachment 1 to this Agreement.
2. All work pertaining to the Distribution Facilities Impact Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Interconnecting Customer. Each party shall inform the other in writing of its designated and authorized representative.
3. The Company will advise the Interconnecting Customer of any additional studies as it may in its sole discretion deem necessary, in accordance with Good Utility Practice. The Company will not proceed with additional studies without the Interconnecting Customer's consent.
4. The Company contemplates that it will require [specify time] to complete the Distribution Facilities Impact Study. Upon completion of the Distribution Facilities Impact Study by the Company, the Company will provide a Distribution Facilities Impact Study Report to

the Interconnecting Customer based on the information provided and developed as a result of this effort. If, upon review of the Distribution Facilities Impact Study Report, the Interconnecting Customer decides to pursue its interconnection request, the Company will, at the Interconnecting Customer's direction, tender a Distribution Facilities Detailed Study Agreement within thirty (30) days if deemed additionally necessary by the Company. The Distribution Facilities Impact Study and Distribution Facilities Detailed Study, together with any additional studies contemplated in Paragraph 3, shall form the basis for the Interconnecting Customer's proposed use of the Company's Distribution System and shall be furthermore utilized in obtaining necessary third-party approvals of any required facilities and requested distribution services. The Interconnecting Customer understands and acknowledges that any use of study results by the Interconnecting Customer or its agents, whether in preliminary or final form, prior to NEPOOL 18.4 approval, should such approval be required, is completely at the Interconnecting Customer's risk and that the Company will not guarantee or warrant the completeness, validity or utility of study results prior to NEPOOL 18.4 approval.

5. The estimated costs contained within this Agreement are the Company's good faith estimate of its costs to perform the Distribution Facilities Impact Study contemplated by this Agreement. The Company's estimates do not include any estimates for wheeling charges that may be associated with the transmission of Facility output to third parties or with rates for station service. The actual costs charged to the Interconnecting Customer by the Company may change as set forth in this Agreement. Prepayment will be required for all study, analysis, and review work performed by the Company or its Affiliate, all of which will be billed by the Company to the Interconnecting Customer in accordance with Paragraph 6 of this Agreement.
  
6. The payment required is \$\_\_\_\_\_ from the Interconnecting Customer to the Company for the primary system analysis, coordination, and monitoring of the Distribution Facilities Impact Study. Such amount shall be payable in full to the Company prior to the Company beginning the work. The Company will, in writing, advise the Interconnecting Customer

in advance of any cost increases for work to be performed if the total amount increases by 10% or more. Any such changes to the Company's costs for the study work shall be subject to the Interconnecting Customer's consent. The Interconnecting Customer shall, within thirty (30) days of the Company's notice of increase, either authorize such increases and make payment in the amount set forth in such notice, or the Company will suspend the Distribution Facilities Impact Study and this Agreement will terminate. Upon suspension of the Distribution Facilities Impact Study, the parties may petition the Massachusetts Department of Telecommunications and Energy, to review the cost increase, pursuant to 220 CMR 8.04(3).

In the event this Agreement is terminated for any reason, the Company shall refund to the Interconnecting Customer the portion of the above credit or any subsequent payment to the Company by the Interconnecting Customer that the Company did not expend or commit in performing its obligations under this Agreement. Any additional billings under this Agreement shall be subject to an interest charge computed in accordance with the provisions of the Interconnection Requirements Document. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 7 below.

7. If the actual costs for the work exceed prepaid estimated costs, the Interconnecting Customer shall make payment to the Company for such actual costs within thirty (30) days of the date of the Company's invoice for such costs. If the actual costs for the work are less than those prepaid, the Company will credit such difference toward the Company costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned to the Interconnecting Customer with interest computed as stated in Paragraph 6 of this Agreement, from the date of reconciliation.
8. Nothing in this Agreement shall be interpreted to give the Interconnecting Customer immediate rights to wheel over or interconnect with the Company's Distribution System.

9. Within one (1) year following the Company's issuance of a final bill under this Agreement, the Interconnecting Customer shall have the right to audit the Company's accounts and records at the offices where such accounts and records are maintained, during normal business hours; provided that appropriate notice shall have been given prior to any audit and provided that the audit shall be limited to those portions of such accounts and records that relate to service under this Agreement. The Company reserves the right to assess a reasonable fee to compensate for the use of its personnel time in assisting any inspection or audit of its books, records or accounts by the Interconnecting Customer or its Designated Agent.
10. The Interconnecting Customer agrees to indemnify and hold the Company and its affiliated companies and directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including attorney's fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen as a result of any acts or omissions by the Company or its Affiliates under this Agreement. The Interconnecting Customer hereby waives recourse against the Company and its Affiliates for, and releases the Company and its Affiliates from, any and all Liabilities for or arising from damage to its property due to a performance under this Agreement by the Company or its Affiliates.
11. If either party materially breaches any of its covenants hereunder, the other party may terminate this Agreement by serving notice of same on the other party to this Agreement.
12. This agreement shall be construed and governed in accordance with the laws of the Commonwealth of Massachusetts and with 220 C.M.R. §8.00 et seq.
13. All amendments to this Agreement shall be in written form executed by both parties.

14. The terms and conditions of this Agreement shall be binding on the successors and assigns of either party.
  
15. This Agreement will remain in effect for a period of up to two years from its effective date as permitted by the Massachusetts Department of Telecommunications and Energy, and is subject to extension by mutual agreement. Either party may terminate this Agreement by thirty (30) days' notice except as is otherwise provided herein.

Interconnecting Customer:

The Company:

Name: \_\_\_\_\_

Name:

Title: \_\_\_\_\_

Title:

Date: \_\_\_\_\_

Date:

## Attachment 1

### Information to be Provided to the Company by the Interconnecting Customer for the Distribution Facilities Impact Study

*Note: For Category 1, 2 or 3 Facilities, the Company will accept the material requested in Exhibit 3 in lieu of the information requested in this attachment.*

#### 1.0 Facilities Identification

- 1.1 Requested capability in MW and MVA; summer and winter
- 1.2 Site location and plot plan with clear geographical reference
- 1.3 Preliminary one-line diagram showing major equipment and extent of Interconnecting Customer
- 1.4 Auxiliary power system requirements
- 1.5 Back-up facilities such as standby generation or alternate supply sources

#### 2.0 Major Equipment

- 2.1 Power transformer(s): rated voltage, MVA and BIL of each winding, LTC and or NLTC taps and range,  $Z_1$  (positive sequence) and  $Z_0$  (zero sequence) impedances, and winding connections. Provide normal, long-time emergency and short-time emergency thermal ratings.
- 2.2 Generator(s): rated MVA, speed and maximum and minimum MW output, reactive capability curves, open circuit saturation curve, power factor (V) curve, response (ramp) rates, H (inertia), D (speed damping), short circuit ratio,  $X_1$  (leakage),  $X_2$  (negative sequence), and  $X_0$  (zero sequence) reactances and other data:

Direct

Quadrature

	Axis	Axis
saturated synchronous reactance	$X_{dv}$	$X_{qv}$
unsaturated synchronous reactance	$X_{di}$	$X_{qi}$
saturated transient reactance	$X_{=dv}$	$X_{=qv}$
unsaturated transient reactance	$X_{=di}$	$X_{=qi}$
saturated subtransient reactance	$X_{\cong dv}$	$X_{\cong qv}$
unsaturated subtransient reactance	$X_{\cong di}$	$X_{\cong qi}$
transient open-circuit time constraint	$T_{=do}$	$T_{=qo}$
transient short-circuit time constraint	$T_{=d}$	$T_{=q}$
subtransient open-circuit time constraint	$T_{\cong do}$	$T_{\cong qo}$
subtransient short-circuit time constraint	$T_{\cong d}$	$T_{\cong q}$

- 2.3 Excitation system, power system stabilizer and governor: manufacturer's data in sufficient detail to allow modeling in transient stability simulations.
- 2.4 Prime mover: manufacturer's data in sufficient detail to allow modeling in transient stability simulations, if determined necessary.
- 2.5 Busses: rated voltage and ampacity (normal, long-time emergency and short-time emergency thermal ratings), conductor type and configuration.
- 2.6 Transmission lines: overhead line or underground cable rated voltage and impeached (normal, long-time emergency and short-time emergency thermal rates),  $Z_1$  (positive sequence) and  $Z_0$  (zero sequence) impedances, conductor type, configuration, length and termination points.
- 2.7 Motors greater than 150 kWh 3-phase or 50 kW single-phase: type (induction or synchronous), rated hp, speed, voltage and current, efficiency and power factor at

2, 3/4 and full load, stator reactance and reactance, rotor reactance and reactance, magnetizing reactance.

2.8 Circuit breakers and switches: rated voltage, interrupting time and continuous, interrupting and momentary currents. Provide normal, long-time emergency and short-time emergency thermal ratings.

2.9 Protective relays and systems: ANSI function number, quantity manufacturer's catalog number, range, descriptive bulletin, tripping diagram and three-line diagram showing AC connections to all relaying and metering.

2.10 CTs and VTs: location, quantity, rated voltage, current and ratio.

2.11 Surge protective devices: location, quantity, rated voltage and energy capability.

### 3.0 Other

3.1 Additional data to perform the Distribution Facilities Impact Study will be provided by the Interconnecting Customer as requested by the Company.

3.2 The Company reserves the right to require specific equipment settings or characteristics necessary to meet NEPOOL and NPCC criteria and standards.



## EXHIBIT 5

### Form of Distribution Facilities Detailed Study Agreement

This agreement dated \_\_\_\_\_, is entered into by  
(the Interconnecting Customer) and the Company for the purpose of setting forth the terms,  
conditions and costs for conducting a Distribution Facilities Detailed Study relative to  
\_\_\_\_\_. The Distribution Facilities Detailed Study will  
determine the detailed engineering, design and cost of the facilities necessary to satisfy the  
Interconnecting Customer's request for service interconnecting with the Company's Distribution  
System.

1. The Interconnecting Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for the Company to conduct the Distribution Facilities Detailed Study. Where such information and technical data was provided for the Distribution Facilities Impact Study, it should be reviewed and updated with current information, as required.
2. All work pertaining to the Distribution Facilities Detailed Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Interconnecting Customer. Each party shall inform the other in writing of its designated and authorized representative.
3. The Company will advise the Interconnecting Customer of additional studies, as in its sole discretion deem necessary, in accordance with Good Utility Practice. The Company will not proceed with additional studies without the Interconnecting Customer's consent.
4. The Company contemplates that it will require [specify time] to complete the Distribution Facilities Detailed Study. Upon completion of the Distribution Facilities Detailed Study, the Company will provide a Distribution Facilities Detailed Study Report to the Interconnecting Customer based on the information provided and developed as a result of

this effort. If, upon review of the Distribution Facilities Detailed Study Report, the Interconnecting Customer decides to pursue its interconnection service request, the Interconnecting Customer must sign an Interconnection Service Agreement with the Company. The Distribution Facilities Impact Study and Distribution Facilities Detailed Study, together with any additional studies contemplated in Paragraph 3, shall form the basis for the Interconnecting Customer's proposed use of the Company's Distribution System and shall be furthermore utilized in obtaining necessary third-party approvals of any facilities and requested services. The Interconnecting Customer understands and acknowledges that any use of the study results by the Interconnecting Customer or its agents, whether in preliminary or final form should such approval be required, prior to NEPOOL 18.4 approval, is completely at the Interconnecting Customer's risk and that the Company will not guarantee or warrant the completeness, validity or utility of the study results prior to NEPOOL 18.4 approval.

5. The estimated costs contained within this Agreement are the Company's good faith estimate of its costs to perform the Distribution Facilities Detailed Study contemplated by this Agreement. The Company's estimates do not include any estimates for wheeling charges that may be associated with the transmission of Facility output to third parties or with rates for station service. The actual costs charged to the Interconnecting Customer by the Company may change as set forth in this Agreement. Prepayment will be required for all study, analysis, and review work performed by the Company or its Designated Agent's personnel, all of which will be billed by the Company to the Interconnecting Customer in accordance with Paragraph 6 of this Agreement.
6. The payment required is \$\_\_\_\_\_ from the Interconnecting Customer to the Company for the primary system analysis, coordination, and monitoring of the Distribution Facilities Detailed Study to be performed by the Company for the Interconnecting Customer's requested service. Such amount shall be payable in full to the Company prior to the Company beginning the work. The Company will, in writing, advise the Interconnecting Customer in advance of any cost increases for work to be performed if the total amount

increases by 10% or more. Any such changes to the Company's costs for the study work to be performed shall be subject to the Interconnecting Customer's consent. The Interconnecting Customer shall, within thirty (30) days of the Company's notice of increase, either authorize such increases and make payment in the amount set forth in such notice, or the Company will suspend the Distribution Facilities Detailed Study and this Agreement will terminate.

In the event this Agreement is terminated for any reason, the Company shall refund to the Interconnecting Customer the portion of the above credit or any subsequent payment to the Company by the Interconnecting Customer that the Company did not expend or commit in performing its obligations under this Agreement. Any additional billings under this Agreement shall be subject to an interest charge computed in accordance with the provisions of the **Interconnection Requirements Document**. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 7 below.

7. If the actual costs for the work exceed prepaid estimated costs, the Interconnecting Customer shall make payment to the Company for such actual costs within thirty (30) days of the date of the Company's invoice for such costs. If the actual costs for the work are less than that prepaid, the Company will credit such difference toward the Company costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned to the Interconnecting Customer with interest computed in accordance with the provisions of the Interconnection Requirements Document.
8. Nothing in this Agreement shall be interpreted to give the Interconnecting Customer immediate rights to wheel over or interconnect with the Company's Distribution System.
9. Within one (1) year following the Company's issuance of a final bill under this Agreement, the Interconnecting Customer shall have the right to audit the Company's accounts and records at the offices where such accounts and records are maintained, during normal business hours; provided that appropriate notice shall have been given prior to any audit

and provided that the audit shall be limited to those portions of such accounts and records that relate to service under this Agreement. The Company reserves the right to assess a reasonable fee to compensate for the use of its personnel time in assisting any inspection or audit of its books, records or accounts by the Interconnecting Customer or its Designated Agent.

10. The Interconnecting Customer agrees to indemnify and hold the Company and its affiliated companies and directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including attorney's fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen as a result of any acts or omissions of the Company or its Affiliates under this Agreement. The Interconnecting Customer hereby waives recourse against the Company and its Affiliates for, and releases the Company and its Affiliates from, any and all Liabilities for or arising from damage to its property due to a performance under this Agreement by the Company or its Affiliates.
11. If either party materially breaches any of its covenants hereunder, the other party may terminate this Agreement by serving notice of same on the other party to this Agreement.
12. This agreement shall be construed and governed in accordance with the laws of the Commonwealth of Massachusetts and with 220 C.M.R. §8.00 et seq.
13. All amendments to this Agreement shall be in written form executed by both parties.
14. The terms and conditions of this Agreement shall be binding on the successors and assigns of either party.

15. This Agreement will remain in effect for a period of up to two years from its effective date and is subject to extension by mutual agreement. Either party may terminate this Agreement by thirty (30) days' notice except as is otherwise provided herein.

Interconnecting Customer:

The Company:

Name: \_\_\_\_\_

Name:

Title: \_\_\_\_\_

Title:

Date: \_\_\_\_\_

Date:

**EXHIBIT 6**  
**Insurance Requirements**

These Insurance Requirements apply to all Category 2 Facilities, except Category 2 Facilities that are Net Metered, and all Category 3, 4, and 5 Facilities. The Interconnecting Customer, at its own cost and expense, shall procure and maintain insurance in the forms and amounts acceptable to the Company at the following minimum levels of coverage:

- a) For Category 2 Facilities installed at a residential location:
  - Comprehensive General Liability Coverage including Operations, Contractual Liability and Broad Form Property Damage Liability written with limits no less than \$1,000,000.00 combined single limit for Bodily Injury Liability and Property Damage Liability.
  
- b) For Category 2 Facilities installed at a non-residential location and for all Category 3, 4 and 5 Facilities:
  - Statutory coverage for workers' compensation, and Employer's Liability Coverage with a limit no less than \$500,000.00 per accident;
  - Comprehensive General Liability Coverage including Operations, Contractual Liability and Broad Form Property Damage Liability written with limits no less than \$5,000,000.00 combined single limit for Bodily Injury Liability and Property Damage Liability; and
  - Automobile Liability for Bodily Injury and Property Damage to cover all vehicles used in connection with the work with limits no less than \$1,000,000.00 combined single limit for Bodily Injury and Property Damage Injury.

Prior to commencing the work on a Category 2 Facility at a residential location, the Interconnecting Customer shall have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above.

Prior to commencing the work on a Category 2 Facility at a non-residential location or on a category 3, 4 or 5 Facility, the Interconnecting Customer shall have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above and the Interconnecting Customer shall notify and send copies to the Company of any policies maintained hereunder written on a "claims-made" basis. The Company may at its discretion require the Interconnecting Customer to maintain tail coverage for five years on all policies written on a "claims-made" basis.

Every contract of insurance providing the coverages required in this provision shall contain the following or equivalent clause: "No reduction, cancellation or expiration of the policy shall be effective until thirty (30) days from the date written notice thereof is actually received by the Interconnecting Customer.≡ Upon receipt of any notice of reduction, cancellation or expiration, the Interconnecting Customer shall immediately notify the Company.

The Company and its Affiliates shall be named as additional insureds, as their interests may appear, on the Comprehensive General Liability and Automobile Liability policies described above.

The Interconnecting Customer shall waive all rights of recovery against the Company for any loss or damage covered by said policies. Evidence of this requirement shall be noted on all certificates of insurance provided to the Company.

## **Attachment 4**



Massachusetts Electric Company

Nantucket Electric Company

d/b/a National Grid

Standards for Interconnecting Distributed Generation

M.D.T.E. No. 1088

Canceling M.D.T.E. No. 1071-C

Effective: January 14, 2006

# TABLE OF CONTENTS

<b>1.0 Introduction.....</b>	<b>1</b>
1.1 Applicability.....	1
1.2 Definitions.....	1
1.3 Forms and Agreements .....	4
<b>2.0 Basic Understandings.....</b>	<b>6</b>
<b>3.0 Process Overview .....</b>	<b>7</b>
3.1 Simplified Process .....	7
3.2 Expedited Process.....	8
3.3 Standard Process.....	10
3.4 Time Frames.....	12
3.5 Fee Schedules.....	12
Figure 1 – Schematic of Massachusetts DG Interconnection Process.....	13
Figure 2 – Simplified Interconnection to Networks.....	14
Table 1 – Time Frames (Note 1) .....	18
Table 2 – Fee Schedules .....	19
<b>4.0 Interconnection Requirements .....</b>	<b>22</b>
4.1 General Design Considerations .....	22
4.1.1 Transient Voltage Conditions .....	22
4.1.2 Noise and Harmonics .....	22
4.1.3 Frequency .....	22
4.1.4 Voltage Level.....	23
4.1.5 Machine Reactive Capability.....	23
4.2 Protection Requirements for New or Modified Facility Interconnections with the EPS .....	23
4.2.1 General Requirements .....	23
4.2.2 Facility Classification.....	24
4.2.3 Protection Requirements.....	24
4.2.3.1 Group 1 Facilities .....	27
4.2.3.2 Group 2 Facilities .....	28
4.2.3.2.1 General Requirements.....	28
4.2.3.2.2 Requirements for Induction and Synchronous Generator Facilities.....	29
4.2.3.2.3 Additional Requirements for Induction Generator Facilities.....	30
4.2.3.2.4 Additional Requirements for Synchronous Generator Facilities.....	31
4.2.4 Protection System Testing and Maintenance .....	31
4.2.5 Protection Requirements – Momentary Paralleling of Standby Generators.....	32
4.2.6 Protection System Changes.....	32
<b>5.0 Responsibility for Costs of Interconnecting a Facility .....</b>	<b>33</b>
5.1 Review and Study Costs.....	33
5.2 Interconnection Equipment Costs.....	33
5.3 System Modification Costs.....	33
5.4 Separation of Costs .....	33
5.5 Normal Payment Procedure.....	33
5.6 Security and Creditworthiness.....	33
<b>6.0 Operating Requirements .....</b>	<b>35</b>
6.1 General Operating Requirements.....	35
6.2 No Adverse Effects; Non-interference .....	35
6.3 Safe Operations and Maintenance.....	35
6.4 Access .....	36
6.4.1 Company and Interconnecting Customer Representatives.....	36
6.4.2 Company Right to Access Company-Owned Facilities and Equipment.....	36
6.4.3 Right to Review Information .....	36
<b>7.0 Disconnection .....</b>	<b>37</b>
7.1 Temporary Disconnection .....	37
7.2 Permanent Disconnection.....	38

<b>8.0 Metering, Monitoring, and Communication .....</b>	<b>39</b>
8.1 Metering, Related Equipment and Billing Options .....	39
8.2 Additional Monitoring and Communication Requirements.....	41
<b>9.0 Dispute Resolution Process.....</b>	<b>42</b>
9.1 Good Faith Negotiation.....	42
9.2 Mediation/Non-binding Arbitration.....	42
9.3 Department Adjudicatory Hearing.....	43
<b>10.0 Confidentiality Statement.....</b>	<b>45</b>
<b>11.0 Insurance Requirements.....</b>	<b>46</b>
11.1 General Liability.....	46
11.2 Insurer Requirements and Endorsements .....	46
11.3 Evidence of Insurance.....	47
11.4 Self Insurance.....	47
<b>Exhibit A – Interconnection Service Agreement.....</b>	<b>48</b>
<b>Exhibit B – Third Party Owner Agreement.....</b>	<b>57</b>
<b>Exhibit C – Simplified Process Interconnection Application .....</b>	<b>61</b>
<b>Exhibit D – Expedited/Standard Process Interconnection Application.....</b>	<b>65</b>
<b>Exhibit E – Supplemental Review Agreement .....</b>	<b>71</b>
<b>Exhibit F – Impact Study Agreement .....</b>	<b>72</b>
<b>Exhibit G – Detailed Study Agreement .....</b>	<b>74</b>

## 1.0 Introduction

### 1.1 Applicability

This document (“Interconnection Tariff”) describes the process and requirements for an Interconnecting Customer to connect a power-generating facility to the Company’s Electric Power System (“Company EPS”), including discussion of technical and operating requirements, metering and billing options, and other matters.

The procedure for momentary paralleling to the Company EPS with back-up generation is described within Section 4.0 Interconnection Requirements.

If the Facility will always be isolated from the Company’s EPS, (i.e., it will never operate in parallel to the Company’s EPS), then this Interconnection Tariff does not apply.

### 1.2 Definitions

The following words and terms shall be understood to have the following meanings when used in this Interconnection Tariff:

**Affected System:** Any neighboring EPS not under the control of the Company (i.e., a municipal electric light company or other regulated utility).

**Affiliate:** A person or entity controlling, controlled by or under common control with a Party.

**Anti-Islanding:** Describes the ability of a Facility to avoid unintentional islanding through some form of active control technique.

**Application:** The notice (which will serve as the Notice of Intent to Interconnect under 220 C.M.R. §§ 8.0 et seq. when required) provided by the Interconnecting Customer to the Company in the form shown in Exhibits C and D, which initiates the interconnection process.

**Area EPS:** The Company EPS. This term is used in the Institute of Electrical and Electronics Engineers (IEEE) Standard 1547-2003, “IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems” (“IEEE Standard 1547-2003”).

**Company:** Massachusetts Electric Company and Nantucket Electric Company, as applicable.

**Company EPS:** The electric power system owned, controlled or operated by the Company used to provide distribution service to its Customers.

**Customer:** Company’s retail customer; host site or premises, may be the same as Interconnecting Customer.

**Department:** The Massachusetts Department of Telecommunications and Energy.

**Detailed Study:** The final phase of engineering study, if necessary, conducted by the Company to determine substantial System Modifications to its EPS, resulting in project cost estimates for such modifications that will be required to provide the requested interconnection service.

**DG:** Distributed Generation.

**DR:** The Facility. This term is used in IEEE Standard 1547-2003.

**Expedited Process:** As described in Section 3.2, process steps for certified Facilities from initial application to final written authorization, using a set of technical screens to determine grid impact.

**Facility:** A source of electricity owned by the Interconnecting Customer that is located on the Interconnecting Customer's side of the PCC, and all facilities ancillary and appurtenant thereto, including interconnection equipment, which the Interconnecting Customer requests to interconnect to the Company EPS.

**FERC:** Federal Energy Regulatory Commission.

**Good Utility Practice:** Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Impact Study:** The engineering study conducted by the Company under the Standard Process to determine the scope of the required modifications to its EPS and/or the Facility to provide the requested interconnection service.

**In-Service Date:** The date on which the Facility and System Modifications (if applicable) are complete and ready for service, even if the Facility is not placed in service on or by that date.

**Interconnecting Customer:** Entity who owns and/or operates the Facility interconnected to the Company EPS.

**Interconnection Service Agreement:** An agreement for interconnection service, the form of which is provided in Exhibit A, between the Interconnecting Customer and the Company. The agreement also includes any amendments or supplements thereto entered into by the Interconnecting Customer and the Company.

**Islanding:** A situation where electrical power remains in a portion of an electrical power system when the Company's transmission or distribution system has ceased providing power for whatever reason (emergency conditions, maintenance, etc.) Islanding may be intentional, such as when certain segregated loads in a Customer's premises are provided

power by a Facility after being isolated from the Company EPS after a power failure. Unintentional Islanding, especially past the PCC, is to be strictly avoided.

**ISO-New England, Inc (“ISO-NE”):** The Independent System Operator established in accordance with the NEPOOL Agreement and applicable FERC approvals, which is responsible for managing the bulk power generation and transmission systems in New England.

**Isolated:** The state of operating the Facility when electrically disconnected from the Company EPS on the Interconnecting Customer’s side of the PCC.

**Local EPS:** The customer premises within which are contained the Facility. This term is used in the IEEE Standard 1547-2003.

**Metering Point:** For meters that do not use instrument transformers, the point at which the billing meter is connected. For meters that use instrument transformers, the point at which the instrument transformers are connected.

**NEPOOL:** New England Power Pool.

**Net Metering:** A customer of the Company with an on-site Facility of 60 kilowatts (“kW”) or less in size exercising the option to run the meter backward and thus choosing to receive a credit from the Company equal to the average monthly market price of generation per kilowatt hour, as determined by the Department, in any month during which there was a positive net difference between kilowatt hours generated and consumed. (See 220 C.M.R. § 11.04(7)(c)).

**Network Distribution System (Area or Spot):** Electrical service from an EPS consisting of one or more primary circuits from one or more substations or transmission supply points arranged such that they collectively feed secondary circuits serving one (a spot network) or more (an area network) Interconnecting Customers.

**Non-Islanding:** Describes the ability of a Facility to avoid unintentional islanding through the operation of its interconnection equipment.

**NPCC:** Northeast Power Coordinating Council.

**On-Site Generating Facility:** A class of Interconnecting Customer-owned generating Facilities with peak capacity of 60 kW or less, as defined in 220 C.M.R. § 8.02.

**Parallel:** The state of operating the Facility when electrically connected to the Company EPS (sometimes known as grid-parallel).

**Parties:** The Company and the Interconnecting Customer.

**Point of Common Coupling (PCC):** The point where the Interconnecting Customer’s local electric power system connects to the Company EPS, such as the electric power revenue meter or premises service transformer. See the Company for the location at a particular Interconnecting Customer site.

**Point of Delivery:** A point on the Company EPS where the Interconnecting Customer makes capacity and energy available to the Company. The Point of Delivery shall be specified in the Interconnection Service Agreement.

**Point of Receipt:** A point on the Company EPS where the Company delivers capacity and energy to the Interconnecting Customer. The Point of Receipt shall be specified in the Interconnection Service Agreement.

**Qualifying Facility:** A generation Facility that has received certification as a Qualifying Facility from the FERC in accordance with the Federal Power Act, as amended by the Public Utility Regulatory Policies Act of 1978, as defined in 220 C.M.R. § 8.02.

**Radial Distribution Circuit:** Electrical service from an EPS consisting of one primary circuit extending from a single substation or transmission supply point arranged such that the primary circuit serves Interconnecting Customers in a particular local area.

**Screen(s):** Criteria by which the Company will determine if a proposed Facility's installation will adversely impact the Company EPS in the Simplified and Expedited Processes as set forth in Section 3.0.

**Simplified Process:** As described in Section 3.1, process steps from initial application to final written authorization for Facilities that are 10 kW or less, qualified, and inverter-based.

**Standard Process:** As described in Section 3.3, process steps from initial application to final written authorization for Facilities that do not qualify for Simplified or Expedited treatment.

**Supplemental Review:** Additional engineering study to evaluate the potential impact of the Facility on the Company EPS so as to determine any requirements for processing the application through the Expedited Process.

**System Modification:** Modifications or additions to distribution-related Company facilities that are integrated with the Company EPS for the benefit of the Interconnecting Customer.

**Unintentional Islanding:** A situation where the electrical power from the Facility continues to supply a portion of the Company EPS past the PCC when the Company's transmission or distribution system has ceased providing power for whatever reason (emergency conditions, maintenance, etc.).

**Witness Test:** The Company's right to witness the commissioning testing. Commissioning testing is defined in IEEE Standard 1547-2003.

### 1.3 Forms and Agreements

The following documents for the interconnection process are included as Exhibits:

1. Interconnection Service Agreement for Expedited and Standard Process (Exhibit A) referencing Attachments 1 – 6 (Attachments 1 – 5 to be developed and included as appropriate for each specific Interconnection Service Agreement) as follows:
  - Attachment 1: Definitions (Section 1.2)
  - Attachment 2: Description of Facilities, including demarcation of PCC
  - Attachment 3: Description of System Modifications
  - Attachment 4: Costs of System Modifications and Payment Terms
  - Attachment 5: Special Operating Requirements, if any
  - Attachment 6: Third Party Owner Agreement (Exhibit B)
2. Application forms:
  - a. Simplified Process (10 kW or less, qualified, and inverter-based) application form and service agreement (Exhibit C)
  - b. Expedited and Standard Process application form (Exhibit D)
3. Supplemental Review Agreement for those projects which have failed one or more screens in the Expedited Process (Exhibit E)
4. Impact Study Agreement under the Standard Process (Exhibit F)
5. Detailed Study Agreement for the more detailed study under the Standard Process which requires substantial System Modifications (Exhibit G)



## 2.0 Basic Understandings

Interconnecting Customer intends to install a Facility on the Customer's side of the PCC that will be connected electrically to the Company EPS and operate in parallel, synchronized with the voltage and frequency maintained by the Company during all operating conditions. It is the responsibility of the Interconnecting Customer to design, procure, install, operate, and maintain all necessary equipment on its property for connection to the Company EPS. The Interconnecting Customer and the Company shall enter into an Interconnection Service Agreement to provide for parallel operation of an Interconnecting Customer's Facility with Company EPS. A form of this agreement is attached as Exhibit A to this Interconnection Tariff. If the Interconnecting Customer is not the Customer, a Third Party Owner Agreement must be signed and included as an attachment to the Interconnection Service Agreement.

The interconnection of the Facility with the Company EPS must be reviewed for potential impact on the Company EPS under the process described in Section 3.0 and meet the technical requirements in Section 4.0, and must be operated as described under Section 6.0. In order to meet these requirements, an upgrade or other modifications to the Company EPS may be necessary. Subject to the requirements contained in this Interconnection Tariff, the Company or its Affiliate shall modify the Company EPS accordingly. Unless otherwise specified, the Company will build and own, as part of the Company EPS, all facilities necessary to interconnect the Company EPS with the Facility up to and including terminations at the PCC. The Interconnecting Customer shall pay all System Modification costs as set forth in Section 5.0.

The Interconnecting Customer should consult the Company before designing, purchasing and installing any generation equipment, in order to verify the nominal utilization voltages, frequency, and phase characteristics of the service to be supplied, the capacity available, and the suitability of the proposed equipment for operation at the intended location. Attempting to operate a generator at other than its nameplate characteristics may result in unsatisfactory performance or, in certain instances, injury to personnel and/or damage to equipment. The Interconnecting Customer will be responsible for ascertaining from the Company, and the Company will diligently cooperate in providing, the service characteristics of the Company EPS at the proposed PCC. The Company will in no way be responsible for damages sustained as a result of the Interconnecting Customer's failure to ascertain the service characteristics at the proposed PCC.

The Facility should operate in such a manner that does not compromise, or conflict with, the safety or reliability of the Company EPS. The Interconnecting Customer should design its equipment in such a manner that faults or other disturbances on the Company EPS do not cause damage to the Interconnecting Customer's equipment.

Authorization to interconnect will be provided once the Interconnecting Customer has met all terms of the interconnection process as outlined below.

This Interconnection Tariff does not cover general distribution service needed to serve the Interconnecting Customer. Please refer to the Company's Terms and Conditions for Distribution Service. This Interconnection Tariff does not cover the use of the distribution system to export power, or the purchase of excess power unless covered under 220 C.M.R. §§ 8.00 et seq.

### 3.0 Process Overview

There are three basic paths for interconnection of the Interconnecting Customer's Facility in Massachusetts. They are described below and detailed in Figures 1 and 2 with their accompanying notes. Tables 1 and 2, respectively, describe the timelines and fees for these paths. Unless otherwise noted, all times in the Interconnection Tariff reference Company business days under normal work conditions.

1. **Simplified** – This is for qualified inverter-based facilities with a power rating of 10 kW or less on radial or spot network EPSs under certain conditions.
2. **Expedited** – This is for certified facilities that pass certain pre-specified screens on a radial EPS.
3. **Standard** – This is for all facilities not qualifying for either the Simplified or Expedited interconnection processes on radial and spot network EPSs, and for all Facilities on area network EPSs.

All proposed new sources of electric power without respect to generator ownership, dispatch control, or prime mover that plan to operate in parallel with the Company EPS must submit a completed application and pay the appropriate application fee to the Company with which it wishes to interconnect. The application will be acknowledged by the Company, and the Interconnecting Customer will be notified of the application's completeness. Interconnecting Customers who are not likely to qualify for Simplified or Expedited Process may opt to go directly into the Standard Process path. Interconnecting Customers proposing to interconnect on area networks will also go directly to the Standard Process. All other Interconnecting Customers must proceed through a series of screens to determine their ultimate interconnection path. (Interconnecting Customers not sure whether a particular location is on a radial circuit, spot network, or area network should check with the Company serving the proposed Facility location prior to filing and the Company will verify the circuit type upon filing.)

#### 3.1 Simplified Process

Interconnecting Customers using qualified (UL 1741) inverter-based facilities with power ratings 10 kW or less requesting an interconnection on radial EPSs where the aggregate Facility capacity on the circuit is less than 7.5% of circuit annual peak load qualify for Simplified interconnection. This is the fastest and least costly interconnection path. There is also a Simplified interconnection path for qualified inverter-based facilities on spot networks when the aggregate Facility capacity is less than one-fifteenth of the Customer's minimum load.

The Simplified Process is as follows:

- a. Application process:
  - i. Interconnecting Customer submits a Simplified Process application filled out properly and completely (Exhibit C).
  - ii. Company acknowledges to the Interconnecting Customer receipt of the application within 3 business days of receipt.

- iii. Company evaluates the application for completeness and notifies the Interconnecting Customer within 10 business days of receipt that the application is or is not complete and, if not, advises what is missing.
- b. Company verifies Facility equipment passes screens 1, 2, and 3 in Figure 1 if a radial EPS, or the screens in Figure 2 if a network EPS.
- c. If approved, the Company signs the application approval line and sends to the Interconnecting Customer. In certain rare circumstances, the Company may require the Interconnecting Customer to pay for minor System Modifications. If so, a description of work and an estimate will be sent back to the Interconnecting Customer for approval. The Interconnecting Customer would then approve via a signature and payment for the minor System Modifications. If the Interconnecting Customer approves, the Company performs the System Modifications. Then, the Company signs the application approval line and sends to the Interconnecting Customer.
- d. Upon receipt of signed application, the Interconnecting Customer installs the Facility. Then the Interconnecting Customer arranges for inspection of the completed installation by the local electrical wiring inspector, or other authority having jurisdiction, and this person signs the Certificate of Completion. If the Facility was installed by an electrical contractor, this person also fills out the Certificate of Completion.
- e. The Interconnecting Customer returns Certificate of Completion to the Company.
- f. Following receipt of the Certificate of Completion, the Company may inspect the Facility for compliance with standards by arranging for a Witness Test. The Interconnecting Customer has no right to operate in parallel until a Witness Test has been performed or has been previously waived on the Application Form. The Company is obligated to complete this Witness Test within 10 business days of the receipt of the Certificate of Completion. If the Company does not inspect in 10 business days or by mutual agreement of the Parties, the Witness Test is deemed waived.
- g. Assuming the wiring inspection and/or Witness Test is satisfactory, the Company notifies the Interconnecting Customer in writing that interconnection is authorized. If the Witness Test is not satisfactory, the Company has the right to disconnect the Facility, and will provide information to the Interconnecting Customer describing clearly what is required for approval.

If the Interconnecting Customer does not substantially complete construction within 12 months after receiving approval from the Company, the Company will require the Interconnecting Customer to reapply for interconnection.

### **3.2 Expedited Process**

Other Interconnecting Customers not qualifying for the Simplified Process or not in the Standard Process must pass a series of screens before qualifying for Expedited interconnection. Depending on whether one or more screens are passed, additional steps may be required.

The Expedited Process is as follows:

- a. Application process:
  - i. Interconnecting Customer submits an Expedited/Standard application filled out properly and completely (Exhibit D).
  - ii. Company acknowledges to the Interconnecting Customer receipt of the application within 3 business days of receipt.
  - iii. Company evaluates the application for completeness and notifies the Interconnecting Customer within 10 business days of receipt that the application is or is not complete and, if not, advises what is missing.
- b. Company then conducts an initial review which includes applying the screening methodology (Screens 1 through 8 in Figure 1).
- c. The Company reserves the right to conduct internal studies if deemed necessary and at no additional cost to the Interconnecting Customer, such as but not limited to: protection review, aggregate harmonics analysis review, aggregate power factor review and voltage regulation review. Likewise, when the proposed interconnection may result in reversed load flow through the Company's load tap changing transformer(s), line voltage regulator(s), control modifications necessary to mitigate the effects may be made to these devices by the Company at the Interconnecting Customer's expense or the Facility may be required to limit its output so reverse load flow cannot occur or to provide reverse power relaying that trips the Facility.

As part of the Expedited Process, the Company will assess whether any System Modifications are required for interconnection, even if the project passes all of the applicable Screens. If the needed modifications are minor, that is, the requirement can be determined within the time allotted through the application fee and any internal studies, then the modification requirements, reasoning, and costs for these minor modifications will be identified and included in the executable Interconnection Service Agreement. If the requirements cannot be determined within the time and cost allotted in the initial review and any internal studies, the Company may require that the project undergo additional review to determine those requirements. The time allocated for additional review is a maximum of 10 hours of engineering time.

If after this review, the Company still cannot determine the requirements, the Company will document the reasons why and will meet with the Interconnecting Customer to determine how to move the process forward to the Parties' mutual satisfaction. In all cases, the Interconnecting Customer will pay for the cost of modifications as discussed in Section 5.0.

- d. Assuming all applicable Screens are passed, Company sends the Interconnecting Customer an executable Interconnection Service Agreement and a quote for any required System Modifications or reasonable Witness Test costs.

- e. If one or more Screens are not passed, the Company will provide a Supplemental Review Agreement. If the Interconnecting Customer executes the agreement, the Company will conduct the review. If the Supplemental Review determines the requirements for processing the application through the Expedited Process including any System Modifications, then the modification requirements, reasoning, and costs for these modifications as defined in Section 5.0 will be identified and included in an executable Interconnection Service Agreement sent to the Interconnecting Customer for execution. If the Supplemental Review does not determine the requirements, it will include a proposed Impact Study Agreement as part of the Standard Process which will include an estimate of the cost of the study. Even if a proposed project initially fails a particular Screen in the Expedited Process, if Supplemental Review shows that it can return to the Expedited Process then it will do so. Supplemental Review includes up to 10 hours of engineering time.
- f. Interconnecting Customer returns the signed Interconnection Service Agreement which is then executed by the Company.
- g. Interconnecting Customer completes installation and, upon receipt of payment, the Company completes System Modifications, if required.
- h. Company inspects completed installation for compliance with standards and attends Witness Test, if required.
- i. Interconnecting Customer sends Certificate of Completion to Company.
- j. Assuming inspection is satisfactory, Company notifies Interconnecting Customer in writing that interconnection is authorized.

### **3.3 Standard Process**

The Standard Process has the longest maximum time period and highest potential costs. There are three ways to enter the Standard Process:

1. Interconnecting Customers may choose to proceed immediately to the Standard Process. Application process:
  - i. Interconnecting Customer submits an Expedited/Standard Application filled out properly and completely (Exhibit D).
  - ii. Company acknowledges to the Interconnecting Customer receipt of the application within 3 business days.
  - iii. Company evaluates the application for completeness and notifies the Interconnecting Customer within 10 business days of receipt that the application is or is not complete and, if not, advises what is missing.
2. Based upon the results of the initial and Supplemental Reviews, Interconnecting Customers may be required to enter the Standard Process.

3. Based on the results of the Screens in Figure 2 for networks, Interconnecting Customers may be required to enter the Standard Process.

The Standard Process is as follows:

- a. The Company will conduct an initial review that includes a scoping meeting/discussion with the Interconnecting Customer (if necessary) to review the application. At the scoping meeting the Company will provide pertinent information such as:
  - The available fault current at the proposed location;
  - The existing peak loading on the lines in the general vicinity of the Facility;
  - The configuration of the distribution lines.
- b. Company provides an Impact Study Agreement, including a cost estimate for the study. Where there are other potentially Affected Systems, and no single Party is in a position to prepare an Impact Study covering all potentially Affected Systems, the Company will coordinate but not be responsible for the timing of any studies required to determine the impact of the interconnection request on other potentially Affected Systems. The Interconnecting Customer will be directly responsible to the potentially Affected System operators for all costs of any additional studies required to evaluate the impact of the interconnection on the potentially Affected Systems. The timelines in Table 1 will be affected if ISO-NE determines that a system impact study is required. This will occur if the Interconnecting Customer's Facility is greater than 5 MW and may occur if the Interconnecting Customer's Facility is greater than 1 MW.
- c. Once the Interconnecting Customer executes the Impact Study Agreement and pays pursuant to the terms thereof, the Company will conduct the Impact Study.
- d. If the Company determines, in accordance with Good Utility Practice, that the System Modifications to the Company EPS are not substantial, the Impact Study will determine the scope and cost of the modifications as defined in Section 5.0. If the Company determines, in accordance with Good Utility Practice, that the System Modifications to the Company EPS are substantial, the Impact Study will produce an estimate for the modification costs (within  $\pm 25\%$ ) and a Detailed Study Agreement and cost for Interconnecting Customer's approval.
- e. Once the Interconnecting Customer executes the Detailed Study Agreement and pays pursuant to the terms thereof, the Company will conduct the Detailed Study.
- f. Upon completion of any necessary studies, the Company shall send the Interconnecting Customer an executable Interconnection Service Agreement including a quote for any required System Modifications and reasonable Witness Test costs.
- g. Interconnecting Customer returns signed Interconnection Service Agreement.
- h. Interconnecting Customer completes installation and Company completes System Modifications, if required.
- i. Company inspects completed installation for compliance with requirements and attends Witness Test, if required.

- j. Interconnecting Customer sends Certificate of Completion to Company.
- k. Assuming inspection is satisfactory, Company notifies Interconnecting Customer in writing that interconnection is authorized.

### 3.4 Time Frames

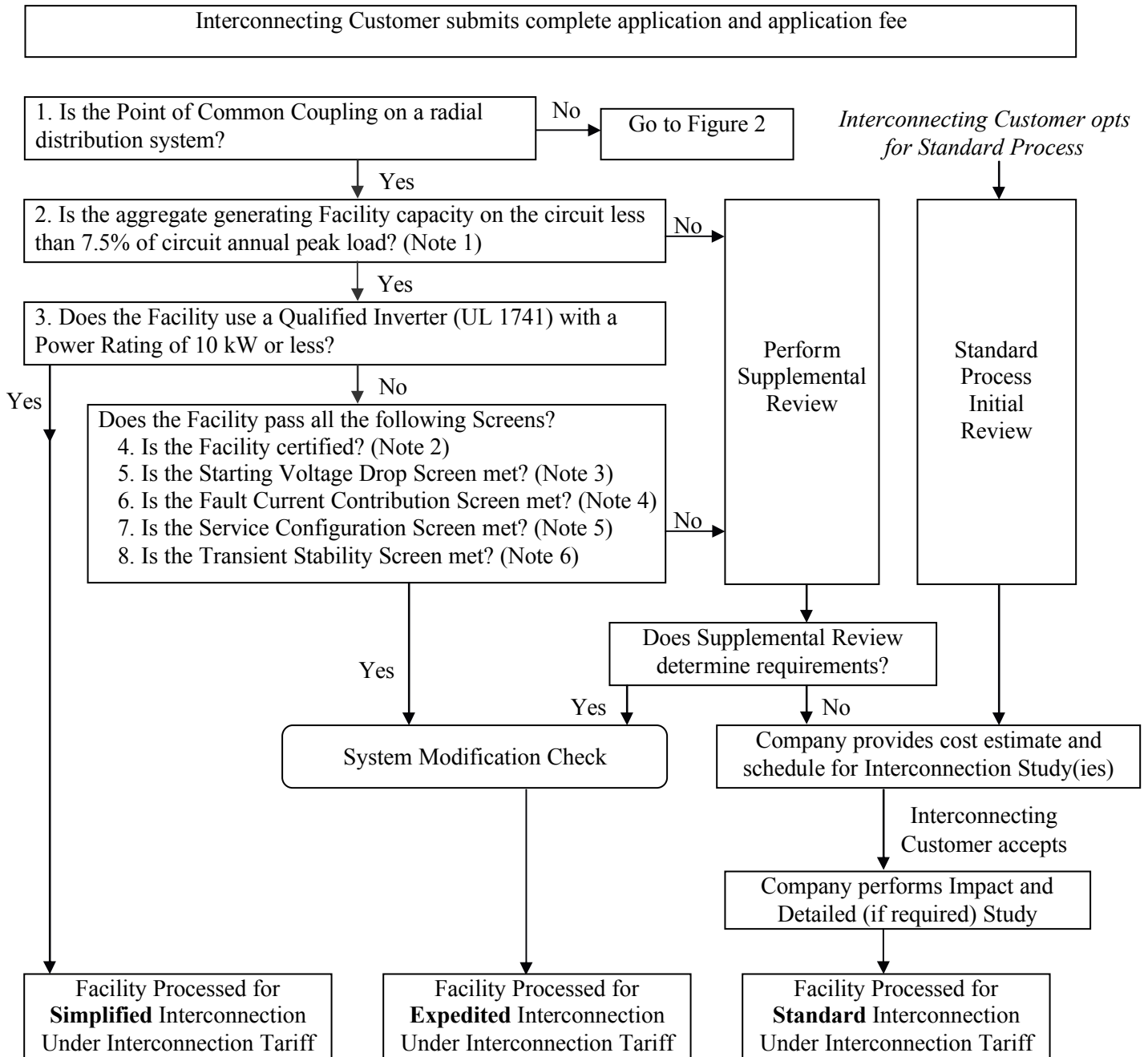
Unless otherwise noted, all days in the Interconnection Tariff reference Company business days under normal work conditions.

Table 1 lays out the maximum timeframes allowed under the Simplified, Expedited, and Standard Review processes. The maximum time allowed for the Company to execute the entire Simplified Process is 15 days. The maximum time allowed for the Company to execute the entire Expedited Process on a radial system is 40 days where no Supplemental Review is needed and 60 days where it is needed. The maximum time allowed for the Company to execute the entire Standard Process is 125 days for the Standard Review Process if the Customer goes directly to Standard Review and 150 days if the Customer goes from the Expedited Process into Standard Review. For Customers qualifying for the Simplified Process on a spot network, the maximum time is 40 days if load data is available and 100 days if it is not. The Company clock is stopped when awaiting information from Customers. Any delays caused by Customer will interrupt the applicable clock. Moreover, if an Interconnecting Customer fails to act expeditiously to continue the interconnection process or delays the process by failing to provide necessary information within the longer of 15 days or half the time allotted to the Company to perform a given step, or as extended by mutual agreement, then the Company may terminate the application and the Interconnecting Customer must re-apply. However, the Company will be required to retain the work previously performed in order to reduce the initial and Supplemental Review costs incurred for a period of no less than 1 year. Notwithstanding these maximum time frames, the Company shall endeavor to meet the Customer's needs.

### 3.5 Fee Schedules

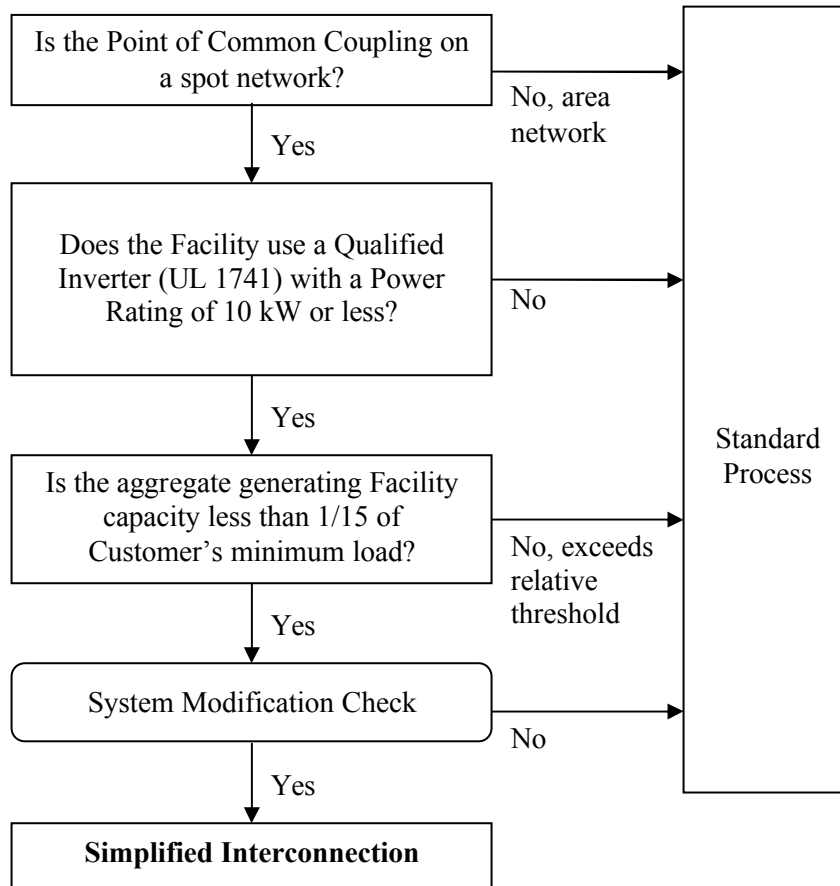
Table 2 lays out the fees required for Interconnecting Customers to apply for interconnection. There are no fees for those facilities that qualify for the Simplified Process on a radial EPS (except in certain unique cases where a System Modification would be needed which would be covered by the Interconnecting Customer). Those qualifying for the Expedited Process will pay a \$3/kW application fee (minimum of \$300 and maximum of \$2,500) plus \$125/hour up to 10 hours (\$1,250) for Supplemental Review, when applicable, plus the actual cost as defined in Section 5.0 of any required System Modifications. Those on the Standard Process path would pay the same application fee as in the Expedited Process path as well as the actual cost as defined in Section 5.0 of any required System Modifications, plus the actual cost of any Impact and Facility Studies, if required. Facilities qualifying for the Simplified Process on a spot network will pay a flat application fee of \$100 for 3 kW or less, and \$300 for Facilities larger than 3 kW up to and including 10 kW, plus any System Modification costs.

**Figure 1 – Schematic of Massachusetts DG Interconnection Process**





**Figure 2 – Simplified Interconnection to Networks**



## Explanatory Notes to Accompany Figure 1

**Note 1.** On a typical radial distribution EPS circuit (“feeder”) the annual peak load is measured at the substation circuit breaker, which corresponds to the supply point of the circuit. A circuit may also be supplied from a tap on a higher-voltage line, sometimes called a subtransmission line. On more complex radial EPSs, where bidirectional power flow is possible due to alternative circuit supply options (“loop service”), the normal supply point is the loop tap.

**Note 2.** California and New York have adopted certification rules for expediting application review and approval of Facility interconnections onto Company electric systems. Facilities in these states must meet the applicable commission-approved certification tests and criteria to qualify for the Expedited Process in Massachusetts. Since the certification criterion is based on testing results from recognized national testing laboratories, the Company will accept Facilities certified in California and New York as candidates for the Expedited Process. It is the Interconnecting Customer’s responsibility to determine if, and submit verification that, the proposed Facility has been certified in California or New York.

The above states and Massachusetts have adopted Underwriters Laboratories Inc. (“UL”) standard UL 1741, “Inverters, Converters and Charge Controllers for Use in Independent Power Systems,” for certifying the electrical protection functionality of independent power systems. UL 1741 compliance is established by nationally recognized testing laboratories. Interconnecting Customers should contact the Facility supplier to determine if it has been listed to this standard.

IEEE Standard 1547-2003 includes design specifications and provides technical and test specifications for Facilities. To meet the IEEE standard, Interconnecting Customers must provide information or documentation that demonstrates how the Facility is in compliance with the IEEE Standard 1547-2003. A Facility will be deemed to be in compliance with the IEEE Standard 1547-2003 if the Company previously determined it was in compliance. A registry of Facilities previously certified in other states or in compliance with the IEEE standard can be obtained from the Massachusetts Division of Energy Resources or as otherwise determined by the Department.

Applicants who can demonstrate Facility compliance with either UL 1741 or IEEE Standard 1547-2003 will be eligible for the Expedited Process.

**Note 3.** This Screen only applies to Facilities that start by motoring the generating unit(s) or the act of connecting synchronous generators. The voltage drops should be less than the criteria below. There are two options in determining whether Starting Voltage Drop could be a problem. The option to be used is at the Company’s discretion:

**Option 1:** The Company may determine that the Facility’s starting inrush current is equal to or less than the continuous ampere rating of the Facility’s service equipment.

**Option 2:** The Company may determine the impedances of the service distribution transformer (if present) and the secondary conductors to the Facility’s service equipment and perform a voltage drop calculation. Alternatively, the Company may use tables or nomographs to determine the voltage drop. Voltage drops caused by starting a generating

unit as a motor must be less than 2.5% for primary interconnections and 5% for secondary interconnections.

**Note 4.** The purpose of this Screen is to ensure that fault (short-circuit) current contributions from all Facilities will have no significant impact on the Company's protective devices and EPS. All of the following criteria must be met when applicable:

- a. The proposed Facility, in aggregation with other generation on the distribution circuit, will not contribute more than 10% to the distribution circuit's maximum fault current under normal operating conditions at the point on the high voltage (primary) level nearest the proposed PCC.
- b. The proposed Facility, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment (including but not limited to substation breakers, fuse cutouts, and line reclosers), or Interconnecting Customer equipment on the EPS to exceed 85% of the short-circuit interrupting capability. In addition, the proposed Facility will not be installed on a circuit that already exceeds 85% of the short-circuit interrupting capability.
- c. When measured at the secondary side (low side) of a shared distribution transformer, the short-circuit contribution of the proposed Facility must be less than or equal to 2.5% of the interrupting rating of the Company's service equipment.

Coordination of fault-current protection devices and systems will be examined as part of this Screen.

**Note 5.** This Screen includes a review of the type of electrical service provided to the Interconnecting Customer, including line configuration and the transformer connection to limit the potential for creating over voltages on the Company EPS due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Result/Criteria
Three-phase, three wire	3-phase or single phase, phase-to-phase	Pass Screen
Three-phase, four wire	Effectively-grounded 3 phase or single-phase, line-to-neutral	Pass Screen

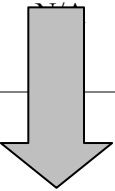
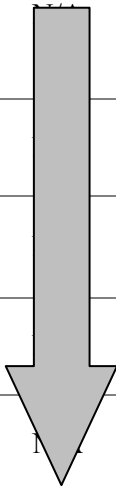
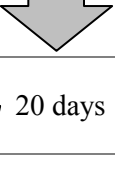
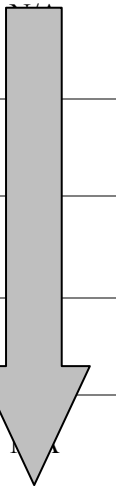
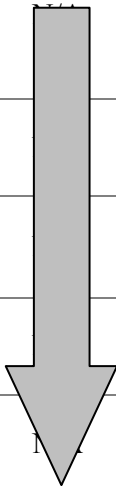
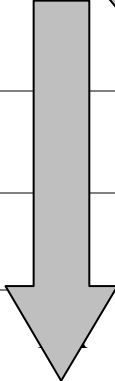
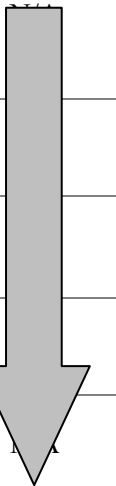
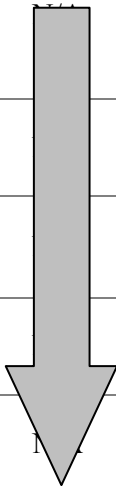
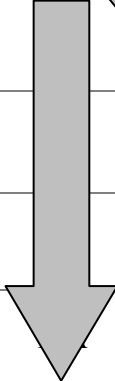
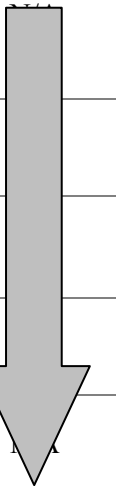
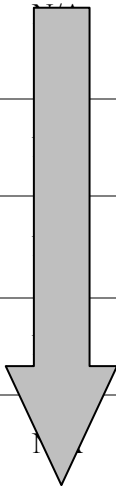
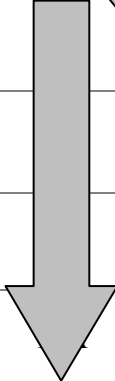
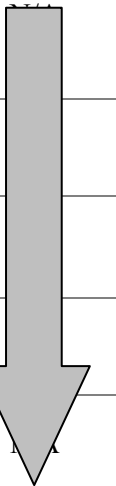
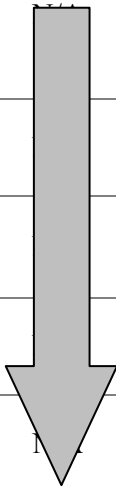
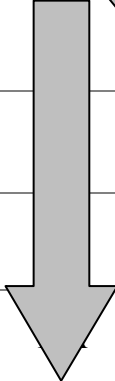
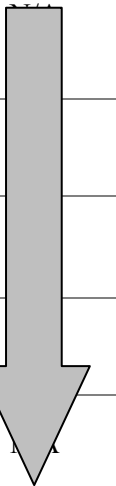
If the proposed generator is to be interconnected on a single-phase transformer shared secondary, the aggregate generation capacity on the shared secondary, including the proposed generator, will not exceed 20 kilovolt-ampere ("kVA").

If the proposed generator is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition will not create an imbalance between the two sides of the 240 volt service of more than 20% of nameplate rating of the service transformer.

**Note 6.** The proposed Facility, in aggregate with other Facilities interconnected to the distribution low voltage side of the substation transformer feeding the distribution circuit where the Facility proposes to interconnect, will not exceed 10 MW in an area where there are known

or posted transient stability limitations to generating units located in the general electrical vicinity (e.g., 3 or 4 transmission voltage level buses from the PCC).

**Table 1 – Time Frames (Note 1)**

	<b>Qualified Inverter ≤ 10 kW</b>	<b>Certified DG</b>	<b>Any DG</b>	<b>Qualified Inverter ≤ 10 kW</b>
	<b>Simplified</b>	<b>Expedited</b>	<b>Standard</b>	<b>Simplified Spot Network</b>
<b>Acknowledge Receipt of Application</b>	(3 days)	(3 days)	(3 days)	(3 days)
<b>Review Application for Completeness</b>	10 days	10 days	10 days	10 days
<b>Complete Review of All Screens</b>	10 days	25 days		Site review 30/90 days (Note2)
<b>Complete Supplemental Review (if needed)</b>		20 days		
<b>Complete Standard Process Initial Review</b>			20 days	
<b>Send Follow-on Studies Cost/Agreement</b>			5 days	
<b>Complete Impact Study (if needed)</b>			55 days	
<b>Complete Detailed Study (if needed)</b>			30 days	
<b>Send Executable Agreement (Note 3)</b>	Done	10 days	15 days	Done (Comparable to Simplified Radial)
<b>Total Maximum Days (Note 4)</b>	15 days	40/60 days (Note 5)	125/150 days (Note 6)	40/100 days
<b>Notice/ Witness Test</b>	< 1 day with 10 day notice or by mutual agreement	1-2 days with 10 day notice or by mutual agreement	By mutual agreement	1 day with 10 day notice or by mutual agreement

**Table 2 – Fee Schedules**

	<b>Qualified Inverter ≤ 10 kW</b>	<b>Certified DG</b>	<b>Any DG</b>	<b>Qualified Inverter ≤ 10 kW</b>
	<b>Simplified</b>	<b>Expedited</b>	<b>Standard</b>	<b>Simplified Spot Network</b>
<b>Application Fee (covers Screens)</b>	0 (Note 1)	\$3/kW, minimum \$300, maximum \$2,500	\$3/kW, minimum \$300, maximum \$2,500	≤\$3/kW \$100, >3 kW \$300
<b>Supplemental Review or Additional Review (if applicable)</b>	N/A	Up to 10 engineering hours at \$125/hr (\$1,250 maximum) (Note2)	N/A	N/A
<b>Standard Interconnection Initial Review</b>	N/A	N/A	Included in application fee (if applicable)	N/A
<b>Impact and Detailed Study (if required)</b>	N/A	N/A	Actual cost (Note 3)	N/A
<b>Facility Upgrades</b>	N/A (Note 4)	Actual cost	Actual cost	N/A
<b>O&amp;M (Note 5)</b>	N/A	TBD	TBD	N/A
<b>Witness Test</b>	0	Actual cost, up to \$300 + travel time (Note 6)	Actual Cost	0 (Note 7)

## **Explanatory Notes to Accompany Tables 1 and 2**

### **Table 1 – Time Frames**

**Note 1.** All days listed apply to Company business days under normal work conditions. All numbers in this table assume a reasonable number of applicants under review. All timelines may be extended by mutual agreement. Any delays caused by Interconnecting Customer will interrupt the applicable clock. Moreover, if an Interconnecting Customer fails to act expeditiously to continue the interconnection process or delays the process by failing to provide necessary information within the longer of 15 days or half the time allotted to the Company to perform a given step, or as extended by mutual agreement, then the Company may terminate the application and the Interconnecting Customer must reapply. However, the Company will be required to retain the work previously performed in order to reduce the initial and Supplemental Review costs incurred for a period of no less than 1 year. The timelines in Table 1 will be affected if ISO-NE determines that a system impact study is required. This will occur if the Interconnecting Customer's Facility is greater than 5 MW and may occur if the Interconnecting Customer's Facility is greater than 1 MW.

**Note 2.** 30 days if load is known or can be reasonably determined, 90 days if it has to be metered.

**Note 3.** Company delivers an executable agreement form. Once the Interconnection Service Agreement is delivered by the Company, any further modification and timetable will be established by mutual agreement.

**Note 4.** Actual totals laid out in columns exceed the maximum target. The Parties further agree that average days (fewer than maximum days) is a performance metric that will be tracked.

**Note 5.** Shorter time applies to Expedited Process without Supplemental Review, longer time applies to Expedited Process with Supplemental Review.

**Note 6.** 125 day maximum applies to an Interconnecting Customer opting to begin directly in Standard Process, and 150 days is for an Interconnecting Customer who goes through initial Expedited Process first. In both cases this assumes that both the Impact and Facilities Studies are needed. If the Detailed Study is not needed, the timelines will be shorter.

### **Table 2 – Fee Schedules**

**Note 1.** If the Company determines that the Facility does not qualify for the Simplified Process, it will let the Interconnecting Customer know what the appropriate fee is.

**Note 2.** Supplemental Review and additional review are defined in Section 3.2.

**Note 3.** This is the actual cost only attributable to the applicant. Any costs not expended from the application fee previously collected will go toward the costs of these studies.

**Note 4.** Not applicable except in certain rare cases where a System Modification would be needed. If so, the modifications are the Interconnecting Customer's responsibility.

**Note 5.** O & M is defined as the Company's operations and maintenance carrying charges on the incremental costs associated with serving the Interconnecting Customer.

**Note 6.** The fee will be based on actual cost up to \$300 plus driving time, unless Company representatives are required to do additional work due to extraordinary circumstances or due to problems on the Interconnecting Customer's side of the PCC (e.g., Company representative required to make two trips to the site), in which case Interconnecting Customer will cover the additional cost.

**Note 7.** Unless extraordinary circumstances.



## **4.0 Interconnection Requirements**

### **4.1 General Design Considerations**

Interconnecting Customer shall design and construct the Facility in accordance with the applicable manufacturer's recommended maintenance schedule, in compliance with all aspects of the Company's Interconnection Tariff. Interconnecting Customer agrees to cause its Facility to be constructed in accordance with applicable specifications that meet or exceed those provided under this Section of the Interconnection Tariff.

#### **4.1.1 Transient Voltage Conditions**

Because of unusual events in the Company's EPS, there will be transient voltage fluctuations, which will result in voltages exceeding the limits of the stated ranges. These transient voltage fluctuations, which generally last only a few milliseconds, arise due to EPS disturbances including, but not limited to, lightning strikes, clearing of faults, and other switching operations. The magnitude of transient voltage fluctuations varies with EPS configuration, grounding methods utilized, local short circuit availability, and other parameters, which vary from point-to-point and from time-to-time on the distribution EPS.

The fluctuations may result in voltages exceeding the limits of the stated ranges and occur because of EPS disturbance, clearing of faults and other switching operations. These unavoidable transients are generally of too short duration and insufficient magnitude to have any adverse effects on general service applications. They may, however, cause malfunctions in equipment highly sensitive to voltage changes, and protective devices may operate to shut down such devices. The magnitude, duration and frequency of transient fluctuations will vary due to EPS configuration and/or circuit arrangement. In addition, disturbances of indeterminate magnitude and duration may occur on infrequent occasions due to short circuits, faults, and other unpredictable conditions.

Transient voltages should be evaluated in the design of the Facility.

#### **4.1.2 Noise and Harmonics**

The introduction of abnormal noise/harmonics can cause abnormal neutral current flow, and excessive heating of electrical equipment. Harmonics may also cause distortion in TV pictures, telephone interference, and malfunctions in digital equipment such as computers. The permissible level of harmonics is dependent upon the voltage level and short circuit ratio at a given location. IEEE Standard 1547-2003 provides these levels at the PCC. In requiring adherence to IEEE Standard 1547-2003 the Company is in no way making a recommendation regarding the level of harmonics that a given piece of equipment can tolerate nor is it making a recommendation as to the permissible level in the Interconnecting Customer's Facility.

#### **4.1.3 Frequency**

The interconnected electric power system in North America, which is maintained at 60 hertz ("Hz") frequency on its alternating current services, is subject to certain deviations. The usual maximum instantaneous deviation from the standard 60 Hz is  $\pm 2/10$  cycle ( $\pm 0.33\%$ ), except on infrequent occasions when the deviation may reach  $\pm 1/10$  cycle ( $\pm 0.17\%$ ). The usual normal

deviation is approximately  $\pm 1/20$  cycle ( $\pm 0.083\%$ ). These conditions are subject to occur at any time of the day or night and should be considered in the design of the Facility. All are measured on a 60 Hz base.

#### **4.1.4 Voltage Level**

All electricity flow across the PCC shall be in the form of single-phase or three-phase 60 Hz alternating current at a voltage class determined by mutual agreement of the Parties.

#### **4.1.5 Machine Reactive Capability**

Facilities less than 1 megawatt (“MW”) will not be required to provide reactive capability, except as may be provided by the retail rate schedule and Terms and Conditions for Distribution Services under which the Customer takes service.

Facilities greater than or equal to 1 MW interconnected with the Company EPS shall be required to provide reactive capability to regulate and maintain EPS voltage at the PCC as per NEPOOL requirements. The Company and NEPOOL shall establish a scheduled range of voltages to be maintained by the Facility. The reactive capability requirements shall be reviewed as part of the Impact Study and Facilities Study.

### **4.2 Protection Requirements for New or Modified Facility Interconnections with the EPS**

#### **4.2.1 General Requirements**

Any Facility desiring to interconnect with the Company EPS or modify an existing interconnection must meet minimum specifications, where applicable, as set forth in the following documents and standards and requirements in this Section.

- IEEE Standard 1547-2003, “IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems.”
- UL Standard 1741, “Inverters, Converters and Charge Controllers for Use in Independent Power Systems.”
- IEEE Standard 929-2000, “IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.”

The specifications and requirements listed herein are intended to mitigate possible adverse impacts caused by the Facility on the Company’s equipment and personnel and on other Interconnecting Customers of the Company. They are not intended to address protection of the Facility itself or its internal load. It is the responsibility of the Facility to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect itself and its loads.

The Company shall not be responsible for the protection of the Facility. The Facility shall be responsible for protection of its system against possible damage resulting from parallel operation with the Company so long as the Company adheres to Good Utility Practice. If requested by the Interconnecting Customer, the Company will provide system protection information for the line

terminal(s) directly related to the interconnection. This protection information contained herein is provided exclusively for use by the Interconnecting Customer to evaluate protection of its Facility during parallel operation.

At its sole discretion, the Company may consider approving alternatives that satisfy the intent of the requirements contained in this Section.

#### 4.2.2 Facility Classification

To determine the protection requirements for a given Facility, the following Groups have been established:

Group	Type of Interconnection
1	Facilities Qualified for Simplified Interconnection
2	All Facilities Not Qualified for Simplified Interconnection

#### 4.2.3 Protection Requirements

All Facilities must meet performance requirements set forth in relevant sections of IEEE Standard 1547-2003. **The following italicized text is excerpted from IEEE Standard 1547-2003 and applies to Section 4.2.3 only. The numbering is also from IEEE Standard 1547-2003 and therefore is not in sequence with the Interconnection Tariff numbering.**

##### ***4.1.1 Voltage regulation***

*The DR [distributed resource] shall not actively regulate the voltage at the PCC [unless required by NEPOOL's operating procedures]. The DR shall not cause the Area EPS service voltage at other Local EPSs to go outside the requirements of ANSI C84.1-1995, Range A.*

##### ***4.1.2 Integration with Area EPS grounding***

*The grounding scheme of the DR interconnection shall not cause overvoltages that exceed the rating of the equipment connected to the Area EPS and shall not disrupt the coordination of the ground fault protection on the Area EPS.*

##### ***4.1.3 Synchronization***

*The DR unit shall parallel with the Area EPS without causing a voltage fluctuation at the PCC greater than  $\pm 5\%$  of the prevailing voltage level of the Area EPS at the PCC, and meet the flicker requirements of 4.3.2.*

##### ***4.1.8.2 Surge withstand performance***

*The interconnection system shall have the capability to withstand voltage and current surges in accordance with the environments defined in IEEE Std C62.41.2-2002 or IEEE C37.90.1-2002 as applicable.*

#### **4.2 Response to Area EPS abnormal conditions<sup>1</sup>**

*Abnormal conditions can arise on the Area EPS that require a response from the connected DR. This response contributes to the safety of utility maintenance personnel and the general public, as well as the avoidance of damage to connected equipment, including the DR. All voltage and frequency parameters specified in these subclauses shall be met at the PCC, unless otherwise stated.*

##### **4.2.1 Area EPS faults**

*The DR unit shall cease to energize the Area EPS for faults on the Area EPS circuit to which it is connected.*

##### **4.2.2 Area EPS reclosing coordination**

*The DR shall cease to energize the Area EPS circuit to which it is connected prior to reclosure by the Area EPS.*

##### **4.2.3 Voltage**

*The protection functions of the interconnection system shall detect the effective (rms) or fundamental frequency value of each phase-to-phase voltage, except where the transformer connecting the Local EPS to the Area EPS is a grounded wye-wye configuration, or single phase installation, the phase-to-neutral voltage shall be detected. When any voltage is in a range given in Table 1, the DR shall cease to energize the Area EPS within the clearing time as indicated. Clearing time is the time between the start of the abnormal condition and the DR ceasing to energize the Area EPS. For DR less than or equal to 30 kW in peak capacity, the voltage set points and clearing times shall be either fixed or field adjustable. For DR greater than 30 kW the voltage set points shall be field adjustable.*

*The voltages shall be detected at either the PCC or the point of DR connection when any of the following conditions exist:*

- (a) The aggregate capacity of DR systems connected to a single PCC is less than or equal to 30 kW,*
- (b) the interconnection equipment is certified to pass a non-islanding test for the system to which it is to be connected,*
- (c) the aggregate DR capacity is less than 50% of the total Local EPS minimum annual integrated electrical demand for a 15 minute time period, and export of real or reactive power by the DR to the Area EPS is not permitted.*

<b>Table 1 – Interconnection system response to abnormal voltages</b>	
<i>Voltage range(% of base voltage<sup>a</sup>)</i>	<i>Clearing time (s)<sup>b</sup></i>
<i><math>V &lt; 50</math></i>	<i>0.16</i>
<i><math>50 \leq V &lt; 88</math></i>	<i>2.00</i>
<i><math>110 &lt; V &lt; 120</math></i>	<i>1.00</i>
<i><math>V \geq 120</math></i>	<i>0.16</i>

<sup>1</sup> *The isolation of a portion of the Area EPS, presenting the potential for an unintended DR island, is a special concern and is addressed in 4.4.1. Setting adjustments may only be made as approved by the authority who has jurisdiction over the DR interconnection.*

<sup>a</sup> Base voltages are the nominal system voltages stated in ANSI C84.1-1995, Table 1.

<sup>b</sup> DR ≤ 30 kW, maximum clearing times; DR > 30 kW, default clearing times

#### 4.2.4 Frequency

When the system frequency is in a range given in Table 2, the DR shall cease to energize the Area EPS within the clearing time as indicated. Clearing time is the time between the start of the abnormal condition and the DR ceasing to energize the Area EPS. For DR less than or equal to 30 kW in peak capacity, the frequency set points and clearing times shall be either fixed or field adjustable. For DR greater than 30 kW, the frequency set points shall be field adjustable.

Adjustable under-frequency trip settings shall be coordinated with Area EPS operations.

<b>Table 2 – Interconnection system response to abnormal frequencies</b>		
<b>DR size</b>	<b>Frequency range (Hz)</b>	<b>Clearing time (s)<sup>a</sup></b>
≤ 30 kW	> 60.5	0.16
	< 59.3	0.16
> 30 kW	> 60.5	0.16
	< {59.8 - 57.0} (adjustable setpoint)	Adjustable 0.16 to 300
	< 57.0	0.16

<sup>a</sup> DR ≤ 30 kW, maximum clearing times; DR > 30 kW, default clearing times

#### 4.2.5 Loss of synchronism

Loss of synchronism protection is not required except as necessary to meet 4.3.2.

#### 4.2.6 Reconnection to Area EPS

After an Area EPS disturbance, no DR reconnection shall take place until the Area EPS voltage is within Range B of ANSI C84.1-1995, Table 1, and frequency range of 59.3Hz to 60.5Hz.

The DR interconnection system shall include an adjustable delay (or a fixed delay of five minutes) that may delay reconnection for up to five minutes after the Area EPS steady-state voltage and frequency are restored to the ranges identified above.

#### 4.3.1 Limitation of dc injection

The DR and its interconnection system shall not inject dc current greater than 0.5% of the full rated output current at the point of DR connection.

#### 4.3.2 Limitation of flicker induced by the DR

The DR shall not create objectionable flicker for other customers on the Area EPS.<sup>2</sup>

#### 4.3.3 Harmonics

When the DR is serving balanced linear loads, harmonic current injection into the Area EPS at the PCC shall not exceed the limits stated below in Table 3. The harmonic current injections shall be exclusive of any harmonic currents due to harmonic voltage distortion present in the Area EPS without the DR connected.

<b>Individual harmonic order <i>h</i> (odd harmonics)<sup>b</sup></b>	<b><math>h &lt; 11</math></b>	<b><math>11 \leq h &lt; 17</math></b>	<b><math>17 \leq h &lt; 23</math></b>	<b><math>23 \leq h &lt; 35</math></b>	<b><math>35 \leq h</math></b>	<b>Total Demand Distortion (TDD)</b>
Percent (%)	4.0	2.0	1.5	0.6	0.3	5.0

<sup>a</sup> *I* = the greater of the Local EPS maximum load current integrated demand (15 or 30 minutes) without the DR unit, or the DR unit rated current capacity (transformed to the PCC when a transformer exists between the DR unit and the PCC).  
<sup>b</sup> Even harmonics are limited to 25% of the odd harmonic limits above.

#### 4.4.1 Unintentional islanding

For an unintentional island in which the DR energizes a portion of the Area EPS through the PCC, the DR interconnection system shall detect the island and cease to energize the Area EPS within two seconds of the formation of an island.<sup>3</sup>

#### 4.2.3.1 Group 1 Facilities

- a. The inverter-based Facility shall be considered *qualified* if it meets requirements set forth in Section 3.1 “Simplified Process”.
- b. **External Disconnect Switch:** For qualified inverters, the Company **may** require an external disconnect switch (or comparable device by mutual agreement of the Parties) at

<sup>2</sup> Flicker is considered objectionable when it either causes a modulation of the light level of lamps sufficient to be irritating to humans, or causes equipment mis-operation. For guidance, refer to IEEE STD 519-1992 IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems; IEEE P1453 Draft Recommended Practice for Measurement and Limits of Voltage Flicker on AC Power Systems; International Electrotechnical Commission IEC/TR3 61000-3-7 Assessment of Emission Limits for Fluctuating Loads in MV and HV Power Systems; IEC 61000-4-15 Flickermeter - Functional and Design Specifications, IEC 61400-21 IEC 61400-21, Wind Turbine Generator Systems - Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines - Ed. 1.0 (2000-12).

<sup>3</sup> Some examples by which this requirement may be met are:

1. The DR aggregate capacity is less than one-third of the minimum load of the Local EPS.
2. The DR is certified to pass an applicable non-islanding test.
3. The DR installation contains reverse or minimum power flow protection, sensed between the Point of DR Connection and the PCC, which will disconnect or isolate the DR if power flow from the Area EPS to the Local EPS reverses or falls below a set threshold.
4. The DR contains other non-islanding means such as a) forced frequency or voltage shifting, b) transfer trip, or c) governor and excitation controls that maintain constant power and constant power factor.

the PCC with the Company or at another mutually agreeable point that is accessible to Company personnel at all times and that can be opened for isolation if the switch is required. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The visible break requirement can be met by opening the enclosure to observe the contact separation. The Company shall have the right to open this disconnect switch in accordance with this Interconnection Tariff.

#### 4.2.3.2 Group 2 Facilities

##### 4.2.3.2.1 General Requirements

- a. **Non Export Power:** If the Parties mutually agree that non-export functionality will be part of the interconnection protection equipment then it will include one of the following: (1) a reverse power relay with mutually agreed upon delay intervals, or (2) a minimum power function with mutually agreed upon delay intervals, or (3) other mutually agreeable approaches, for example, a comparison of nameplate rating versus certified minimum Customer premises load.
- b. The ISO-NE is responsible for assuring compliance with NPCC criteria. For the interconnection of some larger units, the NPCC criteria may additionally require:

**NPCC Protective Relaying Requirements:** The Company may require the Facility to be equipped with two independent, redundant relaying systems in accordance with NPCC criteria, where applicable, for the protection of the bulk power system if the interconnection is to the bulk power system or if it is determined that delayed clearing of faults within the Facility adversely affects the bulk power system.

**NPCC Requirements:** During system conditions where local area load exceeds system generation, NPCC Emergency Operation Criteria requires a program of phased automatic under frequency load shedding of up to 25% of area load to assist in arresting frequency decay and to minimize the possibility of system collapse. Depending on the point of connection of the Facility to the Company's EPS and in conformance with the NPCC Emergency Operating Criteria, the Facility may be required to remain connected to the EPS during the frequency decline to allow the objectives of the automatic load shedding program to be achieved, or to otherwise provide compensatory load reduction, equivalent to the Facility's generation lost to the system, if the Interconnecting Customer elects to disconnect the Facility at a higher under-frequency set point.

- c. **Disconnect Switch:** The Facility shall provide a disconnect switch (or comparable device mutually agreed upon by the Parties) at the point of Facility interconnection that can be opened for isolation. The switch shall be in a location easily accessible to Company personnel at all times. The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The visible break requirement can be met by opening the enclosure to observe the contact separation. The Company shall exercise such right in accordance with Section 7.0 of this Interconnection Tariff.

- d. **Transfer Tripping:** A direct transfer tripping system, if one is required by either the Interconnecting Customer or by the Company, shall use equipment generally accepted for use by the Company and shall, at the option of the Company, use dual channels.

#### 4.2.3.2.2 Requirements for Induction and Synchronous Generator Facilities

- a. **Interconnection Interrupting Device:** An interconnection Interrupting Device such as a circuit breaker shall be installed to isolate the Facility from the Company's EPS. If there is more than one Interrupting Device, this requirement applies to each one individually. The Interconnection Interrupting Device must be capable of interrupting the current produced when the Facility is connected out of phase with the Company's EPS, consistent with Section 4.1.8.3 of IEEE Standard 1547-2003 which states, "the interconnection system paralleling-device shall be capable of withstanding 220% of the interconnection system rated voltage."
- b. **Synchronizing Devices:** The Interconnecting Customer shall designate one or more Synchronizing Devices such as motorized breakers, contactor/breaker combinations, or a fused contactor (if mutually agreeable) to be used to connect the Facility's generator to the Company's EPS. This Synchronizing Device could be a device other than the interconnection Interrupting Device. The Synchronizing Device must be capable of interrupting the current produced when the Facility is connected out of phase with the Company's EPS, consistent with Section 4.1.8.3 of IEEE Standard 1547-2003 which states, "the interconnection system paralleling-device shall be capable of withstanding 220% of the interconnection system rated voltage."
- c. **Transformers:** The Company reserves the right to specify the winding connections for the transformer between the Company's voltage and the Facility's voltage ("Step-Up Transformer") as well as whether it is to be grounded or ungrounded at the Company's voltage. In the event that the transformer winding connection is grounded-wye/grounded-wye the Company reserves the right to specify whether the generator stator is to be grounded or not grounded. The Interconnecting Customer shall be responsible for procuring equipment with a level of insulation and fault-withstand capability compatible with the specified grounding method.
- d. **Voltage relays:** Voltage relays shall be frequency compensated to provide a uniform response in the range of 40 to 70 Hz.
- e. **Protective Relaying Redundancy:** For induction generators greater than 1/15 of on-site minimum verifiable load that is not equipped with on-site capacitors or that is greater than 200 kW, and for all synchronous generators, protective relays utilized by the Facility shall be sufficiently redundant and functionally separate so as to provide adequate protection, consistent with Company practices and standards, upon the failure of any one component.
- f. **Protective Relay Hard-Wire Requirement:** Unless authorized otherwise by the Company, protective relays must be hardwired to the device they are tripping. Further, interposing computer or programmable logic controller or the like is not permitted in the trip chain between the relay and the device being tripped.



- g. **Protective Relay Supply:** Where protective relays are required in this Section, their control circuits shall be DC powered from a battery/charger system or a UPS. Solid-state relays shall be self-powered, or DC powered from a battery/charger system or a UPS. If the Facility uses a Company-acceptable non-latching interconnection contactor, AC powered relaying shall be allowed provided the relay and its method of application are fail safe, meaning that if the relay fails or if the voltage and/or frequency of its AC power source deviate from the relay's design requirements for power, the relay or a separate fail-safe power monitoring relay acceptable to the Company will immediately trip the generator by opening the coil circuit of the interconnection contactor.
- h. **Current Transformers ("CT"):** CT ratios and accuracy classes shall be chosen such that secondary current is less than 100 amperes and transformation errors are consistent with Company practices. CTs used for revenue class metering must have a secondary current of 20 amperes or less.
- i. **Voltage Transformers ("VT")s and Connections:** The Facility shall be equipped with a direct voltage connection or a VT, connected to the Company side of the Interrupting Device. The voltage from this VT shall be used in an interlock scheme, if required by the Company. For three-phase applications, a VT for each phase is required. All three phases must be sensed either by three individual relays or by one relay that contains three elements. If the voltage on any of the three phases is outside the bounds specified by the Company the unit shall be tripped. If the Facility's Step-Up Transformer is ungrounded at the Company voltage, this VT shall be a single three-phase device or three single-phase devices connected from each phase to ground on the Company's side of the Facility's Step-Up Transformer, rated for phase-to-phase voltage and provided with two secondary windings. One winding shall be connected in open delta, have a loading resistor to prevent ferroresonance, and be used for the relay specified in these requirements.

#### 4.2.3.2.3 Additional Requirements for Induction Generator Facilities

- a. **Self-Excitation:** A Facility using induction generators connected in the vicinity of capacitance sufficient to self-excite the generator(s) shall meet the requirements for synchronous machines. The capacitors that enable self-excitation may actually be external to the Facility. The Company will not restrict its existing or future application of capacitors on its lines nor restrict their use by other Interconnecting Customers of the Company to accommodate a Facility with induction machines. If self-excitation becomes possible due to the installation of or presence of capacitance, the protection requirements of the Facility may need to be reviewed and revised, if applicable.

The Facility may be required to install capacitors to limit the adverse effects of drawing reactive power from the EPS for excitation of the generator. Capacitors for supply of reactive power at or near the induction generator with a kilovolts-ampere reactive ("kVAR") rating greater than 30% of the generator's kW rating may cause the generator to become self-excited. (If self-excitation can occur, the Facility shall be required to provide protection as specified in synchronous machines requirements.)

#### 4.2.3.2.4 Additional Requirements for Synchronous Generator Facilities

- a. **Ungrounded Transformers:** If the Facility's Step-Up Transformer connection is ungrounded, the Facility shall be equipped with a zero sequence over-voltage relay fed from the open delta of the three-phase VT specified in the Voltage Transformers and Connections Section 4.2.3.2.2.i.
- b. **High-Speed Protection:** The Facility may be required to use high-speed protection if time-delayed protection would result in degradation in the existing sensitivity or speed of the protection systems on the Company's EPS.
- c. **Breaker Failure Protection:** The Facility may be required to be equipped to provide local breaker failure protection which may include direct transfer tripping to the Company's line terminal(s) in order to detect and clear faults within the Facility that cannot be detected by the Company's back-up protection.
- d. **Communications Channels:** The Interconnecting Customer is responsible for procuring any communications channels necessary between the Facility and the Company's stations, and for providing protection from transients and over-voltages at all ends of these communication channels. The Interconnecting Customer will also bear the ongoing cost to lease these communication channels. Examples include, but are not limited to, connection to a line using high-speed protection, transfer tripping, generators located in areas with low-fault currents, or back up for generator breaker failure.

#### 4.2.4 Protection System Testing and Maintenance

The Company shall have the right to witness the commissioning testing as defined in IEEE Standard 1547-2003 at the completion of construction and to receive a copy of all test data. The Facility shall be equipped with whatever equipment is required to perform this test.

Testing typically includes, but is not limited to:

- CT and CT circuit polarity, ratio, insulation, excitation, continuity and burden tests,
- VT and VT circuit polarity, ratio, insulation and continuity tests,
- Relay pick-up and time delay tests,
- Functional breaker trip tests from protective relays,
- Relay in-service test to check for proper phase rotation and magnitudes of applied currents and voltages,
- Breaker closing interlock tests, and
- Paralleling and disconnection operation.

Prior to final approval by the Company or anytime thereafter, the Company reserves the right to test the generator relaying and control related to the protection of the Company's EPS.

The Interconnecting Customer has the full responsibility for the proper periodic maintenance of its generating equipment and its associated control, protective equipment and interrupting devices.

The Interconnecting Customer is responsible for the periodic maintenance of those relays, interrupting devices, control schemes, and batteries that involve the protection of the Company's

EPS. A periodic maintenance program, mutually agreeable to both the Company and to the Interconnecting Customer is to be established in each case. The Company shall have the right to monitor the periodic maintenance performed.

For relays installed in accordance with the NPCC Criteria for the Protection of the Bulk Power System, maintenance intervals shall be in accordance with such criteria. The results of these tests shall be summarized by the Interconnecting Customer and reported in writing to the Company.

The Company reserves the right to install special test equipment as may be required to monitor the operation of the Facility and its control or for evaluating the quality of power produced by the Facility at a mutually agreed upon location. The cost of this testing will be borne by the Company unless there is shown to be a problem associated with the Facility or if the test was performed at the request of the Interconnecting Customer.

Each routine check shall include both a calibration check and an actual trip of the circuit breaker or contactor from the device being tested. Visually setting a calibration dial, index or tap is not considered an adequate calibration check.

Inverters with field adjustable settings for their internal protective elements shall be periodically tested if those internal elements are being used by the Facility to satisfy the requirements of this Section.

#### **4.2.5 Protection Requirements – Momentary Paralleling of Standby Generators**

Protective relays to isolate the Facility for faults in the Company EPS are not required if the paralleling operation is automatic and takes place for less than one-half of a second. An Interrupting Device with a half-second timer (30 cycles) is required as a fail-safe mechanism.

Parallel operation of the Facility with the Company EPS shall be prevented when the Company's line is dead or out of phase with the Facility.

The control scheme for automatic paralleling must be submitted by the Interconnecting Customer for review and acceptance by the Company prior to the Facility being allowed to interconnect with the Company EPS.

#### **4.2.6 Protection System Changes**

The Interconnecting Customer must provide the Company with reasonable advance notice of any proposed changes to be made to the protective relay system, relay settings, operating procedures or equipment that affect the interconnection. The Company will determine if such proposed changes require re-acceptance of the interconnection per the requirements of this Section.

In the future, should the Company implement changes to the EPS to which the Facility is interconnected, the Interconnecting Customer will be responsible at its own expense for identifying and incorporating any necessary changes to its protection equipment. These changes to the Facility's protection equipment are subject to review and approval by the Company.

## **5.0 Responsibility for Costs of Interconnecting a Facility**

### **5.1 Review and Study Costs**

The Interconnecting Customer shall be responsible for the reasonably incurred costs of the review by the Company and any interconnection studies conducted as defined by Table 2 (“Fee Schedules”) of Section 3.0 of this Interconnection Tariff solely to determine the requirements of interconnecting a Facility with the Company EPS.

### **5.2 Interconnection Equipment Costs**

The Interconnecting Customer shall be responsible for all costs associated with the installation and construction of the Facility and associated interconnection equipment on the Interconnecting Customer’s side of the PCC.

### **5.3 System Modification Costs**

The Interconnecting Customer shall also be responsible for all costs reasonably incurred by Company attributable to the proposed interconnection project in designing, constructing, operating and maintaining the System Modifications. To the extent that Company Terms and Conditions and/or tariffs allow, the Company will refund the appropriate portion of System Modification costs to the Interconnecting Customer as required by the applicable tariff.

### **5.4 Separation of Costs**

Should the Company combine the installation of System Modifications with additions to the Company’s EPS to serve other customers or interconnecting customers, the Company shall not include the costs of such separate or incremental facilities in the amounts billed to the Interconnecting Customer for the System Modifications required pursuant to this Interconnection Tariff.

The Interconnecting Customer shall only pay for that portion of the interconnection costs resulting solely from the System Modifications required to allow for safe, reliable parallel operation of the Facility with the Company EPS.

### **5.5 Normal Payment Procedure**

All application, study fees and System Modification costs (except as noted below) are due in full prior to the execution of the work as outlined in this Interconnection Tariff. If the anticipated costs exceed \$25,000, the Interconnecting Customer is eligible for a payment plan. At the request of the Interconnecting Customer, the Company will break the costs into phases in which the costs will be collected prior to Company expenditures for each phase of the study and/or construction including ordering equipment. The payment plan will be attached as an exhibit to the Interconnection Service Agreement or relevant study agreements.

### **5.6 Security and Creditworthiness**

In order for the Company to agree to any payment plan where some work may be performed in advance of payment, the Company may require the Interconnecting Customer to provide

evidence of creditworthiness. In the event that Interconnecting Customer cannot provide such evidence to the satisfaction of the Company, then the Company may require the Interconnecting Customer to provide sufficient security in order to take advantage of a payment plan. Interconnecting Customer acknowledges that it will be responsible for the actual costs of the System Modifications described in the attached exhibit to the Interconnection Service Agreement, whether greater or lesser than the amount of the payment security provided under this section.

## **6.0 Operating Requirements**

### **6.1 General Operating Requirements**

Interconnecting Customer shall operate and maintain the Facility in accordance with the applicable manufacturer's recommended maintenance schedule, in compliance with all aspects of the Company's Interconnection Tariff. The Interconnecting Customer will continue to comply with all applicable laws and requirements after interconnection has occurred. In the event the Company has reason to believe that the Interconnecting Customer's installation may be the source of problems on the Company EPS, the Company has the right to install monitoring equipment at a mutually agreed upon location to determine the source of the problems. If the Facility is determined to be the source of the problems, the Company may require disconnection as outlined in Section 7.0 of this Interconnection Tariff. The cost of this testing will be borne by the Company unless the Company demonstrates that the problem or problems are caused by the Facility or if the test was performed at the request of the Interconnecting Customer.

### **6.2 No Adverse Effects; Non-interference**

Company shall notify Interconnecting Customer if there is evidence that the operation of the Facility could cause disruption or deterioration of service to other Customers served from the same Company EPS or if operation of the Facility could cause damage to Company EPS or Affected Systems. The deterioration of service could be, but is not limited to, harmonic injection in excess of IEEE Standard 1547-2003, as well as voltage fluctuations caused by large step changes in loading at the Facility. Each Party will notify the other of any emergency or hazardous condition or occurrence with its equipment or facilities which could affect safe operation of the other Party's equipment or facilities. Each Party shall use reasonable efforts to provide the other Party with advance notice of such conditions.

The Company will operate the EPS in such a manner so as to not unreasonably interfere with the operation of the Facility. The Interconnecting Customer will protect itself from normal disturbances propagating through the Company EPS, and such normal disturbances shall not constitute unreasonable interference unless the Company has deviated from Good Utility Practice. Examples of such disturbances could be, but are not limited to, single-phasing events, voltage sags from remote faults on the Company EPS, and outages on the Company EPS. If the Interconnecting Customer demonstrates that the Company EPS is adversely affecting the operation of the Facility and if the adverse effect is a result of a Company deviation from Good Utility Practice, the Company shall take appropriate action to eliminate the adverse effect.

### **6.3 Safe Operations and Maintenance**

Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facility or facilities that it now or hereafter may own unless otherwise specified in this Agreement. Each Party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on their respective side of the PCC. The Company and the Interconnecting Customer shall each provide equipment on its respective side of the PCC that adequately protects the Company's EPS, personnel, and other persons from damage and injury.

## **6.4 Access**

The Company shall have access to the disconnect switch of the Facility at all times.

### **6.4.1 Company and Interconnecting Customer Representatives**

Each Party shall provide and update as necessary the telephone number that can be used at all times to allow either Party to report an emergency.

### **6.4.2 Company Right to Access Company-Owned Facilities and Equipment**

If necessary for the purposes of this Interconnection Tariff and in the manner it describes, the Interconnecting Customer shall allow the Company access to the Company's equipment and the Company's facilities located on the Interconnecting Customer's or Customer's premises. To the extent that the Interconnecting Customer does not own all or any part of the property on which the Company is required to locate its equipment or facilities to serve the Interconnecting Customer under this Interconnection Tariff, the Interconnecting Customer shall secure and provide in favor of the Company the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require.

### **6.4.3 Right to Review Information**

The Company shall have the right to review and obtain copies of Interconnecting Customer's operations and maintenance records, logs, or other information such as, unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to Interconnecting Customer's Facility or its interconnection with the Company EPS. This information will be treated as customer-confidential and only used for the purposes of meeting the requirements of Section 4.2.4.

## 7.0 Disconnection

### 7.1 Temporary Disconnection

- a. **Emergency Conditions.** Company shall have the right to immediately and temporarily disconnect the Facility without prior notification in cases where, in the reasonable judgment of Company, continuance of such service to Interconnecting Customer is imminently likely to (i) endanger persons or damage property or (ii) cause a material adverse effect on the integrity or security of, or damage to, Company EPS or to the electric systems of others to which the Company EPS is directly connected. Company shall notify Interconnecting Customer promptly of the emergency condition. Interconnecting Customer shall notify Company promptly when it becomes aware of an emergency condition that affects the Facility that may reasonably be expected to affect the Company EPS. To the extent information is known, the notification shall describe the emergency condition, the extent of the damage or deficiency, or the expected effect on the operation of both Parties' facilities and operations, its anticipated duration and the necessary corrective action.
- b. **Routine Maintenance, Construction and Repair.** Company shall have the right to disconnect the Facility from the Company EPS when necessary for routine maintenance, construction and repairs on the Company EPS. The Company shall provide the Interconnecting Customer with a minimum of seven calendar days planned outage notification consistent with the Company's planned outage notification protocols. If the Interconnecting Customer requests disconnection by the Company at the PCC, the Interconnecting Customer will provide a minimum of seven days notice to the Company. Any additional notification requirements will be specified by mutual agreement in the Interconnection Service Agreement. Company shall make an effort to schedule such curtailment or temporary disconnection with Interconnecting Customer.
- c. **Forced Outages.** During any forced outage, Company shall have the right to suspend interconnection service to effect immediate repairs on the Company EPS; provided, however, Company shall use reasonable efforts to provide the Interconnecting Customer with prior notice. Where circumstances do not permit such prior notice to Interconnecting Customer, Company may interrupt Interconnection Service and disconnect the Facility from the Company EPS without such notice.
- d. **Non-Emergency Adverse Operating Effects.** The Company may disconnect the Facility if the Facility is having an adverse operating effect on the Company EPS or other customers that is not an emergency, and the Interconnecting Customer fails to correct such adverse operating effect after written notice has been provided and a maximum of 45 days to correct such adverse operating effect has elapsed.
- e. **Modification of the Facility.** Company shall notify Interconnecting Customer if there is evidence of a material modification to the Facility and shall have the right to immediately suspend interconnection service in cases where such material modification has been implemented without prior written authorization from the Company.
- f. **Re-connection.** Any curtailment, reduction or disconnection shall continue only for so long as reasonably necessary. The Interconnecting Customer and the Company shall



cooperate with each other to restore the Facility and the Company EPS, respectively, to their normal operating state as soon as reasonably practicable following the cessation or remedy of the event that led to the temporary disconnection.

## **7.2 Permanent Disconnection**

The Interconnecting Customer has the right to permanently disconnect at any time with 30 days written notice to the Company.

The Company may permanently disconnect the Facility upon termination of the Interconnection Service Agreement in accordance with the terms thereof.

## **8.0 Metering, Monitoring, and Communication**

This Section sets forth the rules, procedures and requirements for metering, monitoring and communication between the Facility and the Company EPS where the Facility exports power or is net metered or is otherwise subject to NEPOOL requirements. Interconnecting Customer will be responsible for reasonable and necessary costs incurred by Company for the purchase, installation, operation, maintenance, testing, repair and replacement of metering and data acquisition equipment specified in the Attachments to the Interconnection Service Agreement. Interconnecting Customer's metering (and data acquisition, as required) equipment shall conform to rules and applicable operating requirements.

### **8.1 Metering, Related Equipment and Billing Options**

The Company shall furnish, read and maintain all revenue metering equipment. The Interconnecting Customer shall furnish and maintain all meter mounting equipment such as or including meter sockets, test switches, conduits, and enclosures. Except as provided below, the Company shall own the meter and the Interconnecting Customer shall pay to the Company a monthly charge to cover taxes, meter maintenance, incremental reading and billing costs, the allowable return on the invoice cost of the meter and the depreciation of the meter. These charges are set forth in the applicable Company tariff(s), as amended from time to time. If the Facility is a Qualifying Facility or On-Site Generating Facility the Interconnecting Customer may elect to own the meter, in which case, the Interconnecting Customer shall pay to the Company a monthly charge to cover meter maintenance and incremental reading and billing costs. Metering requirements and associated charges for Qualifying Facilities and On-Site Generating Facilities are set forth in the applicable Company tariff(s), as amended from time to time. If the Interconnecting Customer elects to install its own meter under the terms of 220 CMR 8.0, the Interconnecting Customer shall be responsible for purchasing and installing software, hardware and/or other technology that may be required by the Company to read billing meters.

The Interconnecting Customer shall provide suitable space within the Facility for installation of the metering, and communication equipment at no cost to the Company.

All metering equipment installed pursuant to this Interconnection Tariff and associated with the Facility shall be routinely tested by the Company at Interconnecting Customer's expense, in accordance with applicable Company and/or ISO-NE criteria, rules and standards. If, at any time, any metering equipment is found to be inaccurate by a margin greater than that allowed under applicable criteria, rules and standards, the Company shall cause such metering equipment to be made accurate or replaced. The cost to repair or replace the meter shall be borne by the Company, if the Company owns the meter, or by the Interconnecting Customer if the Interconnecting Customer owns the meter. Meter readings for the period of inaccuracy shall be adjusted so far as the same can be reasonably ascertained; provided, however, no adjustment prior to the beginning of the preceding month shall be made except by agreement of the Parties. Each Party shall comply with any reasonable request of the other concerning the sealing of meters, the presence of a representative of the other Party when the seals are broken and the tests are made, and other matters affecting the accuracy of the measurement of electricity delivered from the Facility. If either Party believes that there has been a meter failure or stoppage, it shall immediately notify the other.

If the Metering Point and the Point of Receipt or Point of Delivery are not at the same location, the metering equipment shall record delivery of electricity in a manner that accounts for losses occurring between the Metering Point and the Point of Receipt or Point of Delivery. Losses between the Metering Point and Point of Receipt will be reflected pursuant to applicable Company, NEPOOL or ISO-NE criteria, rules or standards.

The type of metering equipment to be installed at a Facility is dependent on the Category (size) of the Facility and how and if the Facility plans to export power or net meter. For those that will export power or net meter, the available equipment options and associated requirements are:

- Net Metering – For Facilities 60 kW or less, unless the Interconnecting Customer elects another form of metering, the Facilities will be equipped with net metering in which metering equivalent to or replicating that of a standard distribution class meter is installed and is enabled to run in a normal direction during periods of net consumption and to run backwards during periods of net generator output. All metering equipment included in this type of installation, including self-contained meters and instrument transformers and meters, shall meet ANSI C12.1 Metering Accuracy Standards and ANSI C57.13 accuracy requirements for instrument transformers. See 220 CMR 11.04 (7)(c).
- Bi-directional, non-interval meter without remote access – in which a distribution class meter with multiple registers is installed. One set of registers will record energy flows from the Company to the Facility during periods when the Facility is a net consumer of energy (the other register will record no flow during these periods) and a second set of registers will record energy flows from the Facility to the Company during periods when the Facility is a net producer of energy (the other register will record no flow during these periods). Each set of registers will record total flows only and will not record flows during specific intervals. All metering equipment included in this type of installation, including self-contained meters and instrument transformers and meters, shall meet ANSI C12.1 Metering Accuracy Standards and ANSI C57.13 accuracy requirements for instrument transformers.
- Bi-directional, interval meter with remote access – in which a distribution class meter with multiple registers is installed. One set of registers will record energy flows from the Company to the Facility during periods when the Facility is a net consumer of energy (the other register will record no flow during these periods) and a second set of registers will record energy flows from the Facility to the Company during periods when the Facility is a net producer of energy (the other register will record no flow during these periods). Each set of registers will record total flows as well as flows during hourly intervals. In addition, the meters will be equipped with remote access capability that may include communication to the extent required by applicable NEPOOL standards. All metering equipment included in this type of installation shall meet the requirements contained in NEPOOL Operating Procedure No. 18, “Metering and Telemetry Criteria” and the Company’s “Policy and Practices for Metering and Telemetry Requirements for New or Modified Interconnections.” Copies of both publications are available from the Company upon request. The Interconnecting Customer shall be responsible for providing all necessary leased telephone lines and any necessary protection for leased lines and shall furthermore be responsible for all communication required by ISO-NE, or by ISO-NE’s designated satellite. The Interconnecting Customer shall maintain all communication and transducer equipment at the Facility in accordance with ISO-NE criteria, rules and

standards. The Company will purchase, own and maintain all communication equipment located on the Interconnecting Customer's Facilities, if the Interconnecting Customer desires, at the Interconnecting Customer's expense. The Interconnecting Customer shall provide, install and own Company-approved or Company-specified test switches in the transducer circuits.

**Units over 60 kW:** Will be equipped with a bi-directional meter. Such meter will have remote access capability and may be an interval meter.

**Units over 1 MW:** Shall be equipped with bi-directional, interval meters with remote access. In addition, Facilities which are 5 MW or greater are required by NEPOOL Operating Procedure No. 18 to provide communication equipment and to supply accurate and reliable information to system operators regarding metered values for MW, MVAR, volt, amp, frequency, breaker status and all other information deemed necessary by ISO-NE and the NEPOOL Satellite (REMVEC).

## **8.2 Additional Monitoring and Communication Requirements**

As the amount of distributed generation on the Company EPS grows significantly, additional monitoring and communication may be required by the Department pursuant to a future proceeding.

## 9.0 Dispute Resolution Process

The Dispute Resolution Process is a multi-stage process described below, beginning with negotiation, then mediation, followed by non-binding arbitration and then adjudication. All days in this Section are calendar days.

### 9.1 Good Faith Negotiation

- a. One party submits a request in writing to the other party for initiation of Step 9.1 of the Dispute Resolution Process. The Parties will elevate the dispute to a Vice President or senior management with sufficient authority to make a decision.
- b. If, after 8 days, the dispute is still not resolved, one or both Parties may initiate Section 9.2.a

### 9.2 Mediation/Non-binding Arbitration

- a. One party to the dispute requests dispute resolution assistance by submitting a written request to the Department, with a summary of the situation. The other party may also submit a summary.
- b. The Parties will meet with a Department hearing officer or other Department staff person within 14 days to convene the Dispute Resolution Process. During that meeting, the Department staff person may assist the Parties in attempting to resolve outstanding differences.
- c. If the differences are not resolved in Step 9.2.b, the Department will provide a list of qualified neutrals and manage the selection of individual neutrals for the case. The Department will use a list of pre-qualified neutrals maintained at the Department and, the Parties will select a mutually agreeable mediator pursuant to a reverse-strike-out process<sup>4</sup> or another mutually-agreeable method. If either party requests a technical expert, both a mediator and a technical expert will be selected, and the technical expert will be selected using the same strike out process or another mutually-agreeable method as that used for selection of the mediator.
- d. Parties will complete the neutral selection process with the Department within seven days. This timetable will only be possible if the Department has, during the initial 14 days, identified mediators and technical experts who have the time available to assist the Parties in a timely manner.
- e. The Department will arrange for the selected mediator to contact Parties.
- f. The Parties will contract with neutrals for services, splitting the fees 50/50.
- g. The mediator begins by discussing the case with the disputing Parties to assess the scope of issues and understand the Parties' positions and interests. The mediator and Parties

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<sup>4</sup> A "reverse strike out process" involves each party eliminating the least desirable mediator until one is left standing.

will establish a schedule for completion of mediation within 30 days. Ten days after the 30-day time period begins, the Department will issue a public notice of the proceeding and will schedule a pre-hearing conference for Section 9.3. The mediator will assist the Parties in developing a scope of work for the technical expert if one is needed. The mediator will also assist the Parties in estimating the Dispute Resolution Process costs and addressing any concerns about those costs.

- h. Mediation meeting or meetings are held.
- i. If the Parties reach agreement, the Dispute Resolution Process ends here.
- j. If the Parties do not reach a mediated agreement, the neutral(s) will issue a brief recommended solution or decision.
- k. If the Parties accept the neutral's recommendation, the Dispute Resolution Process ends here.
- l. If one or both Parties do not accept the neutral recommendation and there is still no agreement, the dispute proceeds to Step 9.3.

### **9.3 Department Adjudicatory Hearing**

The goal of this Step is an adjudicatory hearing at the Department, with witnesses, evidence, etc. that results in a binding precedential decision, appealable to the Massachusetts Supreme Judicial Court.

- a. In the event a party does not accept the recommendation in Step 9.2, it may request, in writing, a Department adjudication.
- b. The Department holds a pre-hearing conference for which notice has been provided in accordance with Section 9.2.g. The Parties, to the extent desirable and feasible, exchange information and establish an expedited schedule during the pre-hearing conference.
- c. The Department and the Parties engage in pre-hearing discovery, as needed in the specific case, building on the information developed in Step 9.2, including the mediator's recommendation.
- d. The Department conducts a hearing.
- e. The Parties file briefs, if one or both desire to do so or the Department requests they do so. The Parties and the Department will complete Step 9.3.b through 9.3.e in 90 days.
- f. The Department issues its order within 20 days. If it is unable to do so, it will notify the Parties and provide a revised decision date.

The Department will appoint a hearing officer or other Department staff person familiar with the DG interconnection process in Massachusetts to oversee the selection of private neutrals and otherwise serve as a resource for DG cases.

Disputes subject to the Dispute Resolution Process on these issues are not meant to be considered as Interconnecting Customer complaints as part of the Company's service quality plan. The docket number for this plan is D.T.E. 01-71. This does not preclude the Interconnecting Customer from filing Interconnecting Customer complaints for which they are otherwise eligible.

## **10.0 Confidentiality Statement**

Information including identifying information and specific Facility information may be shared with the Department. A list of all executed DG Interconnection Service Agreements will be submitted to the Department annually. Interconnecting Customers may elect to petition the Department to maintain confidentiality with their information, however, the Department is under no obligation to grant this confidentiality.

In an ongoing effort to improve the interconnection process for Interconnecting Customer-owned Facilities, the information provided by Interconnecting Customers and the results of the application process will be aggregated with the information of other applicants and periodically reviewed by a DG Collaborative authorized by the Department consisting of industry participants. The aggregation process will not reveal specific details for any one Interconnecting Customer. In addition to this process, Interconnecting Customers may choose to allow non-identifying information specific to their applications to be shared with the Collaborative by answering “Yes” to the Confidentiality Statement question on the first page of the application form.



## 11.0 Insurance Requirements

### 11.1 General Liability

In connection with Interconnecting Customer's performance of its duties and obligations under the Interconnection Service Agreement, Interconnecting Customer shall maintain, during the term of the Agreement, general liability insurance with a combined single limit of not less than:

- a. Five million dollars (\$5,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than five (5) MW;
- b. Two million dollars (\$2,000,000) for each occurrence and five million dollars (\$5,000,000) in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one (1) MW and less than or equal to five (5) MW;
- c. One million dollars (\$1,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one hundred (100) kW and less than or equal to one (1) MW;
- d. Five hundred thousand dollars (\$500,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than ten (10) kW and less than or equal to one hundred (100) kW.

No insurance is required for Facilities less than or equal to ten (10) kW. However, the Company recommends that the Interconnecting Customer obtain adequate insurance to cover potential liabilities.

### 11.2 Insurer Requirements and Endorsements

All required insurance shall be carried by reputable insurers qualified to underwrite insurance in MA having a Best Rating of "A-". In addition, all insurance shall, (a) include Company as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that Company shall not incur liability to the insurance carrier for payment of premium for such insurance; and (d) provide for thirty (30) calendar days' written notice to Company prior to cancellation, termination, or material change of such insurance; provided that to the extent the Interconnecting Customer is satisfying the requirements of subpart (d) of this paragraph by means of a presently existing insurance policy, the Interconnecting Customer shall only be required to make good faith efforts to satisfy that requirement and will assume the responsibility for notifying the Company as required above.

If the requirement of clause (a) in the paragraph above prevents Interconnecting Customer from obtaining the insurance required without added cost or due to written refusal by the insurance carrier, then upon Interconnecting Customer's written Notice to Company, the requirements of clause (a) shall be waived.

### **11.3 Evidence of Insurance**

Evidence of the insurance required shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by Interconnecting Customer.

The Interconnecting Customer is responsible for providing the Company with evidence of insurance in compliance with this Interconnection Tariff on an annual basis.

Prior to the Company commencing work on System Modifications, the Interconnecting Customer shall have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above. The Interconnecting Customer shall notify and send to the Company a certificate of insurance for any policy written on a "claims-made" basis. The Company may at its discretion require the Interconnecting Customer to maintain tail coverage for three years on all policies written on a "claims-made" basis.

### **11.4 Self Insurance**

If Interconnecting Customer is a company with a self-insurance program established in accordance with commercially acceptable risk management practices. Interconnecting Customer may comply with the following in lieu of the above requirements as reasonably approved by the Company:

- a. Interconnecting Customer shall provide to Company, at least thirty (30) calendar days prior to the Date of Initial Operation, evidence of such program to self-insure to a level of coverage equivalent to that required.
- b. If Interconnecting Customer ceases to self-insure to the standards required hereunder, or if Interconnecting Customer is unable to provide continuing evidence of Interconnecting Customer's financial ability to self-insure, Interconnecting Customer agrees to promptly obtain the coverage required under Section 11.1.

Effective January 14, 2006

## Exhibit A – Interconnection Service Agreement

1. **Parties.** This Interconnection Service Agreement (“Agreement”), dated as of \_\_\_\_\_ (“Effective Date”) is entered into, by and between \_\_\_\_\_, a Massachusetts corporation with a principal place of business at \_\_\_\_\_ (hereinafter referred to as the “Company”), and \_\_\_\_\_, a \_\_\_\_\_ corporation with a principal place of business at \_\_\_\_\_ (“Interconnecting Customer”). (The Company and Interconnecting Customer are collectively referred to as the “Parties”). Terms used herein without definition shall have the meanings set forth in the Interconnection Tariff Section 1.2 which is attached to this Agreement as Attachment 1.
2. **Basic Understandings.** This Agreement provides for parallel operation of an Interconnecting Customer’s Facility with the Company EPS to be installed and operated by the Interconnecting Customer at \_\_\_\_\_ (Facility name, address, and end-use customer account number, if applicable). A description of the Facility is located in Attachment 2. If the Interconnecting Customer is not the Customer, a Third Party Owner Agreement must be signed and included as an Attachment 6 to this document.

The Interconnecting Customer has the right to operate its Facility in parallel with the Company EPS immediately upon successful completion of the protective relays testing as witnessed by the Company and receipt of written notice from the Company that interconnection with the Company EPS is authorized (“Authorization Date”).

3. **Term.** This Agreement shall become effective as of the Effective Date. The Agreement shall continue in full force and effect until terminated pursuant to Section 4 of this Agreement.

4. **Termination.**

4.1 This Agreement may be terminated under the following conditions.

4.1.1 The Parties agree in writing to terminate the Agreement.

4.1.2 The Interconnecting Customer may terminate this agreement at any time by providing sixty (60) days written notice to Company.

4.1.3 The Company may terminate this Agreement upon the occurrence of an Event of Default by the Interconnecting Customer as provided in Section 18 of this Agreement.

4.1.4 The Company may terminate this Agreement if the Interconnecting Customer either: (1) fails to energize the Facility within 12 months of the Authorization Date; or, (2) permanently abandons the Facility. Failure to operate the Facility for any consecutive 12 month period after the Authorization Date shall constitute permanent abandonment unless otherwise agreed to in writing between the Parties.

4.1.5 The Company, upon 30 days notice, may terminate this Agreement if there are any changes in Department regulations or state law that have a material adverse effect on the Company’s ability to perform its obligations under the terms of this Agreement.

4.2 **Survival of Obligations.** The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination. Sections 5, 10, 12, 13, and 25 as it relates to disputes pending or for wrongful termination of this Agreement shall survive the termination of this Agreement.

4.3 **Related Agreements.** Any agreement attached to and incorporated into this Agreement shall terminate concurrently with this Agreement unless the Parties have agreed otherwise in writing.

5. **General Payment Terms.** The Interconnecting Customer shall be responsible for the System Modification costs and payment terms identified in Attachment 4 of this Agreement and any approved cost increases pursuant to the terms of the Interconnection Tariff.

**5.1 Cost or Fee Adjustment Procedures.** The Company will, in writing, advise the Interconnecting Customer in advance of any cost increase for work to be performed up to a total amount of increase of 10% only. All costs that exceed the 10% increase cap will be borne solely by the Company. Any such changes to the Company's costs for the work shall be subject to the Interconnecting Customer's consent. The Interconnecting Customer shall, within thirty (30) days of the Company's notice of increase, authorize such increase and make payment in the amount up to the 10% increase cap, or the Company will suspend the work and the corresponding agreement will terminate.

**5.2 Final Accounting.** Upon request by the Interconnecting Customer, the Company within ninety (90) business days after completion of the construction and installation of the System Modifications described in an attached exhibit to the Interconnection Service Agreement, shall provide Interconnecting Customer with a final accounting report of any difference between (a) Interconnecting Customer's cost responsibility under the Interconnection Service Agreement for the actual cost of such System Modifications, and (b) Interconnecting Customer's previous aggregate payments to the Company for such System Modifications. To the extent that Interconnecting Customer's cost responsibility in the Interconnection Service Agreement exceeds Interconnecting Customer's previous aggregate payments, the Company shall invoice Interconnecting Customer and Interconnecting Customer shall make payment to the Company within 45 days. To the extent that Interconnecting Customer's previous aggregate payments exceed Interconnecting Customer's cost responsibility under this agreement, the Company shall refund to Interconnecting Customer an amount equal to the difference within forty five (45) days of the provision of such final accounting report.

## 6. Operating Requirements

**6.1 General Operating Requirements.** Interconnecting Customer shall operate and maintain the Facility in accordance with the applicable manufacturer's recommended maintenance schedule, in compliance with all aspects of the Company's Interconnection Tariff. The Interconnecting Customer will continue to comply with all applicable laws and requirements after interconnection has occurred. In the event the Company has reason to believe that the Interconnecting Customer's installation may be the source of problems on the Company EPS, the Company has the right to install monitoring equipment at a mutually agreed upon location to determine the source of the problems. If the Facility is determined to be the source of the problems, the Company may require disconnection as outlined in Section 7.0 of this Interconnection Tariff. The cost of this testing will be borne by the Company unless the Company demonstrates that the problem or problems are caused by the Facility or if the test was performed at the request of the Interconnecting Customer.

**6.2 No Adverse Effects; Non-interference.** Company shall notify Interconnecting Customer if there is evidence that the operation of the Facility could cause disruption or deterioration of service to other Customers served from the same Company EPS or if operation of the Facility could cause damage to Company EPS or Affected Systems. The deterioration of service could be, but is not limited to, harmonic injection in excess of IEEE Standard 1547-2003, as well as voltage fluctuations caused by large step changes in loading at the Facility. Each Party will notify the other of any emergency or hazardous condition or occurrence with its equipment or facilities which could affect safe operation of the other Party's equipment or facilities. Each Party shall use reasonable efforts to provide the other Party with advance notice of such conditions.

The Company will operate the EPS in such a manner so as to not unreasonably interfere with the operation of the Facility. The Interconnecting Customer will protect itself from normal disturbances propagating through the Company EPS, and such normal disturbances shall not constitute unreasonable interference unless the Company has deviated from Good Utility Practice. Examples of such disturbances could be, but are not limited to, single-phasing events, voltage sags from remote faults on the Company EPS, and outages on the Company EPS. If the Interconnecting Customer demonstrates that the Company EPS is adversely affecting the operation of the Facility and if the adverse effect is a result of a Company deviation from Good Utility Practice, the Company shall take appropriate action to eliminate the adverse effect.

**6.3 Safe Operations and Maintenance.** Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facility or facilities that it now or hereafter may own unless otherwise specified in this Agreement. Each Party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on their respective side of the PCC. The Company and the Interconnecting Customer shall each provide equipment on its respective side of the PCC that adequately protects the Company's EPS, personnel, and other persons from damage and injury.

**6.4 Access.** The Company shall have access to the disconnect switch of the Facility at all times.

**6.4.1 Company and Interconnecting Customer Representatives.** Each Party shall provide and update as necessary the telephone number that can be used at all times to allow either Party to report an emergency.

**6.4.2 Company Right to Access Company-Owned Facilities and Equipment.** If necessary for the purposes of this Interconnection Tariff and in the manner it describes, the Interconnecting Customer shall allow the Company access to the Company's equipment and the Company's facilities located on the Interconnecting Customer's or Customer's premises. To the extent that the Interconnecting Customer does not own all or any part of the property on which the Company is required to locate its equipment or facilities to serve the Interconnecting Customer under this Interconnection Tariff, the Interconnecting Customer shall secure and provide in favor of the Company the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require.

**6.4.3 Right to Review Information.** The Company shall have the right to review and obtain copies of Interconnecting Customer's operations and maintenance records, logs, or other information such as, unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to Interconnecting Customer's Facility or its interconnection with the Company EPS. This information will be treated as customer-confidential and only used for the purposes of meeting the requirements of Section 4.2.4 in this Interconnection Tariff.

## 7. Disconnection

### 7.1 Temporary Disconnection

**7.1.1 Emergency Conditions.** Company shall have the right to immediately and temporarily disconnect the Facility without prior notification in cases where, in the reasonable judgment of Company, continuance of such service to Interconnecting Customer is imminently likely to (i) endanger persons or damage property or (ii) cause a material adverse effect on the integrity or security of, or damage to, Company EPS or to the electric systems of others to which the Company EPS is directly connected. Company shall notify Interconnecting Customer promptly of the emergency condition. Interconnecting Customer shall notify Company promptly when it becomes aware of an emergency condition that affects the Facility that may reasonably be expected to affect the Company EPS. To the extent information is known, the notification shall describe the emergency condition, the extent of the damage or deficiency, or the expected effect on the operation of both Parties' facilities and operations, its anticipated duration and the necessary corrective action.

**7.1.2 Routine Maintenance, Construction and Repair.** Company shall have the right to disconnect the Facility from the Company EPS when necessary for routine maintenance, construction and repairs on the Company EPS. The Company shall provide the Interconnecting Customer with a minimum of seven calendar days planned outage notification consistent with the Company's planned outage notification protocols. If the Interconnecting Customer requests disconnection by the Company at the PCC, the Interconnecting Customer will provide a minimum of seven days notice to the Company. Any additional notification requirements will be specified by mutual agreement in the Interconnection Service Agreement. Company shall make an effort to schedule such curtailment or temporary disconnection with Interconnecting Customer.

**7.1.3 Forced Outages.** During any forced outage, Company shall have the right to suspend interconnection service to effect immediate repairs on the Company EPS; provided, however, Company shall use reasonable efforts to provide the Interconnecting Customer with prior notice. Where circumstances do not permit such prior notice to Interconnecting Customer, Company may interrupt Interconnection Service and disconnect the Facility from the Company EPS without such notice.

**7.1.4 Non-Emergency Adverse Operating Effects.** The Company may disconnect the Facility if the Facility is having an adverse operating effect on the Company EPS or other customers that is not an emergency, and the Interconnecting Customer fails to correct such adverse operating effect after written notice has been provided and a maximum of 45 days to correct such adverse operating effect has elapsed.

**7.1.5 Modification of the Facility.** Company shall notify Interconnecting Customer if there is evidence of a material modification to the Facility and shall have the right to immediately suspend interconnection service in cases where such material modification has been implemented without prior written authorization from the Company.

**7.1.6 Re-connection.** Any curtailment, reduction or disconnection shall continue only for so long as reasonably necessary. The Interconnecting Customer and the Company shall cooperate with each other to restore the Facility and the Company EPS, respectively, to their normal operating state as soon as reasonably practicable following the cessation or remedy of the event that led to the temporary disconnection.

**7.2 Permanent Disconnection.** The Interconnecting Customer has the right to permanently disconnect at any time with 30 days written notice to the Company.

**7.2.1** The Company may permanently disconnect the Facility upon termination of the Interconnection Service Agreement in accordance with the terms thereof.

- 8. Metering.** Metering of the output from the Facility shall be conducted pursuant to the terms of the Interconnection Tariff.
- 9. Assignment.** Except as provided herein, Interconnecting Customer shall not voluntarily assign its rights or obligations, in whole or in part, under this Agreement without Company's written consent. Any assignment Interconnecting Customer purports to make without Company's written consent shall not be valid. Company shall not unreasonably withhold or delay its consent to Interconnecting Customer's assignment of this Agreement. Notwithstanding the above, Company's consent will not be required for any assignment made by Interconnecting Customer to an Affiliate or as collateral security in connection with a financing transaction. In all events, the Interconnecting Customer will not be relieved of its obligations under this Agreement unless, and until the assignee assumes in writing all obligations of this Agreement and notifies the Company of such assumption.
- 10. Confidentiality.** Company shall maintain confidentiality of all Interconnecting Customer confidential and proprietary information except as otherwise required by applicable laws and regulations, the Interconnection Tariff, or as approved by the Interconnecting Customer in the Simplified or Expedited/Standard Application form or otherwise.
- 11. Insurance Requirements.**
- 11.1 General Liability.** In connection with Interconnecting Customer's performance of its duties and obligations under the Interconnection Service Agreement, Interconnecting Customer shall maintain, during the term of the Agreement, general liability insurance with a combined single limit of not less than:
- Five million dollars (\$5,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than five (5) MW.
  - Two million dollars (\$2,000,000) for each occurrence and five million dollars (\$5,000,000) in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one (1) MW and less than or equal to five (5) MW;
  - One million dollars (\$1,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one hundred (100) kW and less than or equal to one (1) MW;
  - Five hundred thousand dollars (\$500,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than ten (10) kW and less than or equal to one hundred (100) kW.

No insurance is required for Facilities less than or equal to ten (10) kW. However, the Company recommends that the Interconnecting Customer obtain adequate insurance to cover potential liabilities.

**11.2 Insurer Requirements and Endorsements.** All required insurance shall be carried by reputable insurers qualified to underwrite insurance in MA having a Best Rating of "A-". In addition, all insurance shall, (a) include Company as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that Company shall not incur liability to the insurance carrier for payment of premium for such insurance; and (c) provide for thirty (30) calendar days' written notice to Company prior to cancellation, termination, or material change of such insurance; provided that to the extent the Interconnecting Customer is satisfying the requirements of subpart (d) of this paragraph by means of a presently existing insurance policy, the Interconnecting Customer shall only be required to make good faith efforts to satisfy that requirement and will assume the responsibility for notifying the Company as required above.

If the requirement of clause (a) in the paragraph above prevents Interconnecting Customer from obtaining the insurance required without added cost or due to written refusal by the insurance carrier, then upon Interconnecting Customer's written Notice to Company, the requirements of clause (a) shall be waived.

**11.3 Evidence of Insurance.** Evidence of the insurance required shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by Interconnecting Customer.

The Interconnecting Customer is responsible for providing the Company with evidence of insurance in compliance with this Interconnection Tariff on an annual basis.

Prior to the Company commencing work on System Modifications, the Interconnecting Customer shall have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above. The Interconnecting Customer shall notify and send to the Company a certificate of insurance for any policy written on a "claims-made" basis. The Company may at its discretion require the Interconnecting Customer to maintain tail coverage for three years on all policies written on a "claims-made" basis.

**11.4 Self Insurance.** If Interconnecting Customer is a company with a self-insurance program established in accordance with commercially acceptable risk management practices. Interconnecting Customer may comply with the following in lieu of the above requirements as reasonably approved by the Company:

- Interconnecting Customer shall provide to Company, at least thirty (30) calendar days prior to the Date of Initial Operation, evidence of such program to self-insure to a level of coverage equivalent to that required.
- If Interconnecting Customer ceases to self-insure to the standards required hereunder, or if Interconnecting Customer is unable to provide continuing evidence of Interconnecting Customer's financial ability to self-insure, Interconnecting Customer agrees to promptly obtain the coverage required under Section 11.1.

**11.5** All insurance certificates, statements of self insurance, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the following:

[Company Name]

Attention: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ (specific requirements)

**12. Indemnification.** Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, Affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of or are in any manner connected with the performance of this Agreement by that Party except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the Party seeking indemnification.





**17.2** A Party may change its address for Notices at any time by providing the other Party Notice of the change in accordance with Section 16.1.

**17.3** The Parties may also designate operating representatives to conduct the daily communications, which may be necessary or convenient for the administration of this Agreement. Such designations, including names, addresses, and phone numbers may be communicated or revised by one Party's Notice to the other.

## **18. Default and Remedies**

**18.1 Defaults.** Any one of the following shall constitute "An Event of Default."

- (i) One of the Parties shall fail to pay any undisputed bill for charges incurred under this Agreement or other amounts which one Party owes the other Party as and when due, any such failure shall continue for a period of thirty (30) days after written notice of nonpayment from the affected Party to the defaulting Party, or
- (ii) One of the Parties fails to comply with any other provision of this Agreement or breaches any representation or warranty in any material respect and fails to cure or remedy that default or breach within sixty (60) days after notice and written demand by the affected Party to cure the same or such longer period reasonably required to cure (not to exceed an additional 90 days unless otherwise mutually agreed upon), provided that the defaulting Party diligently continues to cure until such failure is fully cured.

**18.2 Remedies.** Upon the occurrence of an Event of Default, the affected Party may at its option, in addition to any remedies available under any other provision herein, do any, or any combination, as appropriate, of the following:

- a. Continue to perform and enforce this Agreement;
- b. Recover damages from the defaulting Party except as limited by this Agreement;
- c. By written notice to the defaulting Party terminate this Agreement;
- d. Pursue any other remedies it may have under this Agreement or under applicable law or in equity.

**19. Entire Agreement.** This Agreement, including any attachments or appendices, is entered into pursuant to the Interconnection Tariff. Together the Agreement and the Interconnection Tariff represent the entire understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each Party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement or in the incorporated tariff schedules and rules.

**20. Supercedence.** In the event of a conflict between this Agreement, the Interconnection Tariff, or the terms of any other tariff, Exhibit or Attachment incorporated by reference, the terms of the Interconnection Tariff, as the same may be amended from time to time, shall control. In the event that the Company files a revised tariff related to interconnection for Department approval after the effective date of this Agreement, the Company shall, not later than the date of such filing, notify the signatories of this Agreement and provide them a copy of said filing.

**21. Governing Law.** This Agreement shall be interpreted, governed, and construed under the laws of the Commonwealth of Massachusetts without giving effect to choice of law provisions that might apply to the law of a different jurisdiction.

**22. Non-waiver.** None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. The failure of a Party to insist in any one or more instances upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or the relinquishment of any such rights for the future, but the same shall continue and remain in full force and effect.

- 23. Counterparts.** This Agreement may be signed in counterparts.
- 24. No Third Party Beneficiaries.** This Agreement is made solely for the benefit of the Parties hereto. Nothing in the Agreement shall be construed to create any rights in or duty to, or standard of care with respect to, or any liability to, any person not a party to this Agreement.
- 25. Dispute Resolution.** Unless otherwise agreed by the Parties, all disputes arising under this Agreement shall be resolved pursuant to the Dispute Resolution Process set forth in the Interconnection Tariff.
- 26. Severability.** If any clause, provision, or section of this Agreement is ruled invalid by any court of competent jurisdiction, the invalidity of such clause, provision, or section, shall not affect any of the remaining provisions herein.
- 27. Signatures.** IN WITNESS WHEREOF, the Parties hereto have caused two (2) originals of this Agreement to be executed under seal by their duly authorized representatives.

	Interconnecting Customer		Company
By:	SAMPLE	By:	SAMPLE
Name:	_____	Name:	_____
Title:	_____	Title:	_____

The following attachments would be developed and included as appropriate for each specific Interconnection Service Agreement, except for Attachment 6, which is included as Exhibit B:

- Attachment 1: Definitions (See Section 1.2 of the Interconnection Tariff)
- Attachment 2: Description of Facilities, including demarcation of Point of Common Coupling
- Attachment 3: Description of System Modifications
- Attachment 4: Costs of System Modifications and Payment Terms
- Attachment 5: Special Operating Requirements, if any
- Attachment 6: Third Party Owner Agreement (see Exhibit B of the Interconnection Tariff)

## Exhibit B – Third Party Owner Agreement

### Customer Interconnection Acknowledgement Agreement

**Parties.** This Customer Interconnection Acknowledgement Agreement (“Agreement”), dated as of \_\_\_\_\_ (“Effective Date” of this Agreement) is entered into, by and between \_\_\_\_\_, a Massachusetts corporation with a principal place of business at \_\_\_\_\_ (hereinafter referred to as the “Company”), and \_\_\_\_\_, a \_\_\_\_\_ corporation with a principal place of business at \_\_\_\_\_ (“Interconnecting Customer”). (The Company and Interconnecting Customer are collectively referred to as the “Parties”). Terms used herein without definition shall have the meanings set forth in the Interconnection Tariff Section 1.2 which is attached to this Agreement as Attachment 1.

#### 1. SCOPE, PURPOSE, AND RELATED AGREEMENTS

This Agreement, in conjunction with the Interconnection Service Agreement identified in Section 2.2 and attached as Attachment 6, allows the Interconnecting Customer (as identified in Section 2.3) to utilize Customer’s electrical facilities to interconnect and operate the Facility in Parallel with Company’s EPS. The purpose of the Facility is to serve the Customer’s electrical loads at the location identified in Section 2.1

#### 2. SUMMARY AND DESCRIPTION OF THE PARTIES AND LOCATION OF GENERATING FACILITY

2.1 The name and address used by Company to locate the Customer or electric service account where the Facility interconnects with Company’s EPS is:

\_\_\_\_\_  
Attention:  
Address:  
City:  
Phone  
FAX:  
Company Account Number:

2.2 The Facility shall be Interconnected with the Company’s EPS pursuant to an Interconnection Service Agreement between Company and Interconnecting Customer, its successors or assigns (“Interconnecting Customer”) dated \_\_\_\_\_ (“Interconnection Service Agreement”).

2.3 Interconnecting Customer’s contact information:

\_\_\_\_\_  
Attention:  
Address:  
City:  
Phone  
FAX:

#### 3. CUSTOMER ACKNOWLEDGMENT AND OBLIGATIONS

3.1 Customer acknowledges that it has authorized the Facility to be installed and operated by Interconnecting Customer in accordance with Company’s Interconnection Tariff in or adjacent to Customer’s premises. Such Facility shall be used to serve all or a portion of Customer’s electrical loads associated with the electric service provided by Company at the location identified in Section 2.1 above. Customer shall be solely responsible for the terms of any agreement between it and Interconnecting Customer.

- 3.2 Customer shall be solely responsible for any charges incurred under Company's electric service tariffs, and any other regulations and laws governing the provision of electric services. Customer acknowledges that it has been made aware of the charges and conditions related to the operation of the Facility and that the performance or lack of performance of the Facility may affect the rates and charges billed by Company for the electric power delivered to Customer. Copies of such tariffs are available by request to Company or on the Company's web site.
- 3.3 Any amount to be paid, or refunded to, Company for the services received by Customer as a result of the Interconnecting Customer failing to operate the Facility in accordance with the terms of the representations and warranties made under the Interconnection Service Agreement shall be paid to Company by the Customer in accordance with Company's electric tariffs.
- 3.4 Customer shall provide access as necessary to the Customer's premises for Company personnel, contractors or agents to perform Company's duties under the Interconnection Tariff. The Company shall have access to the disconnect switch of the Facility at all times.

#### 4. TERMS AND TERMINATION

- 4.1 This Agreement shall become effective as of the date referenced in the preamble. The Agreement shall continue in full force and effect until the earliest date that one of the following events occurs:
  - (a) The Parties agree in writing to terminate the Agreement.
  - (b) At 12:01 A.M. on the day following the date the Customer's electric service account through which the Generating Facility is interconnected to Company's EPS is closed or terminated.
  - (c) At 12:01 A.M. on the 31<sup>st</sup> day following the date the Interconnection Service Agreement is terminated.
  - (d) At 12:01 A.M. on the 61<sup>st</sup> day after Company provides written Notice pursuant to Section 6 below to the Customer that Customer is not in compliance with the terms of this Agreement.

#### 5. LIMITATION OF LIABILITY

- 5.1 Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including court costs and reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage or liability actually incurred. In no event shall either Party be liable to the other Party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.
- 5.2 Company shall not be liable to Customer in any manner, whether in tort or contract or under any other theory, for loss or damages of any kind sustained by Customer resulting from existence of, operation of, or lack of operation of the Facility, or termination of the Interconnection Service Agreement, provided such termination is consistent with the terms of the Interconnection Service Agreement, except to the extent such loss or damage is caused by the negligence or willful misconduct of the Company.

#### 6. NOTICES

- 6.1 Any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given on the date actually delivered in person or five (5) business days after being sent by certified mail, e-mail or fax with confirmation of receipt and original follow-up by mail, or any nationally-recognized delivery service with proof of delivery, postage prepaid, to the person specified below:

If to Company: \_\_\_\_\_

Attention:  
Address:  
Phone:  
FAX:

If to Customer: \_\_\_\_\_

Attention:  
Address:  
City:  
Phone:  
Fax:

- 6.2 A Party may change its address for Notices at any time by providing the other Party Notice of the change in accordance with Section 6.1.
- 6.3 The Parties may also designate operating representatives to conduct the daily communications, which may be necessary or convenient for the administration of this Agreement. Such designations, including names, addresses, and phone numbers may be communicated or revised by one Party's Notice to the other.

#### 7. RELEASE OF DATA

Company shall maintain confidentiality of all Customer confidential and proprietary information except as otherwise required by applicable laws and regulations, the Interconnection Tariff, or as approved in writing by the Customer.

#### 8. ASSIGNMENT

Except as provided herein, Interconnecting Customer shall not voluntarily assign its rights or obligations, in whole or in part, under this Agreement without Company's written consent. Any assignment Interconnecting Customer purports to make without Company's written consent shall not be valid. Company shall not unreasonably withhold or delay its consent to Interconnecting Customer's assignment of this Agreement. Notwithstanding the above, Company's consent will not be required for any assignment made by Interconnecting Customer to an Affiliate or as collateral security in connection with a financing transaction. In all events, the Interconnecting Customer will not be relieved of its obligations under this Agreement unless, and until the assignee assumes in writing all obligations of this Agreement and notifies the Company of such assumption.

#### 9. NON-WAIVER

None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. The failure of a Party to insist in any one or more instances upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or the relinquishment of any such rights for the future, but the same shall continue and remain in full force and effect.

#### 10. GOVERNING LAW, JURISDICTION OF COMMISSION, INCLUSION OF COMPANY'S TARIFFS, DEFINED TERMS

- 10.1 This Agreement shall be interpreted, governed, and construed under the laws of the Commonwealth of Massachusetts without giving effect to choice of law provisions that might apply to the law of a different jurisdiction.
- 10.2 The interconnection and services provided under this Agreement shall at all times be subject to terms and conditions set forth in the tariffs applicable to the electric service provided by Company. Copies of such tariffs are available at the Company's web site or by request to Company and are incorporated into this Agreement by this reference.

10.3 Notwithstanding any other provisions of this Agreement, Company shall have the right to unilaterally file with the Department, pursuant to the Department's rules and regulations, an application for change in tariffs, rates, charges, classification, service or any agreement relating thereto.

10.4 When initially capitalized, whether in the singular or in the plural, the terms used herein shall have the meanings assigned to them either in this Agreement or in the Interconnection Tariff.

#### 11. AMENDMENTS AND MODIFICATION

This Agreement can only be amended or modified by a written agreement signed by both Parties.

#### 12. ENTIRE AGREEMENT

This Agreement, including any attachments or appendices, is entered into pursuant to the Interconnection Service Agreement and the Interconnection Tariff. Together this Agreement, the Interconnection Service Agreement, and the Interconnection Tariff represent the entire understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement or in the incorporated tariff schedules and rules.

#### 13. INDEMNIFICATION

Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, Affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of or are in any manner connected with the performance of this Agreement by that Party except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the Party seeking indemnification.

#### 14. SIGNATURES

IN WITNESS WHEREOF, the Parties hereto have caused two originals of this Agreement to be executed under seal by their duly authorized representatives.

Customer  
By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company  
By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

## Exhibit C – Simplified Process Interconnection Application

### Instructions

**General Information:** If you, the Interconnecting Customer, wish to submit an application to interconnect your generating Facility using the Simplified Process (10 kW or less, inverter-based, and UL 1741-listed) please fill out the attached application form completely, including your signature in the space provided. Please attach any documentation provided by the inverter manufacturer concerning the UL 1741 listing provided by the manufacturer.

Mail all material to: COMPANY SPECIFIC ADDRESS

The Simplified Process is as follows:

1. Application process:
  - a. Interconnecting Customer submits a Simplified Application filled out properly and completely.
  - b. The electric utility (Company) acknowledges to the Interconnecting Customer receipt of the application within 3 business days of receipt.
  - c. Company evaluates the application for completeness and notifies the Interconnecting Customer within 10 business days of receipt that the application is or is not complete and, if not, advises what is missing.
2. Company verifies Facility equipment can be interconnected safely and reliably.
3. If approved, the Company signs the application approval line and sends to the Interconnecting Customer. In certain rare circumstances, the Company may require the Interconnecting Customer to pay for minor System Modifications. If so, a description of work and an estimate will be sent back to the Interconnecting Customer for approval. The Interconnecting Customer would then approve via a signature and payment for the minor System Modifications. If the Interconnecting Customer approves, the Company performs the System Modifications. Then, the Company signs the application approval line and sends to the Interconnecting Customer.
4. Upon receipt of the signed application, the Interconnecting Customer installs the Facility. Then the Interconnecting Customer arranges for inspection of the completed installation by the local electrical wiring inspector, or other authority having jurisdiction, and this person signs the Certificate of Completion. If the Facility was installed by an electrical contractor, this person also fills out the Certificate of Completion.
5. The Interconnecting Customer returns the Certificate of Completion to the Company.
6. Following receipt of the Certificate of Completion, the Company may inspect the Facility for compliance with standards by arranging for a Witness Test. The Interconnecting Customer has no right to operate in parallel (interconnect) until a Witness Test has been performed or has been previously waived on the Application Form. The Company is obligated to complete this Witness Test within 10 business days of the receipt of the Certificate of Completion. If the Company does not inspect in 10 business days or by mutual agreement of the Parties, the Witness Test is deemed waived.
7. Assuming the wiring inspection and/or Witness Test is satisfactory, the Company notifies the Interconnecting Customer in writing that interconnection is authorized. If the Witness Test is not satisfactory, the Company has the right to disconnect the Facility, and will provide information to the Interconnecting Customer describing clearly what is required for approval.

**Contact Information:** You must provide the contact information for the legal applicant (i.e. the Interconnecting Customer). If other parties are responsible for interfacing with the Company, you should provide their contact information as well.

**Ownership Information:** Please enter the legal names of the owner or owners of the Facility. Include the percentage ownership (if any) by any Company or public utility holding company, or by any entity owned by either.

**Confidentiality Statement:** In an ongoing effort to improve the interconnection process for Interconnecting Customers, the information you provide and the results of the application process will be aggregated with the information of other applicants and periodically reviewed by a DG Collaborative of industry participants that has been organized by the Massachusetts Department of Telecommunications and Energy (DTE). The aggregation process mixes the data together so that specific details for one Interconnecting Customer are not revealed. In addition to this process, you may choose to allow the information specific to your application to be shared with the Collaborative by answering “Yes” to the Confidentiality Statement question on the first page. Please note that even in this case your identification information (contact data) and specific Facility location will not be shared.

**UL 1741 Listed?** The standard UL 1741, “Inverters, Converters, and Controllers for Use in Independent Power Systems,” addresses the electrical interconnection design of various forms of generating equipment. Many manufacturers choose to submit their equipment to a Nationally Recognized Testing Laboratory (NRTL) that verifies compliance with UL 1741. This “listing” is then marked on the equipment and supporting documentation.



## Simplified Process Interconnection Application and Service Agreement for Facilities with Inverter Capacity of 10 kW or Less

Contact Information:

Legal Name and address of Interconnecting Customer (or, Company name, if appropriate)

Customer or Company Name (print): \_\_\_\_\_ Contact Person, if Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Alternative Contact Information (e.g., system installation contractor or coordinating company, if appropriate):

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Electrical Contractor Contact Information (if appropriate):

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Ownership Information (include % ownership by any electric utility): \_\_\_\_\_

Confidentiality Statement: "I agree to allow information regarding the processing of my application (without my name and address) to be reviewed by the Massachusetts DG Collaborative that is exploring ways to further expedite future interconnections." Yes \_\_\_\_\_ No \_\_\_\_\_

Facility Information:

Address of Facility: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Electric Service Company: \_\_\_\_\_ Account Number (if available): \_\_\_\_\_

Inverter Manufacturer: \_\_\_\_\_ Model Name and Number: \_\_\_\_\_ Quantity: \_\_\_\_\_

Nameplate Rating: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA) \_\_\_\_\_ (AC Volts) Single \_\_\_\_\_ or Three \_\_\_\_\_ Phase

System Design Capacity: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA)

Prime Mover: Photovoltaic  Reciprocating Engine  Fuel Cell  Turbine  Other \_\_\_\_\_

Energy Source: Solar  Wind  Hydro  Diesel  Natural Gas  Fuel Oil  Other \_\_\_\_\_

UL 1741 Listed? Yes \_\_\_\_\_ No \_\_\_\_\_

Estimated Install Date: \_\_\_\_\_ Estimated In-Service Date: \_\_\_\_\_

Customer Signature

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true and I agree to the Terms and Conditions on the following page:

Interconnecting Customer Signature: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

***Please attach any documentation provided by the inverter manufacturer describing the inverter's UL 1741 listing.***

Approval to Install Facility (For Company use only)

Installation of the Facility is approved contingent upon the terms and conditions of this Agreement, and agreement to any system modifications, if required (Are system modifications required? Yes \_\_\_ No \_\_\_ To be Determined \_\_\_):

Company Signature: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

Application ID number: \_\_\_\_\_ Company waives inspection/Witness Test? Yes \_\_\_ No \_\_\_

## Terms and Conditions for Simplified Process Interconnections

1. **Construction of the Facility.** The Interconnecting Customer may proceed to construct the Facility once the Approval to Install the Facility has been signed by the Company.
2. **Interconnection and operation.** The Interconnecting Customer may operate Facility and interconnect with the Company's system once the following has occurred:
  - 2.1. **Municipal Inspection.** Upon completing construction, the Interconnecting Customer will cause the Facility to be inspected or otherwise certified by the local electrical wiring inspector with jurisdiction.
  - 2.2. **Certificate of Completion.** The Interconnecting Customer returns the Certificate of Completion appearing as Attachment 2 to the Agreement to the Company at address noted.
  - 2.3. **Company has completed or waived the right to inspection.**
3. **Company Right of Inspection.** Within ten (10) business days after receipt of the Certificate of Completion, the Company may, upon reasonable notice and at a mutually convenient time, conduct an inspection of the Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with the Interconnection Tariff. The Company has the right to disconnect the Facility in the event of improper installation or failure to return Certificate of Completion. If the Company does not inspect in 10 days or by mutual agreement of the Parties, the Witness Test is deemed waived.
4. **Safe Operations and Maintenance.** The Interconnecting Customer shall be fully responsible to operate, maintain, and repair the Facility.
5. **Access.** The Company shall have access to the disconnect switch (if required) of the Facility at all times.
6. **Disconnection.** The Company may temporarily disconnect the Facility to facilitate planned or emergency Company work.
7. **Metering and Billing.** All Facilities approved under this Agreement qualify for net metering, as approved by the Department from time to time, and the following is necessary to implement the net metering provisions:
  - 7.1. **Interconnecting Customer Provides Meter Socket.** The Interconnecting Customer shall furnish and install, if not already in place, the necessary meter socket and wiring in accordance with accepted electrical standards.
  - 7.2. **Company Installs Meter.** The Company shall furnish and install a meter capable of net metering within ten (10) business days after receipt of the Certificate of Completion if inspection is waived, or within 10 business days after the inspection is completed, if such meter is not already in place.
8. **Indemnification.** Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, Affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of, or are in any manner connected with, the performance of this Agreement by that party, except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the party seeking indemnification.
9. **Limitation of Liability.** Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.
10. **Termination.** This Agreement may be terminated under the following conditions:
  - 10.1. **By Mutual Agreement.** The Parties agree in writing to terminate the Agreement.
  - 10.2. **By Interconnecting Customer.** The Interconnecting Customer may terminate this Agreement by providing written notice to Company.
  - 10.3. **By Company.** The Company may terminate this Agreement (1) if the Facility fails to operate for any consecutive 12 month period, or (2) in the event that the Facility impairs the operation of the electric distribution system or service to other customers or materially impairs the local circuit and the Interconnecting Customer does not cure the impairment.
11. **Assignment/Transfer of Ownership of the Facility.** This Agreement shall survive the transfer of ownership of the Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Company.
12. **Interconnection Tariff.** These Terms and Conditions are pursuant to the Company's Tariff for the Interconnection of Customer-Owned Generating Facilities, as approved by the Department of Telecommunications and Energy and as the same may be amended from time to time ("Interconnection Tariff"). All defined terms set forth in these Terms and Conditions are as defined in the Interconnection Tariff (see Company's website for complete tariff).

## ATTACHMENT 2

### Certificate of Completion for Simplified Process Interconnections

Installation Information:

Check if owner -installed

Customer or Company Name (print): \_\_\_\_\_ Contact Person, if Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Address of Facility (if different from above): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Electrical Contractor's Name (if appropriate): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

License number: \_\_\_\_\_

Date of approval to install Facility granted by the Company: \_\_\_\_\_

Application ID number: \_\_\_\_\_

Inspection:

The system has been installed and inspected in compliance with the local Building/Electrical Code of

\_\_\_\_\_  
(City/County)

Signed (Local Electrical Wiring Inspector, or attach signed electrical inspection): \_\_\_\_\_

Name (printed): \_\_\_\_\_

Date: \_\_\_\_\_

As a condition of interconnection you are required to send/fax a copy of this form along with a copy of the signed electrical permit to (insert Company's name below):

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Mail 1: \_\_\_\_\_

Mail 2: \_\_\_\_\_

City, State ZIP: \_\_\_\_\_

Fax No.: \_\_\_\_\_

## Exhibit D – Expedited/Standard Process Interconnection Application

### Instructions

#### General Information

If you wish to submit an application to interconnect your generating facility using the Expedited or Standard Process, please fill out all pages of the attached application form. Once complete, please sign, attach the supporting documentation requested and enclose an application fee of \$3/kW (minimum of \$300 and maximum of \$2,500).

Contact Information: You must provide as a minimum the contact information of the legal applicant. If another party is responsible for interfacing with the Company (utility), you may optionally provide their contact information as well.

Ownership Information: Please enter the legal names of the owner or owners of the generating facility. Include the percentage ownership (if any) by any electric service company (utility) or public utility holding company, or by any entity owned by either.

Confidentiality Statement: In an ongoing effort to improve the interconnection process for Interconnecting Customer-owned generating facilities, the information you provide and the results of the application process will be aggregated with the information of other applicants and periodically reviewed by a DG Collaborative of industry participants that has been organized by the Massachusetts Department of Telecommunications and Energy (DTE). The aggregation process mixes the data together so that specific details for one Interconnecting Customer are not revealed. In addition to this process, you may choose to allow the information specific to your application to be shared with the Collaborative by answering “Yes” to the Confidentiality Statement question on the first page. Please note that even in this case your identification information (contact data) and specific generating facility location will not be shared.

#### Generating Facility Information

UL 1741 Listed? The standard UL 1741, “Inverters, Converters, and Controllers for Use in Independent Power Systems,” addresses the electrical interconnection design of various forms of generating equipment. Many manufacturers choose to submit their equipment to a Nationally Recognized Testing Laboratory (NRTL) that verifies compliance with UL 1741. This “listing” is then marked on the equipment and supporting documentation.

DEP Air Quality Permit Needed? A generating facility may be considered a point source of emissions of concern by the Massachusetts Department of Environmental Protection (DEP). Therefore, when submitting this application please indicate whether your generating facility will require an Air Quality Permit. You must answer these questions, however, your specific answers will not affect whether your application is deemed complete. Please contact the DEP to determine whether the generating technology planned for your facility qualifies for a DEP waiver or requires a permit.

## Generating Facility Expedited/Standard Process Interconnection Application

### Contact Information

#### Legal Name and address of Interconnecting Customer (or, Company name, if appropriate)

Customer or Company Name: \_\_\_\_\_ Contact Person, if Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

#### Alternative Contact Information (e.g. system installation contractor or coordinating company)

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

**Ownership** (include % ownership by any electric utility): \_\_\_\_\_

**Confidentiality Statement:** "I agree to allow information regarding the processing of my application (without my name and address) to be reviewed by the Massachusetts DG Collaborative that is exploring ways to further expedite future interconnections." Yes \_\_\_\_\_ No \_\_\_\_\_

### Generating Facility Information

Address of Facility: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Electric Service Company: \_\_\_\_\_ Account Number (if available): \_\_\_\_\_

Type of Generating Unit: Synchronous \_\_\_\_\_ Induction \_\_\_\_\_ Inverter \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

Nameplate Rating: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVAr) \_\_\_\_\_ (Volts) Single \_\_\_ or Three \_\_\_ Phase

Prime Mover: Fuel Cell \_\_\_ Recip Engine \_\_\_ Gas Turb \_\_\_ Steam Turb \_\_\_ Microturbine \_\_\_ PV \_\_\_ Other \_\_\_

Energy Source: Solar \_\_\_ Wind \_\_\_ Hydro \_\_\_ Diesel \_\_\_ Natural Gas \_\_\_ Fuel Oil \_\_\_ Other \_\_\_\_\_

UL 1741 Listed? Yes \_\_\_\_\_ No \_\_\_\_\_ Need an air quality permit from DEP? Yes \_\_\_\_\_ No \_\_\_\_\_ Not Sure \_\_\_\_\_

If "yes", have you applied for it? Yes \_\_\_ No \_\_\_

Planning to Export Power? Yes \_\_\_\_\_ No \_\_\_\_\_ A Cogeneration Facility? Yes \_\_\_\_\_ No \_\_\_\_\_

Anticipated Export Power Purchaser: \_\_\_\_\_

Export Form? Simultaneous Purchase/Sale \_\_\_\_\_ Net Purchase/Sale \_\_\_\_\_ Net Metering \_\_\_\_\_ Other \_\_\_\_\_

Est. Install Date: \_\_\_\_\_ Est. In-Service Date: \_\_\_\_\_ Agreement Needed By: \_\_\_\_\_

### Application Process

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true:

Interconnecting Customer Signature: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

The information provided in this application is complete:

Company Signature: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

### **Generating Facility Technical Detail**

List components of the generating facility that are currently certified and/or listed to national standards

	Equipment Type	Manufacturer	Model	National Standard
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____

Total Number of Generating Units in Facility? \_\_\_\_\_

Generator Unit Power Factor Rating: \_\_\_\_\_

Max Adjustable Leading Power Factor? \_\_\_\_\_ Max Adjustable Lagging Power Factor? \_\_\_\_\_

#### Generator Characteristic Data (for all inverter-based machines)

Max Design Fault Contribution Current? \_\_\_\_\_ Instantaneous \_\_\_\_ or RMS? \_\_\_\_\_

Harmonics Characteristics: \_\_\_\_\_

Start-up power requirements: \_\_\_\_\_

#### Generator Characteristic Data (for all rotating machines)

Rotating Frequency: \_\_\_\_\_ (rpm) Neutral Grounding Resistor (If Applicable): \_\_\_\_\_

#### Additional Information for Synchronous Generating Units

Synchronous Reactance,  $X_d$ : \_\_\_\_\_ (PU) Transient Reactance,  $X'd$ : \_\_\_\_\_ (PU)

Subtransient Reactance,  $X''_d$ : \_\_\_\_\_ (PU) Neg Sequence Reactance,  $X_2$ : \_\_\_\_\_ (PU)

Zero Sequence Reactance,  $X_0$ : \_\_\_\_\_ (PU) kVA Base: \_\_\_\_\_

Field Voltage: \_\_\_\_\_ (Volts) Field Current: \_\_\_\_\_ (Amps)

#### Additional information for Induction Generating Units

Rotor Resistance,  $R_r$ : \_\_\_\_\_ Stator Resistance,  $R_s$ : \_\_\_\_\_

Rotor Reactance,  $X_r$ : \_\_\_\_\_ Stator Reactance,  $X_s$ : \_\_\_\_\_

Magnetizing Reactance,  $X_m$ : \_\_\_\_\_ Short Circuit Reactance,  $X_d''$ : \_\_\_\_\_

Exciting Current: \_\_\_\_\_ Temperature Rise: \_\_\_\_\_

Frame Size: \_\_\_\_\_

Total Rotating Inertia,  $H$ : \_\_\_\_\_ Per Unit on kVA Base: \_\_\_\_\_

Reactive Power Required In Vars (No Load): \_\_\_\_\_

Reactive Power Required In Vars (Full Load): \_\_\_\_\_

#### Additional information for Induction Generating Units that are started by motoring

Motoring Power: \_\_\_\_\_ (kW) Design Letter: \_\_\_\_\_

**Interconnection Equipment Technical Detail**

Will a transformer be used between the generator and the point of interconnection? Yes \_\_\_\_\_ No \_\_\_\_\_

Will the transformer be provided by Interconnecting Customer? Yes \_\_\_\_\_ No \_\_\_\_\_

Transformer Data (if applicable, for Interconnecting Customer-Owned Transformer):

Nameplate Rating: \_\_\_\_\_ (kVA) Single \_\_\_\_\_ or Three \_\_\_\_\_ Phase

Transformer Impedance: \_\_\_\_\_ (%) on a \_\_\_\_\_ kVA Base

If Three Phase:

Transformer Primary: \_\_\_\_\_ (Volts) \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded \_\_\_ Other

Transformer Secondary: \_\_\_\_\_ (Volts) \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded \_\_\_ Other

Transformer Fuse Data (if applicable, for Interconnecting Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt & Total Clearing Time-Current Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Size: \_\_\_\_\_ Speed: \_\_\_\_\_

Interconnecting Circuit Breaker (if applicable):

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Load Rating: \_\_\_\_\_ Interrupting Rating: \_\_\_\_\_ Trip Speed: \_\_\_\_\_  
(Amps) (Amps) (Cycles)

Interconnection Protective Relays (if applicable):

(If microprocessor-controlled)

List of Functions and Adjustable Setpoints for the protective equipment or software:

	Setpoint Function	Minimum	Maximum
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____

(If discrete components)

(Enclose copy of any proposed Time-Overcurrent Coordination Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Current Transformer Data (if applicable):

(Enclose copy of Manufacturer's Excitation & Ratio Correction Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Potential Transformer Data (if applicable):

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

**General Technical Detail**

Enclose 3 copies of site electrical One-Line Diagram showing the configuration of all generating facility equipment, current and potential circuits, and protection and control schemes with a Massachusetts registered professional engineer (PE) stamp.

Enclose 3 copies of any applicable site documentation that indicates the precise physical location of the proposed generating facility (e.g., USGS topographic map or other diagram or documentation).

Proposed Location of Protective Interface Equipment on Property:  
(Include Address if Different from Application Address)

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Enclose copy of any applicable site documentation that describes and details the operation of the protection and control schemes.

Enclose copies of applicable schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).

Please enclose any other information pertinent to this installation.



## ATTACHMENT 2

### Certificate of Completion for Expedited/Standard Process Interconnections

Installation Information:

Check if owner -installed

Customer or Company Name (print): \_\_\_\_\_ Contact Person, if Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Address of Facility (if different from above): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Electrical Contractor's Name (if appropriate): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

License number: \_\_\_\_\_

Date of approval to install Facility granted by the Company: \_\_\_\_\_

Application ID number: \_\_\_\_\_

Inspection:

The system has been installed and inspected in compliance with the local Building/Electrical Code of

\_\_\_\_\_  
(City/County)

Signed (Local Electrical Wiring Inspector, or attach signed electrical inspection): \_\_\_\_\_

Name (printed): \_\_\_\_\_

Date: \_\_\_\_\_

As a condition of interconnection you are required to send/fax a copy of this form along with a copy of the signed electrical permit to (insert Company's name below):

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Mail 1: \_\_\_\_\_

Mail 2: \_\_\_\_\_

City, State ZIP: \_\_\_\_\_

Fax No.: \_\_\_\_\_

## Exhibit E – Supplemental Review Agreement

This Agreement, dated \_\_\_\_\_, is entered into by and between \_\_\_\_\_ (“Interconnecting Customer”) and the Company, for the purpose of setting forth the terms, conditions and costs for conducting a Supplemental Review relative to the Expedited Process as defined in Section 1.0 and outlined in Section 3.0 of the Interconnection Tariff. This Supplemental Review pertains to Application Number \_\_\_\_\_ (the Interconnecting Customer’s application ID number).

If the Supplemental Review determines the requirements for processing the application through the Expedited Process including any System Modifications, then the modification requirements, reasoning, and costs for these modifications will be identified and included in an executable Interconnection Service Agreement sent to the Interconnecting Customer for execution. If the Supplemental Review does not determine the requirements, it will include a proposed Impact Study Agreement as part of the Standard Process which will include an estimate of the cost of the study.

The Interconnecting Customer agrees to provide, in a timely and complete manner, all additional information and technical data necessary for the Company to conduct the Supplemental Review not already provided in the Interconnecting Customer’s application.

All work pertaining to the Supplemental Review that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Interconnecting Customer. Each party shall inform the other in writing of its designated and authorized representative, if different than what is in the application.

The Company shall perform the Supplemental Review for a fee not to exceed \$1,250. The Company anticipates that the Supplemental Review will cost \$ \_\_\_\_\_. No work will be performed until payment is received.

Please indicate your acceptance of this Agreement by signing below.

\_\_\_\_\_  
Interconnecting Customer

## Exhibit F – Impact Study Agreement

This Agreement, dated \_\_\_\_\_, is entered into by and between \_\_\_\_\_ (“Interconnecting Customer”) and the Company, for the purpose of setting forth the terms, conditions and costs for conducting an Impact Study relative to the Standard Process as defined in Section 1.0 and outlined in Section 3.0 of the Interconnection Tariff. This Impact Study pertains to Application Number \_\_\_\_\_ (the Interconnecting Customer’s application ID number).

1. The Interconnecting Customer agrees to provide, in a timely and complete manner, all additional information and technical data necessary for the Company to conduct the Impact Study not already provided in the Interconnecting Customer’s application.
2. All work pertaining to the Impact Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Interconnecting Customer. Each party shall inform the other in writing of its designated and authorized representative, if different than what is in the application.
3. Where there are other potentially Affected Systems, and no single Party is in a position to prepare an Impact Study covering all potentially Affected Systems, the Company will coordinate but not be responsible for the timing of any additional studies required to determine the impact of the interconnection request on other potentially Affected Systems. The Interconnecting Customer will be directly responsible to the potentially Affected System operators for all costs of any additional studies required to evaluate the impact of the interconnection on the potentially Affected Systems. The Company will not proceed with this Impact Study without the Interconnecting Customer’s consent to have the other studies conducted.
4. If the Company determines, in accordance with Good Utility Practice, that the System Modifications to the Company EPS are not substantial, the Impact Study will determine the scope and cost of the modifications. If the Company determines, in accordance with Good Utility Practice, that the System Modifications to the Company EPS are substantial, the Impact Study will produce an estimate for the modification costs (within  $\pm 25\%$ ) and a Detailed Study Agreement and its estimated cost.
5. Impact Study, together with any additional studies contemplated in Paragraph 3, shall form the basis for the Interconnecting Customer’s proposed use of the Company EPS and shall be furthermore utilized in obtaining necessary third-party approvals of any required facilities and requested distribution services. The Interconnecting Customer understands and acknowledges that any use of study results by the Interconnecting Customer or its agents, whether in preliminary or final form, prior to NEPOOL 18.4 approval, should such approval be required, is completely at the Interconnecting Customer’s risk.
6. The Impact Study fee of \$XX (except as noted below) is due in full prior to the execution of the Impact Study. If the anticipated cost exceeds \$25,000, the Interconnecting Customer is eligible for a payment plan. At the request of the Interconnecting Customer, the Company will break the costs into phases in which the costs will be collected prior to Company expenditures for each phase of the study. The payment plan will be attached as an exhibit to the Impact Study Agreement.
7. The Company will, in writing, advise the Interconnecting Customer in advance of any cost increase for work to be performed up to a total amount of increase of 10% only. All costs that exceed the 10% increase cap will be borne solely by the Company. Any such changes to the Company’s costs for the work shall be subject to the Interconnecting Customer’s consent. The Interconnecting Customer shall, within thirty (30) days of the Company’s notice of increase, authorize such increase and make payment in the amount up to the 10% increase cap, or the Company will suspend the work and the corresponding agreement will terminate.

Final Accounting. Upon request by the Interconnecting Customer, the Company within ninety (90) business days after completion of the construction and installation of the System Modifications described in an attached exhibit to the Interconnection Service Agreement, shall provide Interconnecting Customer with a final accounting report of any difference between (a) Interconnecting Customer’s cost responsibility under the Interconnection Service Agreement for the actual cost of such System Modifications, and (b) Interconnecting Customer’s previous aggregate payments to the Company for such System Modifications.

Standards for Interconnecting Distributed Generation

To the extent that Interconnecting Customer's cost responsibility in the Interconnection Service Agreement exceeds Interconnecting Customer's previous aggregate payments, the Company shall invoice Interconnecting Customer and Interconnecting Customer shall make payment to the Company within forty-five (45) days. To the extent that Interconnecting Customer's previous aggregate payments exceed Interconnecting Customer's cost responsibility under this agreement, the Company shall refund to Interconnecting Customer an amount equal to the difference within forty-five (45) days of the provision of such final accounting report.

8. In the event this Agreement is terminated for any reason, the Company shall refund to the Interconnecting Customer the portion of the above fee or any subsequent payment to the Company by the Interconnecting Customer that the Company did not expend or commit in performing its obligations under this Agreement. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 10 below.
9. Nothing in this Agreement shall be interpreted to give the Interconnecting Customer immediate rights to wheel over or interconnect with the Company's EPS.
10. Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of, or are in any manner connected with, the performance of this Agreement by that party, except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the party seeking indemnification.  
  
Notwithstanding the foregoing, the Interconnecting Customer hereby waives recourse against the Company and its Affiliates for, and releases the Company and its Affiliates from, any and all liabilities arising from or attributable to incomplete, inaccurate, or otherwise faulty information supplied by the Interconnecting Customer.
11. If either party materially breaches any of its covenants hereunder, the other party may terminate this Agreement by serving notice of same on the other party to this Agreement.
12. This agreement shall be construed and governed in accordance with the laws of the Commonwealth of Massachusetts.
13. All amendments to this Agreement shall be in written form executed by both Parties.
14. The terms and conditions of this Agreement shall be binding on the successors and assigns of either Party.
15. This Agreement will remain in effect for a period of up to two years from its effective date.
16. This Agreement may be terminated under the following conditions.
  - a) The Parties agree in writing to terminate the Agreement.
  - b) The Interconnecting Customer may terminate this agreement at any time by providing written notice to Company.
  - c) The Company may terminate this Agreement if the Interconnecting Customer either: (1) has not paid the fee or, (2) has not responded to requests for further information in accordance with provisions in the Interconnection Tariff.

Interconnecting Customer:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Company:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## Exhibit G – Detailed Study Agreement

This Agreement, dated \_\_\_\_\_, is entered into by and between \_\_\_\_\_ (“Interconnecting Customer”) and the Company, for the purpose of setting forth the terms, conditions and costs for conducting an Detailed Study relative to the Standard process as defined in Section 1 and outlined in Section 3 of the Interconnection Tariff. This Detailed Study pertains to Application Number \_\_\_\_\_ (the Interconnecting Customer’s application ID number).

1. The Interconnecting Customer agrees to provide, in a timely and complete manner, all additional information and technical data necessary for the Company to conduct the Detailed Study not already provided in the Interconnecting Customer’s application.
2. All work pertaining to the Detailed Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of the Company and the Interconnecting Customer. Each party shall inform the other in writing of its designated and authorized representative, if different than what is in the application.
3. Where there are other Affected Systems identified by the Impact Studies, and no single Party is in a position to prepare a Detailed Study covering all Affected Systems, the Company will coordinate but not be responsible for the timing of any additional studies required to determine the System Modifications of the interconnection request on other Affected Systems. The Interconnecting Customer will be directly responsible to the Affected System operators for all costs of any additional studies required to evaluate the impact of the interconnection on the Affected Systems. The Company will not proceed with this Detailed Study without the Interconnecting Customer’s consent to have the other studies conducted.
4. The Company will provide an estimate of the costs of the System Modifications required as a result of the Detailed Study.
5. The Detailed Study, together with any additional studies contemplated in Paragraph 3, shall form the basis for the Interconnecting Customer’s proposed use of the Company EPS and shall be furthermore utilized in obtaining necessary third-party approvals of any required facilities and requested distribution services. The Interconnecting Customer understands and acknowledges that any use of study results by the Interconnecting Customer or its agents, whether in preliminary or final form, prior to NEPOOL 18.4 approval, should such approval be required, is completely at the Interconnecting Customer’s risk.
6. The Detailed Study fee of \$XX (except as noted below) is due in full prior to the execution of the Detailed Study. If the anticipated cost exceeds \$25,000, the Interconnecting Customer is eligible for a payment plan. At the request of the Interconnecting Customer, the Company will break the costs into phases in which the costs will be collected prior to Company expenditures for each phase of the study. The payment plan will be attached as an exhibit to the Detailed Study Agreement.
7. The Company will, in writing, advise the Interconnecting Customer in advance of any cost increase for work to be performed up to a total amount of increase of 10% only. All costs that exceed the 10% increase cap will be borne solely by the Company. Any such changes to the Company’s costs for the work shall be subject to the Interconnecting Customer’s consent. The Interconnecting Customer shall, within thirty (30) days of the Company’s notice of increase, authorize such increase and make payment in the amount up to the 10% increase cap, or the Company will suspend the work and the corresponding agreement will terminate.

Final Accounting. Upon request by the Interconnecting Customer, the Company within ninety (90) business days after completion of the construction and installation of the System Modifications described in an attached exhibit to the Interconnection Service Agreement, shall provide Interconnecting Customer with a final accounting report of any difference between (a) Interconnecting Customer’s cost responsibility under the Interconnection Service Agreement for the actual cost of such System Modifications, and (b) Interconnecting Customer’s previous aggregate payments to the Company for such System Modifications. To the extent that Interconnecting Customer’s cost responsibility in the Interconnection Service Agreement exceeds Interconnecting Customer’s previous aggregate payments, the Company shall invoice Interconnecting Customer and Interconnecting Customer shall make payment to the Company within forty-five (45) days. To the extent that Interconnecting Customer’s previous aggregate payments exceed

Standards for Interconnecting Distributed Generation

Interconnecting Customer's cost responsibility under this agreement, the Company shall refund to Interconnecting Customer an amount equal to the difference within forty-five (45) days of the provision of such final accounting report.

8. In the event this Agreement is terminated for any reason, the Company shall refund to the Interconnecting Customer the portion of the above fee or any subsequent payment to the Company by the Interconnecting Customer that the Company did not expend or commit in performing its obligations under this Agreement. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 9 below.
9. Nothing in this Agreement shall be interpreted to give the Interconnecting Customer immediate rights to wheel over or interconnect with the Company's EPS.
10. Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of, or are in any manner connected with, the performance of this Agreement by that party, except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the party seeking indemnification.

Notwithstanding the foregoing, the Interconnecting Customer hereby waives recourse against the Company and its Affiliates for, and releases the Company and its Affiliates from, any and all liabilities arising from or attributable to information supplied by the Interconnecting Customer.

11. This agreement shall be construed and governed in accordance with the laws of the Commonwealth of Massachusetts.
12. All amendments to this Agreement shall be in written form executed by both Parties.
13. The terms and conditions of this Agreement shall be binding on the successors and assigns of either Party.
14. This Agreement will remain in effect for a period of up to two years from its effective date.
15. This Agreement may be terminated under the following conditions.
  - a) The Parties agree in writing to terminate the Agreement.
  - b) The Interconnecting Customer may terminate this agreement at any time by providing written notice to Company.
  - c) The Company may terminate this Agreement if the Interconnecting Customer either: (1) has not paid the fee or, (2) has not responded to requests for further information in accordance with provisions in the Interconnection Tariff.

Interconnecting Customer:

Company:

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**Attachment 5**

**SCHEDULE 23**

**STANDARD SMALL GENERATOR  
INTERCONNECTION PROCEDURES (SGIP)  
(APPLICABLE TO GENERATING FACILITIES NO LARGER THAN 20 MW)**

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No.2006, 111 FERC ¶61,220 (2005)



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## TABLE OF CONTENTS

	<b>Page</b>
<b>Section 1. Application</b> .....	5404
1.1 Applicability .....	5404
1.2 Pre-Application .....	5407
1.3 Interconnection Request.....	5408
1.4 Modification of the Interconnection Request .....	5410
1.5 Site Control .....	5411
1.6 Queue Position .....	5412
1.7 Interconnection Requests Submitted Prior to the Effective Date of the SGIP .....	5413
<b>Section 2. Fast Track Process</b> .....	5417
2.1 Applicability .....	5417
2.2 Initial Review .....	5418
2.2.1 Screens .....	5418
2.3 Customer Options Meeting .....	5424
2.4 Supplemental Review .....	5425
<b>Section 3. Study Process</b> .....	5428
3.1 Applicability .....	5428
3.2 Scoping Meeting .....	5428
3.3 Feasibility Study .....	5430
3.4 System Impact Study .....	5432
3.5 Facilities Study.....	5435
<b>Section 4. Provisions that Apply to All Interconnection Requests</b> .....	5440
4.1 Reasonable Efforts .....	5440
4.2 Disputes.....	5441
4.3 Interconnection Metering.....	5442
4.4 Commissioning .....	5443
4.5 Confidentiality .....	5443
4.6 Comparability .....	5446
4.7 Record Retention .....	5447
4.8 Interconnection Agreement.....	5447

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4.9	Coordination with Affected Systems .....	5448
4.10	Capacity of the Small Generating Facility .....	5449

[Attachment 1](#) – Glossary of Terms

[Attachment 2](#) – Small Generator Interconnection Request

[Attachment 3](#) – Certification Codes and Standards

[Attachment 4](#) – Certification of Small Generator Equipment Packages

[Attachment 5](#) – Application, Procedures, and Terms and Conditions for Interconnecting a Certified Inverter-Based Small Generating Facility No Larger than 10 kW ("10 kW Inverter Process")

[Attachment 6](#) – Feasibility Study Agreement

[Attachment 7](#) – System Impact Study Agreement

[Attachment 8](#) – Facilities Study Agreement

EXHIBIT 1 - Standard Small Generator Interconnection Agreement (SGIA)

## **SECTION 1. APPLICATION**

### **1.1 Applicability**

1.1.1 The SGIP and SGIA shall apply to Interconnection Requests, as defined in Attachment 1, pertaining to Small Generating Facilities, except that the SGIP and SGIA shall not apply to: (i) a retail customer interconnecting a new Generating Facility that will produce electric energy to be consumed only on the retail customer's site; (ii) a request to interconnect a new Generating Facility to a distribution facility that is subject to the Tariff if the Generating Facility will not be used to make wholesale sales of electricity in interstate commerce; or (iii) a request to interconnect a Qualifying Facility (as defined by the Public Utility Regulatory Policies Act, as amended by the Energy Policy Act of 2005 and the regulations thereto), where the Qualifying Facility's owner intent is to sell 100% of the Qualifying Facility's output to its interconnected electric utility. In the event the SGIP and SGIA do not apply, the Interconnection Customer shall follow the applicable state tariff, rules or procedures regarding generator interconnections.

A request to interconnect a certified Small Generating Facility (See Attachments 3 and 4 for description of certification criteria) no larger than 2 MW shall be evaluated under the section 2 Fast Track Process. A request to interconnect a certified inverter-based Small Generating Facility no larger than 10 kW shall be evaluated under the Attachment 5 10 kW Inverter Process. A request to interconnect a Small Generating Facility larger than 2 MW but no larger than 20 MW or a Small Generating Facility that does not pass the Fast Track Process or the 10 kW Inverter Process, shall be evaluated under the section 3 Study Process.

1.1.2 Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 or the body of these procedures. Capitalized terms in Schedule 23 that are not defined in Attachment 1 or the body of these procedures shall have the meanings specified in Section I.2.2 and II.1 of the Tariff.

1.1.3 Neither these procedures nor the requirements included hereunder apply to Small Generating Facilities interconnected or approved for interconnection prior to 60 Business Days after the effective date of these procedures.

- 1.1.4 Prior to submitting its Interconnection Request (Attachment 2), the Interconnection Customer may ask the System Operator's interconnection contact employee or office whether the proposed interconnection is subject to these procedures. The System Operator shall respond within 15 Business Days.
- 1.1.5 Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. The Commission expects all ISOs/RTOs, Interconnecting Transmission Owners, market participants, and Interconnection Customers interconnected with electric systems to comply with the recommendations offered by the President's Critical Infrastructure Protection Board and best practice recommendations from the electric reliability authority. All public utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices.
- 1.1.6 References in these procedures to interconnection agreement are to the Small Generator Interconnection Agreement (SGIA).

## 1.2 Pre-Application

The System Operator shall designate an employee or office from which information on the application process and on an Affected System can be obtained through informal requests from the Interconnection Customer presenting a proposed project for a specific site. The names, telephone numbers, and e-mail addresses of the System Operator's contact employees or offices shall be made available on the System Operator's Internet web site. Electric system information provided to the Interconnection Customer should include relevant system studies, interconnection

studies, and other materials useful to an understanding of an interconnection at a particular point on the Administered Transmission System, to the extent such provision does not violate confidentiality provisions of prior agreements or critical infrastructure requirements. The System Operator shall comply with reasonable requests for such information.

### 1.3 Interconnection Request

The Interconnection Customer shall submit its Interconnection Request to the System Operator, together with the processing fee or deposit specified in the Interconnection Request. The Interconnection Request shall be date- and time-stamped upon receipt. The original date- and time-stamp applied to the Interconnection Request at the time of its original submission shall be accepted as the qualifying date- and time-stamp for the purposes of any timetable in these procedures. The Interconnection Customer shall be notified of receipt by the System Operator within three Business Days of receiving the Interconnection Request. The System Operator shall notify the Interconnection Customer within ten Business Days of the receipt of the Interconnection Request as to whether the Interconnection Request is complete or incomplete. If the Interconnection Request is incomplete, the System

Operator shall provide along with the notice that the Interconnection Request is incomplete, a written list detailing all information that must be provided to complete the Interconnection Request. The Interconnection Customer will have ten Business Days after receipt of the notice to submit the listed information or to request an extension of time to provide such information. If the Interconnection Customer does not provide the listed information or a request for an extension of time within the deadline, the Interconnection Request will be deemed withdrawn. An Interconnection Request will be deemed complete upon submission of the listed information to the System Operator.

1.3.1 Within three Business Days of receiving the Interconnection Request, the System



Operator shall provide a copy of the Interconnection Request to the Interconnecting Transmission Owner. The System Operator, in consultation with the Interconnecting Transmission Owner, shall determine whether the Interconnection Request is complete or incomplete. If such request is to interconnect to a distribution facility, the Interconnecting Transmission Owner shall be responsible for determining whether the distribution facility is subject to the Tariff.

#### 1.4 Modification of the Interconnection Request

1.4.1 Any modification to machine data or equipment configuration or to the interconnection site of the Small Generating Facility not agreed to in writing by the System Operator, in consultation with the Interconnecting Transmission Owner, and the Interconnection Customer may be deemed a withdrawal of the Interconnection Request and may require submission of a new Interconnection Request, unless proper notification of each Party by the other and a reasonable time to cure the problems created by the changes are undertaken.

1.5 Site Control

Documentation of site control must be submitted with the Interconnection Request. Site control may be demonstrated through:

1.5.1 Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Small Generating Facility;

1.5.2 An option to purchase or acquire a leasehold site for such purpose; or

1.5.3 An exclusivity or other business relationship between the Interconnection Customer and the entity having the right to sell, lease, or grant the Interconnection Customer the right to possess or occupy a site for such purpose; or

1.5.4 Filed applications for required permits to site on federal or state property.

1.6 Queue Position

1.6.1 The System Operator shall assign a Queue Position based upon the date- and time-stamp of the Interconnection Request. The Queue Position of each Interconnection Request will be used to determine the cost responsibility for the Upgrades necessary to accommodate the interconnection. The System Operator shall maintain a single queue. At the System Operator's option, Interconnection Requests may be studied serially or in clusters for the purpose of the system impact study.

1.7 Interconnection Requests Submitted Prior to the Effective Date of the SGIP

Nothing in this SGIP affects an Interconnection Customer's Queue Position assigned before the effective date of this SGIP. The Parties agree to complete work on any interconnection study agreement executed prior the effective date of this SGIP in accordance with the terms and conditions of that interconnection study agreement. Any new studies or other additional work will be completed pursuant to this SGIP.

1.8 Type of Interconnection Service

1.8.1 Network Interconnection Service

1.8.1.1 The Product. The System Operator must conduct the necessary studies in conjunction with the Interconnecting Transmission Owner, and with other Affected Parties as appropriate and in accordance with applicable codes of conduct and confidentiality requirements, and the Interconnecting Transmission Owner and other Affected Parties as appropriate must construct the Network Upgrades needed to interconnect the Small Generating Facility in a manner comparable to that in which Network Resources are interconnected under the MIS. Network Interconnection Service allows the Interconnection Customer's Small Generating Facility to be designated as a Network Resource, and to participate in the New England Markets, in accordance with Market Rule 1, up to the Small Generating Facility's full output, on the same basis as existing Network Resources, and to be studied as a Network Resource on the assumption that such a designation will occur.

1.8.1.2 The Study. The interconnection study for Network Interconnection Service shall assure that the Interconnection Customer's Small Generating Facility satisfies the minimum characteristics required to interconnect in a manner that avoids any significant adverse effect on the reliability, stability, and

operability of the New England Transmission System, including protecting against the degradation of transfer capability for interfaces affected by the unit. The Interconnection Request may also be studied with the Transmission System under non-peak load conditions. However, upon request by the Interconnection Customer, the System Operator and as appropriate the Interconnecting Transmission Owner must explain in writing to the Interconnection Customer why the study of non-peak load conditions is required for reliability purposes.

## 1.9 Withdrawal

1.9.1 The Interconnection Customer may withdraw its Interconnection Request at any time by written notice of such withdrawal to System Operator, which System Operator will transmit to the Interconnecting Transmission Owner and any Affected Parties. In addition, if the Interconnection Customer fails to adhere to all requirements of this SGIP, except as provided in Section 4.2 (Disputes), the System Operator shall deem the Interconnection Request to be withdrawn and shall provide written notice to the Interconnection Customer of the deemed withdrawal and an explanation of the reasons for such deemed withdrawal. Upon receipt of such written notice, if the Interconnection Customer wishes to dispute the

withdrawal notice, the Interconnection Customer shall have fifteen (15) Business Days in which to either respond with information or actions that cure the deficiency or to notify the System Operator of its intent to pursue dispute resolution, and the System Operator shall notify the Interconnecting Transmission Owner and any Affected Parties of the same.

1.9.2 Withdrawal shall result in the loss of the Interconnection Customer's Queue Position. If an Interconnection Customer disputes the withdrawal and loss of its Queue Position, then during dispute resolution, the System Operator may eliminate the Interconnection Customer's Interconnection Request from the queue until such time that the outcome of dispute resolution would restore its Queue Position. An Interconnection Customer that withdraws or is deemed to have withdrawn its Interconnection Request shall pay to System Operator, Interconnecting Transmission Owner, and any Affected Parties all costs prudently incurred with respect to that Interconnection Request prior to the System Operator's receipt of notice described above. The Interconnection Customer must pay all monies due before it is allowed to obtain any interconnection study data or results.

1.9.3 The System Operator shall update the OASIS Queue Position posting. The System Operator and Interconnecting Transmission Owner shall: (i) arrange to refund to the Interconnection Customer any portion of the Interconnection Customer's deposit or study payments that exceeds the costs incurred; or (ii) arrange to charge to the Interconnection Customer any amount of such costs incurred that exceed the Interconnection Customer's deposit or study payments. In the event of such withdrawal, the System Operator, subject to the confidentiality provisions of Section 4.5 and the ISO New England Information Policy, as well as any other applicable requirement under Applicable Laws and Regulations regulating the disclosure or confidentiality of such information, shall provide, at Interconnection Customer's request, all information developed for any completed study conducted up to the date of withdrawal of the Interconnection Request.

## **SECTION 2. FAST TRACK PROCESS**

### **2.1 Applicability**

The Fast Track Process is available to an Interconnection Customer proposing to interconnect its Small Generating Facility with the Administered Transmission System if the Small Generating Facility is no larger than 2 MW and if the Interconnection



Customer's proposed Small Generating Facility meets the codes, standards, and certification requirements of Attachments 3 and 4 of these procedures, or the System Operator in conjunction with the Interconnecting Transmission Owner has reviewed the design or tested the proposed Small Generating Facility and is satisfied that it is safe to operate.

## 2.2 Initial Review

Within 15 Business Days after the System Operator notifies the Interconnection Customer it has received a complete Interconnection Request, the System Operator in conjunction with the Interconnecting Transmission Owner shall perform an initial review using the screens set forth below, shall notify the Interconnection Customer of the results, and include with the notification copies of the analysis and data underlying the determinations under the screens.

### 2.2.1 Screens

- 2.2.1.1 The proposed Small Generating Facility's Point of Interconnection must be on a portion of the Interconnecting Transmission Owner's Distribution System that is subject to the Tariff.

2.2.1.2 For interconnection of a proposed Small Generating Facility to a radial distribution circuit, the aggregated generation, including the proposed Small Generating Facility, on the circuit shall not exceed 15 % of the line section annual peak load as most recently measured at the substation. A line section is that portion of an Interconnecting Transmission Owner's electric system connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line.

2.2.1.3 For interconnection of a proposed Small Generating Facility to the load side of spot network protectors, the proposed Small Generating Facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, shall not exceed the smaller of 5 % of a spot network's maximum load or 50 kW.

2.2.1.4 The proposed Small Generating Facility, in aggregation with other generation on the distribution circuit, shall not contribute more than 10 % to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of change of ownership.

2.2.1.5 The proposed Small Generating Facility, in aggregate with other generation on the distribution circuit, shall not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Interconnection Customer equipment on the system to exceed 87.5 % of the short circuit interrupting capability; nor shall the interconnection be proposed for a circuit that already exceeds 87.5 % of the short circuit interrupting capability.

2.2.1.6 Using the table below, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service provided to the Interconnecting Customer,

including line configuration and the transformer connection to limit the potential for creating over-voltages on the Interconnecting Transmission Owner's electric power system due to a loss of ground during the operating time of any anti-islanding function.

<b>Primary Distribution Line Type</b>	<b>Type of Interconnection to Primary Distribution Line</b>	<b>Result/Criteria</b>
Three-phase, three wire	3-phase or single phase, phase-to-phase	Pass screen
Three-phase, four wire	Effectively-grounded 3 phase or Single-phase, line-to-neutral	Pass screen

2.2.1.7 If the proposed Small Generating Facility is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generating Facility, shall not exceed 20 kW.

- 2.2.1.8 If the proposed Small Generating Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20 % of the nameplate rating of the service transformer.
- 2.2.1.9 The Small Generating Facility, in aggregate with other generation interconnected to the transmission side of a substation transformer feeding the circuit where the Small Generating Facility proposes to interconnect shall not exceed 10 MW in an area where there are known, or posted, transient stability limitations to generating units located in the general electrical vicinity (e.g., three or four transmission busses from the point of interconnection).
- 2.2.1.10 No construction of facilities by the Interconnecting Transmission Owner on its own system shall be required to accommodate the Small Generating Facility.

- 2.2.2 If the proposed interconnection passes the screens, the Interconnection Request shall be approved and the System Operator in conjunction with the Interconnecting Transmission Owner will provide the Interconnection Customer an executable interconnection agreement within five Business Days after the determination.
- 2.2.3 If the proposed interconnection fails the screens, but the System Operator in conjunction with the Interconnecting Transmission Owner determines that the Small Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the System Operator in conjunction with the Interconnecting Transmission Owner shall provide the Interconnection Customer an executable interconnection agreement within five Business Days after the determination.
- 2.2.4 If the proposed interconnection fails the screens, but the System Operator in conjunction with the Interconnecting Transmission Owner, does not or cannot determine from the initial review that the Small Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards unless the Interconnection Customer is willing to consider minor modifications or further study, the

System Operator in conjunction with the Interconnecting Transmission Owner shall provide the Interconnection Customer with the opportunity to attend a customer options meeting.

### 2.3 Customer Options Meeting

If the System Operator in conjunction with the Interconnecting Transmission Owner determines the Interconnection Request cannot be approved without minor modifications at minimal cost; or a supplemental study or other additional studies or actions; or at significant cost to address safety, reliability, or power quality problems, within the five Business Day period after the determination, the System Operator shall notify the Interconnection Customer and provide copies of all data and analyses underlying its conclusion. Within ten Business Days of such determination, the System Operator shall offer to convene a customer options meeting with the Interconnection Customer and Interconnecting Transmission Owner to review possible Interconnection Customer facility modifications or the screen analysis and related results, to determine what further steps are needed to permit the Small Generating Facility to be connected safely and reliably. At the time of notification of the determination, or at the customer options meeting:

- 2.3.1 The Interconnecting Transmission Owner shall offer to perform facility modifications or minor modifications to the Interconnecting Transmission Owner's electric system (e.g., changing meters, fuses, relay settings) and provide a non-binding good faith estimate of the limited cost to make such modifications to the Interconnecting Transmission Owner's electric system; or
- 2.3.2 The System Operator shall offer to perform a supplemental review if the System Operator in conjunction with the Interconnecting Transmission Owner concludes that the supplemental review might determine that the Small Generating Facility could continue to qualify for interconnection pursuant to the Fast Track Process, and provide a non-binding good faith estimate of the costs of such review; or
- 2.3.3 The System Operator shall obtain the Interconnection Customer's agreement to continue evaluating the Interconnection Request under the section 3 Study Process.

2.4 Supplemental Review

If the Interconnection Customer agrees to a supplemental review, the Interconnection Customer shall agree in writing within 15 Business Days of the offer, and submit a deposit to the System Operator for the estimated costs. The Interconnection Customer shall be responsible for the System Operator's and the Interconnecting Transmission



Owner's actual costs for conducting the supplemental review. The Interconnection Customer must pay any review costs that exceed the deposit within 20 Business Days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the System Operator and Interconnecting Transmission Owner will return such excess within 20 Business Days of the invoice without interest.

2.4.1 Within ten Business Days following receipt of the deposit for a supplemental review, the System Operator in conjunction with the Interconnecting Transmission Owner will determine if the Small Generating Facility can be interconnected safely and reliably.

2.4.1.1 If so, the System Operator in conjunction with the Interconnecting Transmission Owner, shall forward an executable interconnection agreement to the Interconnection Customer within five Business Days.

2.4.1.2 If so, and Interconnection Customer facility modifications are required to allow the Small Generating Facility to be interconnected consistent with safety, reliability, and power quality standards under these procedures, the System Operator in conjunction with the Interconnecting

Transmission Owner, shall forward an executable interconnection agreement to the Interconnection Customer within five Business Days after confirmation that the Interconnection Customer has agreed to make the necessary changes at the Interconnection Customer's cost. The Interconnection Customer shall provide written notice to the System Operator and the Interconnecting Transmission Owner of whether the Interconnection Customer agrees to make the necessary Interconnection Customer facility modifications at the Interconnection Customer's cost within 30 Business Days of receiving notice that such modifications are required.

2.4.1.3 If so, and minor modifications to the Interconnecting Transmission Owner's electric system are required to allow the Small Generating Facility to be interconnected consistent with safety, reliability, and power quality standards under the Fast Track Process, the System Operator in conjunction with the Interconnecting Transmission Owner, shall forward an executable interconnection agreement to the Interconnection Customer within ten Business Days that requires the Interconnection Customer to

pay the costs of such system modifications prior to  
interconnection.

2.4.1.4 If not, the Interconnection Request will continue to be evaluated  
under the section 3 Study Process.

### **SECTION 3. STUDY PROCESS**

#### **3.1 Applicability**

The Study Process shall be used by an Interconnection Customer proposing to interconnect its Small Generating Facility with the Administered Transmission System if the Small Generating Facility (1) is larger than 2 MW but no larger than 20 MW, (2) is 2 MW or less and is not certified, or (3) is 2 MW or less and is certified but did not pass the Fast Track Process or the 10 kW Inverter Process.

#### **3.2 Scoping Meeting**

3.2.1 A scoping meeting will be held within ten Business Days after the Interconnection Request is deemed complete, or as otherwise mutually agreed to by the Parties.

The System Operator, the Interconnecting Transmission Owner, the Interconnection Customer and the Affected Party(ies) will bring to the meeting personnel, including system

engineers and other resources as may be reasonably required to accomplish the purpose of the meeting. Before participating in a scoping meeting with an Interconnection Customer that is also an Affiliate, the Interconnecting Transmission Owner shall post on the OASIS an advance notice of its intent to do so.

- 3.2.2 The purpose of the scoping meeting is to discuss the Interconnection Request and review existing studies relevant to the Interconnection Request. The Parties shall further discuss whether the System Operator should perform a feasibility study or proceed directly to a system impact study, or a facilities study, or an interconnection agreement. If the Parties agree that a feasibility study should be performed, the System Operator shall provide the Interconnection Customer, as soon as possible, but not later than five Business Days after the scoping meeting, a feasibility study agreement (Attachment 6) including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.

3.2.3 The scoping meeting may be omitted by mutual agreement. In order to remain in consideration for interconnection, an Interconnection Customer who has requested a feasibility study must return the executed feasibility study agreement within 15 Business Days. If the Parties agree not to perform a feasibility study, the System Operator shall provide the Interconnection Customer, no later than five Business Days after the scoping meeting, a system impact study agreement (Attachment 7) including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.

### 3.3 Feasibility Study

3.3.1 The feasibility study shall identify any potential adverse system impacts that would result from the interconnection of the Small Generating Facility.

3.3.2 A deposit of the lesser of 50 percent of the good faith estimated feasibility study costs or earnest money of \$1,000 shall be required from the Interconnection Customer.

- 3.3.3 The scope of and cost responsibilities for the feasibility study are described in the attached feasibility study agreement (Attachment 6).
- 3.3.4 If the feasibility study shows no potential for adverse system impacts, the System Operator shall send the Interconnection Customer a facilities study agreement, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study. If no additional facilities are required, an executable interconnection agreement shall be tendered to the Interconnection Customer within five Business Days.
- 3.3.5 If the feasibility study shows the potential for adverse system impacts, the review process shall proceed to the appropriate system impact study(s).
- 3.3.6 In the case where one or both distribution and/or transmission impact studies are determined to be unnecessary, a notice of the fact shall be transmitted to the Interconnection Customer within the same timeframe.

### 3.4 System Impact Study

- 3.4.1 A system impact study shall identify and detail the electric system impacts that would result if the proposed Small Generating Facility were interconnected without project modifications or electric system modifications, focusing on the adverse system impacts identified in the feasibility study, or to study potential impacts, including but not limited to those identified in the scoping meeting. A system impact study shall evaluate the impact of the proposed interconnection on the reliability of the electric system.
- 3.4.2 If no system impact study of the Administered Transmission System is required, but potential electric power Distribution System adverse system impacts are identified in the scoping meeting or shown in the feasibility study, a distribution system impact study must be performed. The System Operator shall send the Interconnection Customer a distribution system impact study agreement within 15 Business Days of transmittal of the feasibility study report, including an outline of the scope of the study and a non-binding good faith

estimate of the cost to perform the study, or following the scoping meeting if no feasibility study is to be performed.

- 3.4.3 In instances where the feasibility study or the distribution system impact study shows potential for transmission system adverse system impacts, within five Business Days following transmittal of the feasibility study report, the System Operator shall send the Interconnection Customer a transmission system impact study agreement, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study, if such a study is required.
- 3.4.4 If a transmission system impact study is not required, but electric power Distribution System adverse system impacts are shown by the feasibility study to be possible and no distribution system impact study has been conducted, the System Operator shall send the Interconnection Customer a distribution system impact study agreement.
- 3.4.5 If the feasibility study shows no potential for transmission system or Distribution System adverse system impacts, the System Operator shall send the



Interconnection Customer either a facilities study agreement (Attachment 8), including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study, or an executable interconnection agreement, as applicable.

- 3.4.6 In order to remain under consideration for interconnection, or, as appropriate, in the System Operator's interconnection queue, the Interconnection Customer must return executed system impact study agreements, if applicable, within 30 Business Days.
- 3.4.7 A deposit of the good faith estimated cost for the distribution system impact study shall be required from the Interconnection Customer. A deposit of one half the good faith estimated cost for the transmission system impact study shall be required from the Interconnection Customer.
- 3.4.8 The scope of and cost responsibilities for a system impact study are described in the attached system impact study agreement.

3.4.9 Affected Systems shall participate in the study and provide all information necessary to prepare the study.

3.5 Facilities Study

3.5.1 Once the required system impact study(s) is completed, a system impact study report shall be prepared and transmitted to the Interconnection Customer along with a facilities study agreement within five Business Days, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the facilities study.

3.5.1.1 Within five (5) Business Days following the study results meeting, the Interconnection Customer shall provide to the System Operator written notice whether it will either pursue the facilities study or waive the facilities study and elect an expedited interconnection.

If the Interconnection Customer waives the Facilities Study, it shall commit to the following milestones in the Interconnection Agreement; (i) Siting approval for the Generating Facility and Interconnection Facilities; (ii) Engineering of Interconnection Facilities approved by Interconnecting Transmission Owner; (iii) Ordering of long lead time material for Interconnection Facilities and system upgrades; (iv) Initial Synchronization Date; and (v) Commercial Operation Date.

3.5.2 If the Interconnection Customer has not waived the Facilities Study, in order to remain under consideration for interconnection, or, as appropriate, in the System Operator's interconnection queue, the Interconnection Customer must return the executed facilities study agreement or a request for an extension of time within 30 Business Days. Such extensions shall not exceed 60 Business Days.

- 3.5.3 The facilities study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the system impact study(s).
- 3.5.4 Design for any required Interconnection Facilities and/or Upgrades shall be performed under the facilities study agreement. The System Operator and/or the Interconnecting Transmission Owner may contract with consultants to perform activities required under the facilities study agreement. The Interconnection Customer, the System Operator, the Interconnecting Transmission Owner and the Affected Party(ies), if any, may agree to allow the Interconnection Customer to separately arrange for the design of some of the Interconnection Facilities. In such cases, facilities design will be reviewed and/or modified prior to acceptance by the Interconnecting Transmission Owner, under the provisions of the facilities study agreement. If the Parties agree to separately arrange for design and construction, and provided security and confidentiality requirements can be met, the System Operator and/or the Interconnecting Transmission Owner shall make sufficient information available to the Interconnection Customer in accordance with confidentiality and critical infrastructure requirements to permit the Interconnection Customer to obtain an independent design and cost estimate for any necessary facilities.

- 3.5.5 A deposit of the good faith estimated costs for the facilities study shall be required from the Interconnection Customer.
- 3.5.6 The scope of and cost responsibilities for the facilities study are described in the attached facilities study agreement.
- 3.5.7 Within 30 Business Days of receipt of the facilities study results, the Interconnection Customer shall provide written notice whether it agrees to pay for the Interconnection Facilities and Upgrades identified in the facilities study. An executable interconnection agreement shall be tendered by the System Operator in conjunction with the Interconnecting Transmission Owner to the Interconnection Customer within five Business Days of receipt of such agreement.

## **SECTION 4. PROVISIONS THAT APPLY TO ALL INTERCONNECTION REQUESTS**

### **4.1 Reasonable Efforts**

The System Operator and Interconnecting Transmission Owner shall make reasonable efforts to meet all time frames provided in these procedures unless the System Operator, the Interconnecting Transmission Owner and the Interconnection Customer agree to a different schedule. If the System Operator or Interconnecting Transmission Owner cannot meet a deadline provided herein, it shall notify the other Parties, explain the

reason for the failure to meet the deadline, and provide an estimated time by which it will complete the applicable interconnection procedure in the process.

#### 4.2 Disputes

4.2.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process according to the provisions of this article.

4.2.2 In the event of a dispute, the Party initiating the dispute resolution process shall provide the other Party(ies) with a written Notice of Dispute. Such Notice shall describe in detail the nature of the dispute.

4.2.3 If the dispute has not been resolved within two Business Days after receipt of the Notice, any Party may contact the Commission's Dispute Resolution Service (DRS) for assistance in resolving the dispute.



4.2.4 The DRS will assist the Parties in either resolving their dispute or in selecting an appropriate dispute resolution venue (e.g., mediation, settlement judge, early neutral evaluation, or technical expert) to assist the Parties in resolving their dispute. DRS can be reached at 1-877-337-2237 or via the internet at <http://www.ferc.gov/legal/adr.asp>.

4.2.5 Each Party agrees to conduct all negotiations in good faith and will be responsible for its own costs and its pro rata share of any costs paid to the neutral party and any associated common negotiating costs.

4.2.6 If none of the Parties elects to seek assistance from the DRS, or if the attempted dispute resolution fails, then each Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures.

4.3 Interconnection Metering

Any metering necessitated by the use of the Small Generating Facility shall be installed at the Interconnection Customer's expense in accordance with Commission, state, or local

regulatory requirements and with ISO New England Operating Documents, Applicable Reliability Standards, or successor documents.

#### 4.4 Commissioning

Commissioning tests of the Interconnection Customer's installed equipment shall be performed pursuant to applicable codes and standards.

4.4.1 The System Operator and the Interconnecting Transmission Owner must be given at least five Business Days written notice, or as otherwise mutually agreed to by the Parties, of the tests and may be present to witness the commissioning tests.

#### 4.5. Confidentiality

- 4.5.1 Confidential information shall mean any confidential and/or proprietary information provided by one Party to the other Party(ies) that is clearly marked or otherwise designated "Confidential." For purposes of these procedures all design, operating specifications, and metering data provided by the Interconnection Customer shall be deemed confidential information regardless of whether it is clearly marked or otherwise designated as such. Confidential information shall include, without limitation, all information treated as confidential under the ISO New England Information Policy, all information obtained from third parties under confidentiality agreements, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by any of the Parties to the others prior to the execution of an SGIA.
- 4.5.2 Confidential Information does not include information previously in the public domain, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party(ies) and after exhausting any opportunity to oppose such publication or release), or necessary to be divulged in an action to enforce these procedures. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the

Party providing that information, except to fulfill obligations under these procedures, or to fulfill legal or regulatory requirements.

4.5.2.1 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party(ies) as it employs to protect its own Confidential Information.

4.5.2.2 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.

4.5.3 Notwithstanding anything in this article to the contrary, and pursuant to 18 CFR § 1b.20, if the Commission, 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 these procedures, the Party shall provide the requested information to the Commission, within the time provided for in the request for information. In providing the information to the Commission, the Party may, consistent with 18 CFR § 388.112, request that the information be

treated as confidential and non-public by the Commission and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Party(ies) prior to the release of the Confidential Information to the Commission. The Party shall notify the other Party(ies) when it is notified by the Commission that a request to release Confidential Information has been received by the Commission, at which time any of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

#### 4.6 Comparability

The System Operator shall receive, process and analyze all Interconnection Requests in a timely manner as set forth in this document. The System Operator and Interconnecting Transmission Owner shall use the same reasonable efforts in processing and analyzing Interconnection Requests from all Interconnection Customers, whether the Small Generating Facility is owned or operated by the Interconnecting Transmission Owner, its subsidiaries or affiliates, or others.

4.7 Record Retention

The System Operator shall maintain for three years records, subject to audit, of all Interconnection Requests received under these procedures, the times required to complete Interconnection Request approvals and disapprovals, and justification for the actions taken on the Interconnection Requests.

4.8 Interconnection Agreement

After receiving an interconnection agreement, the Interconnection Customer shall have 30 Business Days or another mutually agreeable timeframe to sign and return the interconnection agreement, or request that the unexecuted interconnection agreement be filed with the Commission. If the Interconnection Customer does not sign the interconnection agreement, or ask that it be filed unexecuted within 30 Business Days, the Interconnection Request shall be deemed withdrawn. After the interconnection agreement is signed by the Parties, the interconnection of the Small Generating Facility shall proceed under the provisions of the interconnection agreement.

4.8.1 The Interconnection Customer, the Interconnecting Transmission Owner and the System Operator shall be Parties to the interconnection agreement. The System Operator, in conjunction with the Interconnecting Transmission Owner, shall tender the interconnection agreement to the Interconnection Customer in accordance with the Section 3 of this Schedule.

4.9 Coordination with Affected Systems

The System Operator shall coordinate the conduct of any studies required to determine the impact of the Interconnection Request on Affected Systems with Affected System operators and, if possible, include those results (if available) in its applicable interconnection study within the time frame specified in these procedures. The System Operator will include such Affected System operators in all meetings held with the Interconnection Customer as required by these procedures. The Interconnection Customer will cooperate with the System Operator and the Interconnecting Transmission Owner in all matters related to the

conduct of studies and the determination of modifications to Affected Systems. Any public utility (or its designated agent) that owns, controls or operates transmission or distribution facilities used for the transmission of electricity in interstate commerce and provides transmission service under an Open Access Transmission Tariff which may be an Affected System shall cooperate with the System Operator in all matters related to the conduct of studies and the determination of modifications to Affected Systems.

#### 4.10 Capacity of the Small Generating Facility

4.10.1 If the Interconnection Request is for an increase in capacity for an existing Small Generating Facility, the Interconnection Request shall be evaluated on the basis of the new total capacity of the Small Generating Facility.

4.10.2 If the Interconnection Request is for a Small Generating Facility that includes multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregate capacity of the multiple devices.



4.10.3 The Interconnection Request shall be evaluated using the maximum rated capacity of the Small Generating Facility.

**Attachment 1**

**Glossary of Terms**

**10 kW Inverter Process** – The procedure for evaluating an Interconnection Request for a certified inverter-based Small Generating Facility no larger than 10 kW that uses the section 2 screens. The application process uses an all-in-one document that includes a simplified Interconnection Request, simplified procedures, and a brief set of terms and conditions. See SGIP Attachment 5.

**Administered Transmission System** – The PTF, the Non-PTF, the MEPCO Transmission System, and distribution facilities that are subject to the Tariff.

**Affected Party or Parties** – The entity that owns, operates or controls an Affected System, or any other entity that otherwise may be a necessary party to the interconnection process.

**Affected System** – Any electric system that is within the Control Area, including, but not limited to, generator owned transmission facilities, or any other electric system that is not within the Control Area that may be affected by the proposed interconnection.

**Affiliate** – With respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries,

controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

**Business Day** – Monday through Friday, excluding Federal Holidays.

**Distribution System** – The Interconnecting Transmission Owner’s facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which Distribution Systems operate differ among areas.

**Distribution Upgrades** – The additions, modifications, and upgrades to the Interconnecting Transmission Owner’s Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Small Generating Facility and render the transmission service necessary to effect the Interconnection Customer's wholesale sale of electricity in interstate commerce.

Distribution Upgrades do not include Interconnection Facilities.

**Fast Track Process** – The procedure for evaluating an Interconnection Request for a certified Small Generating Facility no larger than 2 MW that includes the section 2 screens, customer options meeting, and optional supplemental review.

**Generating Facility** – The Interconnection Customer’s device for the production of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer’s Interconnection Facilities.

**Generating Facility Capacity** – The maximum gross megawatt electrical output at an ambient temperature of 20 degrees F of the Generating Facility and the aggregate maximum gross megawatt electrical output of the Generating Facility at an ambient temperature of 20 degrees F where it includes multiple energy production devices.

**Good Utility Practice** -- Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Interconnecting Transmission Owner** – A Transmission Owner that owns, leases or otherwise possesses an interest in the portion of the Administered Transmission System at the Point of Interconnection and shall be a Party to the Standard Small Generator Interconnection Agreement. The term Interconnecting Transmission Owner shall not be read to include the System Operator.

**Interconnection Customer** – Any entity, including a transmission owner or its Affiliates or subsidiaries, that proposes to interconnect its Small Generating Facility with the Administered Transmission System.

**Interconnection Facilities** – The Interconnecting Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generating

Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Small Generating Facility to the Administered Transmission System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

**Interconnection Request** – The Interconnection Request

- (a) shall mean an Interconnection Customer's request, in accordance with the Tariff, to: (i) interconnect a new Generating Facility to the Administered Transmission System; or (ii) increase the capacity of, make a Material Modification to the operating characteristics of, or commence participation in the wholesale markets by, an existing Generating Facility that is interconnected with the Administered Transmission System;
- (b) shall not include: (i) a retail customer interconnecting a new Generating Facility that will produce electric energy to be consumed only on the retail customer's site; (ii) a request to interconnect a new Generating Facility to a distribution facility that is subject to the Tariff if the Generating Facility will not be used to make wholesale sales of electricity in interstate commerce; or (iii) a request to interconnect a Qualifying Facility (as defined by the Public Utility Regulatory Policies Act, as amended by the Energy Policy Act of 2005 and the regulations thereto), where the Qualifying Facility's owner intent is to sell 100% of the Qualifying Facility's output to its interconnected electric utility.

**Interconnection Service** – The service provided by the System Operator and the Interconnecting Transmission Owner, associated with interconnecting the Interconnection Customer’s Generating Facility to the Administered Transmission System and enabling the receipt of electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Standard Small Generator Interconnection Agreement and, if applicable, the Tariff.

**Material Modification** – (i) Those modifications to the technical data provided by the Interconnection Customer or to the interconnection configuration, requested by the Interconnection Customer, that either require significant additional study of the same Interconnection Request and could substantially change the interconnection design; or have a material impact on the cost or timing of any Interconnection Studies or upgrades associated with an Interconnection Request with a later queue priority date; or (ii) a change to the design or operating characteristics of an existing Generating Facility that is interconnected with the Administered Transmission System which may have a significant adverse effect on the reliability or operating characteristics of the New England Transmission System; or (iii) a delay to the Commercial Operation Date, In-Service Date, or Initial Synchronization Date of greater than three (3) years where the reason for delay is unrelated to construction schedules or permitting which is beyond the Interconnection Customer’s control.

**Minimum Interconnection Standard (MIS)** – The minimum criteria required to permit the Interconnection Customer to interconnect in a manner that avoids any significant adverse effect

on the reliability, stability, and operability of the New England Transmission System, including protecting against the degradation of transfer capability for interfaces affected by the unit.

**Network Interconnection Service** – An Interconnection Service that allows the Interconnection Customer to interconnect its Small Generating Facility with the Administered Transmission System in a manner comparable to that in which all other Network Resources are interconnected to the Administered Transmission System under the Minimum Interconnection Standard as set forth in the Tariff.

**Network Resource** – That portion of a Generating Facility that is interconnected to the Administered Transmission System under the MIS, and designated as a Network Resource pursuant to the terms of the Tariff, eligible to participate in the Markets in accordance with Market Rule 1, and subjected to redispatch directives as ordered by the System Operator in accordance with the Tariff.

**Network Upgrades** – Additions, modifications, and upgrades to the New England Transmission System required at or beyond the point at which the Small Generating Facility interconnects with the Administered Transmission System to accommodate the interconnection with the Small Generating Facility to the Administered Transmission System. Network Upgrades do not include Distribution Upgrades.



**Notice of Dispute** – A written notice of a dispute or claim that arises out of or in connection with the Standard Small Generator Interconnection Agreement or its performance.

**Party or Parties** – The System Operator, Interconnecting Transmission Owner, Interconnection Customer or any combination of the above.

**Point of Interconnection** – The point where the Interconnection Facilities connect with the Administered Transmission System.

**Queue Position** – The order of a valid request in the New England Control Area, relative to all other pending valid requests in the New England Control Area, that is established based upon the date and time of receipt of the valid Interconnection Request by the System Operator. Requests are comprised of Interconnection Requests, requests for Elective Transmission Upgrades, requests for transmission service and notification of requests for interconnection to other electric systems, as notified by the other electric systems, that impact the Administered Transmission System.

**Small Generating Facility** – A Generating Facility having a Generating Facility Capacity of 20 MW or less.

**Stand Alone Network Upgrades** – Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the New England Transmission System during their construction. The System Operator, Interconnection Customer, Interconnecting Transmission Owner, and any Affected Party as deemed appropriate by the System Operator in accordance with applicable codes of conduct and confidentiality requirements, must agree as to what constitutes Stand Alone Network Upgrades and identify them in Attachment 2 to the Standard Small Generator Interconnection Agreement.

**Study Process** – The procedure for evaluating an Interconnection Request that includes the section 3 scoping meeting, feasibility study, system impact study, and facilities study.

**System Operator** – ISO New England Inc. or a successor organization.

**Upgrades** – The required additions and modifications to the Administered Transmission System at or beyond the Point of Interconnection. Upgrades may be Network Upgrades or Distribution Upgrades. Upgrades do not include Interconnection Facilities.

**Attachment 2**

**SMALL GENERATOR INTERCONNECTION REQUEST  
(Application Form)**

System Operator \_\_\_\_\_

Designated Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

An Interconnection Request is considered complete when it provides all applicable and correct information required below. Per SGIP section 1.5, documentation of site control must be submitted with the Interconnection Request.

**Preamble and Instructions**

An Interconnection Customer who requests a Federal Energy Regulatory Commission jurisdictional interconnection must submit this Interconnection Request by hand delivery, mail, e-mail, or fax to the System Operator.

**Processing Fee or Deposit:**

If the Interconnection Request is submitted under the Fast Track Process, the non-refundable processing fee is \$500.

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If the Interconnection Request is submitted under the Study Process, whether a new submission or an Interconnection Request that did not pass the Fast Track Process, the Interconnection Customer shall submit to the System Operator a non-refundable deposit of \$1,000 towards the cost of the scoping meeting and the interconnection studies.

**Interconnection Customer Information**

Legal Name of the Interconnection Customer (or, if an individual, individual's name)

Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Facility Location (if different from above): \_\_\_\_\_

Telephone (Day): \_\_\_\_\_ Telephone (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Alternative Contact Information (if different from the Interconnection Customer)

Contact Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone (Day): \_\_\_\_\_ Telephone (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Application is for: \_\_\_\_\_ New Small Generating Facility  
\_\_\_\_\_ Capacity addition to or Material Modification of an Existing Small

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Generating Facility

\_\_\_\_\_ Commencement of participation in the wholesale markets by an  
Existing Small Generating Facility

If capacity addition to or Material Modification of an existing facility, please describe: \_\_\_\_\_

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If the capacity addition increases the maximum gross megawatt electrical output at an ambient temperature of 20 degrees F of the Generating Facility to more than 20 MW, the Interconnection Customer, Schedule 22 shall apply.

Will the Small Generating Facility be used for any of the following?

Net Metering? Yes \_\_\_ No \_\_\_

To Supply Power to the Interconnection Customer? Yes \_\_\_ No \_\_\_

To Supply Power to Others? Yes \_\_\_ No \_\_\_

Is the Interconnection Request for:

A retail customer interconnecting a new Small Generating Facility that will produce electric energy to be consumed only on the retail customer's site? Yes \_\_\_ No \_\_\_

A Qualifying Facility where 100% of the output will be sold to its host utility?  
Yes \_\_\_ No \_\_\_

An Interconnection Customer interconnecting a new Small Generating Facility that plans to participate in the wholesale markets? Yes \_\_\_ No \_\_\_

An existing Small Generating Facility commencing participation in the wholesale markets?  
Yes \_\_\_ No \_\_\_

For installations at locations with existing electric service to which the proposed Small Generating Facility will interconnect, provide:

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(Local Electric Service Provider)

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(Existing Account Number)

Contact Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone (Day): \_\_\_\_\_ Telephone (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Requested Point of Interconnection: \_\_\_\_\_

Interconnection Customer's Requested In-Service Date: \_\_\_\_\_

**Small Generating Facility Information**

Data apply only to the Small Generating Facility, not the Interconnection Facilities.

Energy Source: \_\_\_ Solar \_\_\_ Wind \_\_\_ Hydro \_\_\_ Hydro Type (e.g. Run-of-River): \_\_\_\_\_  
Diesel \_\_\_ Natural Gas \_\_\_ Fuel Oil \_\_\_ Other (state type) \_\_\_\_\_

Prime Mover: \_\_\_ Fuel Cell \_\_\_ Recip Engine \_\_\_ Gas Turb \_\_\_ Steam Turb  
\_\_\_ Microturbine \_\_\_ PV \_\_\_ Other

Type of Generator: \_\_\_ Synchronous \_\_\_ Induction \_\_\_ Inverter

Generator Nameplate Rating: \_\_\_\_\_ kW (Typical) Generator Nameplate kVAR: \_\_\_\_\_

Interconnection Customer or Customer-Site Load: \_\_\_\_\_ kW (if none, so state)

Typical Reactive Load (if known): \_\_\_\_\_

Maximum Physical Export Capability Requested: \_\_\_\_\_ kW

List components of the Small Generating Facility equipment package that are currently certified:

Equipment Type	Certifying Entity
1. _____	_____
2. _____	_____

- 
3. \_\_\_\_\_
  4. \_\_\_\_\_
  5. \_\_\_\_\_

Is the prime mover compatible with the certified protective relay package?  Yes  No

Generator (or solar collector)

Manufacturer, Model Name & Number: \_\_\_\_\_

Version Number: \_\_\_\_\_

Nameplate Output Power Rating in kW: (Summer) \_\_\_\_\_ (Winter) \_\_\_\_\_

Nameplate Output Power Rating in kVA: (Summer) \_\_\_\_\_ (Winter) \_\_\_\_\_

Individual Generator Power Factor

Rated Power Factor: Leading: \_\_\_\_\_ Lagging: \_\_\_\_\_

Total Number of Generators in wind farm to be interconnected pursuant to this

Interconnection Request: \_\_\_\_\_ Elevation: \_\_\_\_\_  Single phase  Three phase

Inverter Manufacturer, Model Name & Number (if used): \_\_\_\_\_

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

Note: A completed Power Systems Load Flow data sheet must be supplied with the Interconnection Request.

Small Generating Facility Characteristic Data (for inverter-based machines)

Max design fault contribution current: \_\_\_\_\_ Instantaneous  or RMS?

Harmonics Characteristics: \_\_\_\_\_

Start-up requirements: \_\_\_\_\_

Small Generating Facility Characteristic Data (for rotating machines)

RPM Frequency: \_\_\_\_\_

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No. 2006, 111 FERC ¶ 61,220 (2005)



Neutral Grounding Resistor (If Applicable): \_\_\_\_\_

Synchronous Generators:

Direct Axis Synchronous Reactance,  $X_d$ : \_\_\_\_\_ P.U.  
Direct Axis Transient Reactance,  $X'_d$ : \_\_\_\_\_ P.U.  
Direct Axis Subtransient Reactance,  $X''_d$ : \_\_\_\_\_ P.U.  
Negative Sequence Reactance,  $X_2$ : \_\_\_\_\_ P.U.  
Zero Sequence Reactance,  $X_0$ : \_\_\_\_\_ P.U.  
KVA Base: \_\_\_\_\_  
Field Volts: \_\_\_\_\_  
Field Amperes: \_\_\_\_\_

Induction Generators:

Motoring Power (kW): \_\_\_\_\_  
 $I_2^2t$  or K (Heating Time Constant): \_\_\_\_\_  
Rotor Resistance,  $R_r$ : \_\_\_\_\_  
Stator Resistance,  $R_s$ : \_\_\_\_\_  
Stator Reactance,  $X_s$ : \_\_\_\_\_  
Rotor Reactance,  $X_r$ : \_\_\_\_\_  
Magnetizing Reactance,  $X_m$ : \_\_\_\_\_  
Short Circuit Reactance,  $X_d''$ : \_\_\_\_\_  
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

Note: Please contact the System Operator prior to submitting the Interconnection Request to determine if the specified information above is required.

Excitation and Governor System Data for Synchronous Generators Only

Provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS) in accordance with the regional reliability council criteria. A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

**Interconnection Facilities Information**

Will a transformer be used between the generator and the point of common coupling? \_\_\_ Yes \_\_\_ No

Will the transformer be provided by the Interconnection Customer? \_\_\_ Yes \_\_\_ No

Transformer Data (If Applicable, for Interconnection Customer-Owned Transformer):

Is the transformer: \_\_\_ single phase \_\_\_ three phase? Size: \_\_\_\_\_ kVA  
Transformer Impedance: \_\_\_\_\_ % on \_\_\_\_\_ kVA Base

If Three Phase:

Transformer Primary: \_\_\_ Volts \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded  
Transformer Secondary: \_\_\_ Volts \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded  
Transformer Tertiary: \_\_\_ Volts \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded

Transformer Fuse Data (If Applicable, for Interconnection Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt and Total Clearing Time-Current Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Size: \_\_\_\_\_ Speed: \_\_\_\_\_

Interconnecting Circuit Breaker (if applicable):

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_  
Load Rating (Amps): \_\_\_\_\_ Interrupting Rating (Amps): \_\_\_\_\_ Trip Speed (Cycles): \_\_\_\_\_

Interconnection Protective Relays (If Applicable):

If Microprocessor-Controlled:

List of Functions and Adjustable Setpoints for the protective equipment or software:

1)	Setpoint Function	Minimum	Maximum
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- 
1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
  4. \_\_\_\_\_
  5. \_\_\_\_\_
  6. \_\_\_\_\_

If Discrete Components:

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Current Transformer Data (If Applicable):

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Potential Transformer Data (If Applicable):

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

**General Information**

Enclose two copies of site electrical one-line diagram showing the configuration of all Small Generating Facility equipment, current and potential circuits, and protection and control schemes. This one-line diagram must be signed and stamped by a licensed Professional Engineer if the Small Generating Facility is larger than 50 kW. Are two copies of One-Line Diagram Enclosed? \_\_\_Yes \_\_\_No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Small Generating Facility (e.g., USGS topographic map or other diagram or documentation).

Proposed location of protective interface equipment on property (include address if different from the Interconnection Customer's address) \_\_\_\_\_

Enclose copy of any site documentation that describes and details the operation of the protection and control schemes. Is Available Documentation Enclosed? \_\_\_Yes \_\_\_No

Enclose copies of schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).  
Are Schematic Drawings Enclosed? \_\_\_Yes \_\_\_No

**Applicant Signature**

I hereby certify that, to the best of my knowledge, all the information provided in this Interconnection Request is true and correct.

For Interconnection Customer: \_\_\_\_\_ Date: \_\_\_\_\_

**Attachment 3**

**Certification Codes and Standards**

IEEE1547 Standard for Interconnecting Distributed Resources with Electric Power Systems  
(including use of IEEE 1547.1 testing protocols to establish conformity)

UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems

IEEE Std 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV)  
Systems

NFPA 70 (2002), National Electrical Code

IEEE Std C37.90.1-1989 (R1994), IEEE Standard Surge Withstand Capability (SWC) Tests for  
Protective Relays and Relay Systems

IEEE Std C37.90.2 (1995), IEEE Standard Withstand Capability of Relay Systems to Radiated  
Electromagnetic Interference from Transceivers

IEEE Std C37.108-1989 (R2002), IEEE Guide for the Protection of Network Transformers

IEEE Std C57.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low  
Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.45-1992 (R2002), IEEE Recommended Practice on Surge Testing for Equipment  
Connected to Low-Voltage (1000V and Less) AC Power Circuits

ANSI C84.1-1995 Electric Power Systems and Equipment – Voltage Ratings (60 Hertz)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms  
NEMA MG 1-1998, Motors and Small Resources, Revision 3

IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in  
Electrical Power Systems

NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision 1

**Attachment 4**

**Certification of Small Generator Equipment Packages**

- 1.0 Small Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if (1) it has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced below by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in SGIP Attachment 3, (2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
- 2.0 The Interconnection Customer must verify that the intended use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.
- 3.0 Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this interconnection procedure; however, nothing herein shall preclude the need for an on-site commissioning test by the parties to the interconnection nor follow-up production testing by the NRTL.
- 4.0 If the certified equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
- 5.0 Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design

review, testing or additional equipment on the customer side of the point of common coupling shall be required to meet the requirements of this interconnection procedure.

- 6.0 An equipment package does not include equipment provided by the utility.
- 7.0 Any equipment package approved and listed in a state by that state's regulatory body for interconnected operation in that state prior to the effective date of these small generator interconnection procedures shall be considered certified under these procedures for use in that state.

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**Attachment 5**

**Application, Procedures, and Terms and Conditions for Interconnecting  
a Certified Inverter-Based Small Generating Facility No  
Larger than 10 kW ("10 kW Inverter Process")**

- 1.0 The Interconnection Customer ("Customer") completes the Interconnection Request ("Application") and submits it to the System Operator.
- 2.0 The System Operator acknowledges to the Customer receipt of the Application within three Business Days of receipt.
- 3.0 The System Operator in conjunction with the Interconnecting Transmission Owner evaluates the Application for completeness and notifies the Customer within ten Business Days of receipt that the Application is or is not complete and, if not, advises what material is missing.
- 4.0 The System Operator in conjunction with the Interconnecting Transmission Owner verifies that the Small Generating Facility can be interconnected safely and reliably using the screens contained in the Fast Track Process in the Small Generator Interconnection Procedures (SGIP). The System Operator has 15 Business Days to complete this process. Unless the System Operator in conjunction with the Interconnecting Transmission Owner determines and demonstrates that the Small Generating Facility cannot be interconnected safely and reliably, the System Operator approves the Application and returns it to the Customer. Note to Customer: Please check with the System Operator before submitting the Application if disconnection equipment is required.
- 5.0 After installation, the Customer returns the Certificate of Completion to the System Operator. Prior to parallel operation, the System Operator and Interconnecting Transmission Owner may inspect the Small Generating Facility for compliance with standards which may include a witness test, and may schedule appropriate metering replacement, if necessary.
- 6.0 The System Operator in conjunction with the Interconnecting Transmission Owner notifies the Customer in writing that interconnection of the Small Generating Facility is authorized. If the witness test is not satisfactory, the Interconnecting Transmission Owner has the right to disconnect the Small Generating Facility. The Customer has no right to operate in parallel until a witness test has been performed, or previously waived on the Application. The Interconnecting Transmission Owner is obligated to complete this witness test within ten Business Days of the receipt of the Certificate of Completion. If the Interconnecting Transmission Owner does not inspect



within ten Business Days or by mutual agreement of the Parties, the witness test is deemed waived.

- 7.0 Contact Information – The Customer must provide the contact information for the legal applicant (i.e., the Interconnection Customer). If another entity is responsible for interfacing with the System Operator and the Interconnecting Transmission Owner, that contact information must be provided on the Application.
- 8.0 Ownership Information – Enter the legal names of the owner(s) of the Small Generating Facility. Include the percentage ownership (if any) by any utility or public utility holding company, or by any entity owned by either.
- 9.0 UL1741 Listed – This standard ("Inverters, Converters, and Controllers for Use in Independent Power Systems") addresses the electrical interconnection design of various forms of generating equipment. Many manufacturers submit their equipment to a Nationally Recognized Testing Laboratory (NRTL) that verifies compliance with UL1741. This "listing" is then marked on the equipment and supporting documentation.

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## **Application for Interconnecting a Certified Inverter-Based Small Generating Facility No Larger than 10kW**

This Application is considered complete when it provides all applicable and correct information required below. Per SGIP section 1.5, documentation of site control must be submitted with the Interconnection Request. Additional information to evaluate the Application may be required.

### Processing Fee

A non-refundable processing fee of \$100 must accompany this Application.

### Interconnection Customer

Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone (Day): \_\_\_\_\_ (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

### Contact (if different from Interconnection Customer)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone (Day): \_\_\_\_\_ (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Owner of the facility (include % ownership by any electric utility): \_\_\_\_\_

### **Small Generating Facility Information**

Location (if different from above): \_\_\_\_\_

Electric Service Company: \_\_\_\_\_

Account Number: \_\_\_\_\_

Is the Interconnection Request for:

A retail customer interconnecting a new Small Generating Facility that will produce electric energy to be consumed only on the retail customer's site? Yes \_\_\_\_\_ No \_\_\_\_\_

A Qualifying Facility where 100% of the output will be sold to its host utility?  
Yes \_\_\_\_\_ No \_\_\_\_\_

An Interconnection Customer interconnecting a new Small Generating Facility that plans to participate in the wholesale markets? Yes \_\_\_\_\_ No \_\_\_\_\_

An existing Small Generating Facility commencing participation in the wholesale markets?  
Yes \_\_\_\_\_ No \_\_\_\_\_

Inverter Manufacturer: \_\_\_\_\_ Model \_\_\_\_\_

Nameplate Rating: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA) \_\_\_\_\_ (AC Volts)

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

System Design Capacity: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA)

Prime Mover: Photovoltaic  Reciprocating Engine  Fuel Cell   
Turbine  Other \_\_\_\_\_

Energy Source: Solar  Wind  Hydro  Diesel  Natural Gas   
Fuel Oil  Other (describe) \_\_\_\_\_

Is the equipment UL1741 Listed? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, attach manufacturer's cut-sheet showing UL1741 listing

Estimated Installation Date: \_\_\_\_\_ Estimated In-Service Date: \_\_\_\_\_

The 10 kW Inverter Process is available only for inverter-based Small Generating Facilities no larger than 10 kW that meet the codes, standards, and certification requirements of Attachments 3 and 4 of the Small Generator Interconnection Procedures (SGIP), or the Interconnecting Transmission Owner has reviewed the design or tested the proposed Small Generating Facility and is satisfied that it is safe to operate.

List components of the Small Generating Facility equipment package that are currently certified:

Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No.2006, 111 FERC ¶61,220 (2005)

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Equipment Type	Certifying Entity
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

**Interconnection Customer Signature**

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree to abide by the Terms and Conditions for Interconnecting an Inverter-Based Small Generating Facility No Larger than 10kW and return the Certificate of Completion when the Small Generating Facility has been installed.

Signed: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

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**Contingent Approval to Interconnect the Small Generating Facility**

**(For Internal use only)**

Interconnection of the Small Generating Facility is approved contingent upon the Terms and Conditions for Interconnecting an Inverter-Based Small Generating Facility No Larger than 10kW and return of the Certificate of Completion.

Interconnecting Transmission Owner Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Application ID number: \_\_\_\_\_

Interconnecting Transmission Owner waives inspection/witness test? Yes \_\_\_ No \_\_\_

System Operator Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Application ID number: \_\_\_\_\_

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## Small Generating Facility Certificate of Completion

Is the Small Generating Facility owner-installed? Yes \_\_\_\_\_ No \_\_\_\_\_

Interconnection Customer: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Location of the Small Generating Facility (if different from above):  
\_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Day): \_\_\_\_\_ (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

### Electrician:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Day): \_\_\_\_\_ (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

License number: \_\_\_\_\_

Date Approval to Install Facility granted by the Interconnecting Transmission Owner:  
\_\_\_\_\_

Application ID number: \_\_\_\_\_

### Inspection:

The Small Generating Facility has been installed and inspected in compliance with the local

building/electrical code of \_\_\_\_\_

Signed (Local electrical wiring inspector, or attach signed electrical inspection):

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Print Name: \_\_\_\_\_

Date: \_\_\_\_\_

As a condition of interconnection, you are required to send/fax a copy of this form along with a copy of the signed electrical permit to (insert System Operator and Interconnecting Transmission Owner information below):

Name: \_\_\_\_\_  
System Operator: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
City, State ZIP: \_\_\_\_\_  
Fax: \_\_\_\_\_

Name: \_\_\_\_\_  
Interconnecting Transmission Owner:  
\_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
City, State ZIP: \_\_\_\_\_  
Fax: \_\_\_\_\_

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**Approval to Energize the Small Generating Facility**

**(For Internal use only)**

Energizing the Small Generating Facility is approved contingent upon the Terms and Conditions for Interconnecting an Inverter-Based Small Generating Facility No Larger than 10kW

Interconnecting Transmission Owner Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

System Operator Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: June 1, 2006

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. ER06-191-000, *et al.*,  
issued April 14, 2006, 115 FERC ¶ 61,050 (2006)

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## **Terms and Conditions for Interconnecting an Inverter-Based Small Generating Facility No Larger than 10kW**

### **1.0 Construction of the Facility**

The Interconnection Customer (the "Customer") may proceed to construct (including operational testing not to exceed two hours) the Small Generating Facility when the System Operator approves the Interconnection Request (the "Application") and returns it to the Customer.

### **2.0 Interconnection and Operation**

The Customer may operate Small Generating Facility and interconnect with the Interconnecting Transmission Owner's (the "Company") electric system once all of the following have occurred:

2.1 Upon completing construction, the Customer will cause the Small Generating Facility to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction, and

2.2 The Customer returns the Certificate of Completion to the System Operator and the Company, and

2.3 The Company has either:

2.3.1 Completed its inspection of the Small Generating Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes. All inspections must be conducted by the Company, at its own expense, within ten Business Days after receipt of the Certificate of Completion and shall take place at a time agreeable to the Parties. The Company shall provide a written statement that the Small Generating Facility has passed inspection or shall notify the Customer of what steps it must take to pass inspection as soon as practicable after the inspection takes place; or

2.3.2 If the Company does not schedule an inspection of the Small Generating Facility within ten business days after receiving the Certificate of Completion, the witness test is deemed waived (unless the Parties agree otherwise); or

2.3.3 The Company waives the right to inspect the Small Generating Facility.

2.4 The Company has the right to disconnect the Small Generating Facility in the event of improper installation or failure to return the Certificate of Completion.

2.5 Revenue quality metering equipment must be installed and tested in accordance with applicable ANSI standards.

3.0 **Safe Operations and Maintenance**

The Customer shall be fully responsible to operate, maintain, and repair the Small Generating Facility as required to ensure that it complies at all times with the interconnection standards to which it has been certified.

4.0 **Access**

The Company shall have access to the disconnect switch (if the disconnect switch is required) and metering equipment of the Small Generating Facility at all times. The Company shall provide reasonable notice to the Customer when possible prior to using its right of access.

5.0 **Disconnection**

The Company may temporarily disconnect the Small Generating Facility upon the following conditions:

5.1 For scheduled outages upon reasonable notice.

5.2 For unscheduled outages or emergency conditions.

5.3 If the Small Generating Facility does not operate in the manner consistent with these Terms and Conditions.

5.4 The Company shall inform the Customer in advance of any scheduled disconnection, or as is reasonable after an unscheduled disconnection.

6.0 **Indemnification**

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 of its obligations under this agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.



## 7.0 **Insurance**

The Parties agree to follow all applicable insurance requirements imposed by the state in which the Point of Interconnection is located. All insurance policies must be maintained with insurers authorized to do business in that state.

**8.0 Limitation of Liability**

Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever, except as allowed under paragraph 6.0.

**9.0 Termination**

The agreement to operate in parallel may be terminated under the following conditions:

**9.1 By the Customer**

By providing written notice to the Company and the System Operator.

**9.2 By the Company or the System Operator**

If the Small Generating Facility fails to operate for any consecutive 12 month period or the Customer fails to remedy a violation of these Terms and Conditions.

**9.3 Permanent Disconnection**

In the event this Agreement is terminated, the Company shall have the right to disconnect its facilities or direct the Customer to disconnect its Small Generating Facility.

**9.4 Survival Rights**

This Agreement shall continue in effect after termination to the extent necessary to allow or require any Party to fulfill rights or obligations that arose under the Agreement.

**10.0 Assignment/Transfer of Ownership of the Facility**

This Agreement shall survive the transfer of ownership of the Small Generating Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the System Operator and the Company.

**Attachment 6**

**Feasibility Study Agreement**

**THIS AGREEMENT** is made and entered into this \_\_\_\_ day of \_\_\_\_\_  
20\_\_ by and between \_\_\_\_\_,  
a \_\_\_\_\_ organized and existing under the laws of the State of  
\_\_\_\_\_, ("Interconnection Customer,") and ISO  
New England Inc., a non-stock corporation existing under the laws of the State of Delaware  
("System Operator"), and \_\_\_\_\_,  
a \_\_\_\_\_  
existing under the laws of the State of \_\_\_\_\_,  
("Interconnecting Transmission Owner"). Interconnection Customer, System Operator and  
Interconnecting Transmission Owner each may be referred to as a "Party," or collectively as the  
"Parties."

**RECITALS**

**WHEREAS**, Interconnection Customer is proposing to develop a Small Generating Facility or  
generating capacity addition to an existing Small Generating Facility consistent with the  
Interconnection Request completed by Interconnection Customer  
on \_\_\_\_\_; and

**WHEREAS**, Interconnection Customer desires to interconnect the Small Generating Facility  
with the Administered Transmission System; and

**WHEREAS**, Interconnection Customer has requested the System Operator and Interconnecting  
Transmission Owner to perform a feasibility study to assess the feasibility of interconnecting the  
proposed Small Generating Facility with the facilities that are part of the Interconnecting  
Transmission Owner's Administered Transmission System, and of any Affected Systems;

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein  
the Parties agreed as follows:

1.0 When used in this Agreement, with initial capitalization, the terms specified shall have

the meanings indicated or the meanings specified in the standard Small Generator Interconnection Procedures.

- 2.0 The Interconnection Customer elects and the System Operator and Interconnecting Transmission Owner shall cause to be performed an interconnection feasibility study consistent the standard Small Generator Interconnection Procedures in accordance with the Open Access Transmission Tariff.
- 3.0 The scope of the feasibility study shall be subject to the assumptions set forth in Attachment A to this Agreement.
- 4.0 The feasibility study shall be based on the technical information provided by the Interconnection Customer in the Interconnection Request, as may be modified as the result of the scoping meeting. The System Operator and Interconnecting Transmission Owner reserve the right to request additional technical information from the Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the feasibility study and as designated in accordance with the standard Small Generator Interconnection Procedures. If the Interconnection Customer modifies its Interconnection Request, the time to complete the feasibility study may be extended by agreement of the Parties.
- 5.0 In performing the study, the System Operator and Interconnecting Transmission Owner shall rely, to the extent reasonably practicable, on existing studies of recent vintage. The Interconnection Customer shall not be charged for such existing studies; however, the Interconnection Customer shall be responsible for charges associated with any new study or modifications to existing studies that are reasonably necessary to perform the feasibility study.
- 6.0 The feasibility study report shall provide the following analyses for the purpose of identifying any potential adverse system impacts that would result from the interconnection of the Small Generating Facility as proposed:
  - 6.1 Initial identification of any circuit breaker or other facility short circuit capability limits exceeded as a result of the interconnection;
  - 6.2 Initial identification of any thermal overload or voltage limit violations resulting

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from the interconnection;

- 6.3 Initial review of grounding requirements and electric system protection; and
- 6.4 Description and non-binding estimated cost of facilities required to interconnect the proposed Small Generating Facility and to address the identified short circuit and power flow issues.
- 7.0 The feasibility study shall model the impact of the Small Generating Facility regardless of purpose in order to avoid the further expense and interruption of operation for reexamination of feasibility and impacts if the Interconnection Customer later changes the purpose for which the Small Generating Facility is being installed.
- 8.0 The study shall include the feasibility of any interconnection at a proposed project site where there could be multiple potential Points of Interconnection, as requested by the Interconnection Customer and at the Interconnection Customer's cost.
- 9.0 A deposit, paid to the System Operator, of the lesser of 50 percent of good faith estimated feasibility study costs or earnest money of \$1,000 shall be required from the Interconnection Customer.
- 10.0 Once the feasibility study is completed, a feasibility study report shall be prepared and transmitted to the Interconnection Customer. Barring unusual circumstances, the feasibility study must be completed and the feasibility study report transmitted within 30 Business Days of the Interconnection Customer's agreement to conduct a feasibility study.
- 11.0 Any study fees shall be based on the System Operator's and the Interconnecting Transmission Owner's actual costs, including the cost of developing the study agreement and its attachment(s), and will be invoiced to the Interconnection Customer after the study is completed and delivered and will include a summary of professional time.
- 12.0 The Interconnection Customer must pay any study costs that exceed the deposit without interest within 30 calendar days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced fees, the System Operator shall refund such excess within 30 calendar days of the invoice without interest.

### 13.0 Miscellaneous.

- 13.1 Accuracy of Information. Except as a Party (“Providing Party”) may otherwise specify in writing when it provides information to the other Parties under this Agreement, the Providing Party represents and warrants that, to the best of its knowledge, the information it provides to the other Parties shall be accurate and complete as of the date the information is provided. The Providing Party shall promptly provide the other Parties with any additional information needed to update information previously provided.
- 13.2 Disclaimer of Warranty. In preparing and/or participating in the Interconnection Feasibility Study, as applicable, each Party and any subcontractor consultants employed by it shall have to rely on information provided by the Providing Party, and possibly by third parties, and may not have control over the accuracy of such information. Accordingly, beyond the commitment to use Reasonable Efforts in preparing and/or participating in the Interconnection Feasibility Study (including, but not limited to, exercise of Good Utility Practice in verifying the accuracy of information provided for or used in the Interconnection Feasibility Study), as applicable, no Party nor any subcontractor consultant employed by it makes any warranties, express or implied, whether arising by operation of law, course of performance or dealing, custom, usage in the trade or profession, or otherwise, including without limitation implied warranties of merchantability and fitness for a particular purpose, with regard to the accuracy of the information considered in conducting the Interconnection Feasibility Study, the content of the Interconnection Feasibility Study, or the conclusions of the Interconnection Feasibility Study. Interconnection Customer acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.
- 13.3 Force Majeure, Liability and Indemnification.
- 13.3.1 Force Majeure. Neither System Operator, Interconnecting Transmission Owner nor an Interconnection Customer will be considered in default as to any obligation under this Agreement if prevented from fulfilling the obligation due to an event of Force Majeure; provided that no event of Force Majeure affecting any entity shall excuse that entity from making

any payment that it is obligated to make hereunder. However, an entity whose performance under this Agreement is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Agreement, and shall promptly notify the System Operator, the Interconnecting Transmission Owner or the Interconnection Customer, whichever is appropriate, of the commencement and end of each event of Force Majeure.

13.3.2 Liability. System Operator shall not be liable for money damages or other compensation to the Interconnection Customer for action or omissions by System Operator in performing its obligations under this Agreement, except to the extent such act or omission by System Operator is found to result from its gross negligence or willful misconduct. Interconnecting Transmission Owner shall not be liable for money damages or other compensation to the Interconnection Customer for action or omissions by Interconnecting Transmission Owner in performing its obligations under this Agreement, except to the extent such act or omission by Interconnecting Transmission Owner is found to result from its gross negligence or willful misconduct. To the extent the Interconnection Customer has claims against System Operator or Interconnecting Transmission Owner, the Interconnection Customer may only look to the assets of System Operator or Interconnecting Transmission Owner (as the case may be) for the enforcement of such claims and may not seek to enforce any claims against the directors, members, shareholders, officers, employees or agents of System Operator or Interconnecting Transmission Owner or Affiliate of either who, the Interconnection Customer acknowledges and agrees, have no personal or other liability for obligations of System Operator or Interconnecting Transmission Owner by reason of their status as directors, members, shareholders, officers, employees or agents of System Operator or Interconnecting Transmission Owner or Affiliate of either. In no event shall System Operator, Interconnecting Transmission Owner or Interconnection Customer be liable for any incidental, consequential, multiple or punitive damages, loss of revenues or profits, attorneys fees or costs arising out of, or connected in any way with the performance or non-performance under this Agreement. Notwithstanding the foregoing, nothing in this section shall

diminish an Interconnection Customer's obligations under the Indemnification section below.

13.3.3 Indemnification. Interconnection Customer shall at all times indemnify, defend, and save harmless System Operator and the Interconnecting Transmission Owner and their respective directors, officers, members, employees and agents from any and all damages, losses, claims and liabilities ("Losses") by or to third parties arising out of or resulting from the performance by System Operator or Interconnecting Transmission Owner under this Agreement, any bankruptcy filings made by the Interconnection Customer, or the actions or omissions of the Interconnection Customer in connection with this Agreement, except in the case of System Operator, to the extent such Losses arise from the gross negligence or willful misconduct by System Operator or its directors, officers, members, employees or agents, and, in the case of Interconnecting Transmission Owner, to the extent such Losses arise from the gross negligence or willful misconduct by Interconnecting Transmission Owner or its directors, officers, members, employees or agents. The amount of any indemnity payment hereunder shall be reduced (including, without limitation, retroactively) by any insurance proceeds or other amounts actually recovered by the indemnified party in respect of the indemnified action, claim, demand, cost, damage or liability. The obligations of Interconnection Customer to indemnify System Operator and Interconnecting Transmission Owner shall be several, and not joint or joint and several. The liability provisions of the Transmission Operating Agreement or other applicable operating agreements shall apply to the relationship between the System Operator and the Interconnecting Transmission Owner.

13.4 Third-Party Beneficiaries. Without limitation of Sections 13.2 and 13.3 of this Agreement, the Parties agree that subcontractor consultants hired by them to conduct, participate in, or review, or to assist in the conducting, participating in, or reviewing of, an Interconnection Feasibility Study shall be deemed third party beneficiaries of Sections 13.2 and 13.3.

13.5 Term and Termination. This Agreement shall be effective from the date hereof and unless earlier terminated in accordance with this Section 13.5, shall continue



in effect for a term of one year or until the Interconnection Feasibility Study is completed. This Agreement shall automatically terminate upon the withdrawal of Interconnection Request under Section 1.8 of the SGIP. The System Operator or the Interconnecting Transmission Owner may terminate this Agreement fifteen (15) days after providing written notice to the Interconnection Customer that it has breached one of its obligations hereunder, if the breach has not been cured within such fifteen (15) day period.

- 13.6 **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts without regard to any choice of laws provisions.
- 13.7 **Severability.** In the event that any part of this Agreement is deemed as a matter of law to be unenforceable or null and void, such unenforceable or void part shall be deemed severable from this Agreement and the Agreement shall continue in full force and effect as if each part was not contained herein.
- 13.8 **Counterparts.** This Agreement may be executed in counterparts, and each counterpart shall have the same force and effect as the original instrument.
- 13.9 **Amendment.** No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing and signed by the Parties hereto.
- 13.10 **Survival.** All warranties, limitations of liability and confidentiality provisions provided herein shall survive the expiration or termination hereof.
- 13.11 **Independent Contractor.** Each of the Parties shall at all times be deemed to be an independent contractor of the other Parties, and none of its employees or the employees of its subcontractors shall be considered to be employees of the other Parties as a result of this Agreement.
- 13.12 **No Implied Waivers.** The failure of a Party to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such Party's right to insist or rely on any such provision, rights and remedies in that or any other instance; rather, the same shall be and remain in full force and effect.

13.13 Successors and Assigns. This Agreement may not be assigned, by operation of law or otherwise, without the prior written consent of the other Parties hereto, such consent not to be unreasonably withheld. Notwithstanding the foregoing, this Agreement, and each and every term and condition hereof, shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns, to the extent the same are authorized hereunder.

13.14 Due Authorization. Each Party to this Agreement represents and warrants that it has full power and authority to enter into this Agreement and to perform its obligations hereunder, that execution of this Agreement will not violate any other agreement with a third party, and that the person signing this Agreement on its behalf has been properly authorized and empowered to enter into this Agreement.

**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**[Insert name of System Operator] [Insert name of Interconnection Customer]**

\_\_\_\_\_

Signed \_\_\_\_\_ Signed \_\_\_\_\_

Name (Printed): \_\_\_\_\_ Name (Printed): \_\_\_\_\_

\_\_\_\_\_

Title \_\_\_\_\_ Title \_\_\_\_\_

**[Insert name of Interconnecting Transmission Owner]**

---

Signed \_\_\_\_\_

Name (Printed):

---

Title \_\_\_\_\_

**Attachment A to  
Feasibility Study Agreement**

**Assumptions Used in Conducting the Feasibility Study**

The feasibility study will be based upon the information set forth in the Interconnection Request and agreed upon in the scoping meeting held on \_\_\_\_\_:

- 1) Designation of Point of Interconnection and configuration to be studied.
  
- 2) Designation of alternative Points of Interconnection and configuration.

1) and 2) are to be completed by the Interconnection Customer. Other assumptions (listed below) are to be provided by the Interconnection Customer, System Operator and Interconnecting Transmission Owner.

**Attachment 7**

**System Impact Study Agreement**

**THIS AGREEMENT** is made and entered into this \_\_\_\_ day of \_\_\_\_\_  
20\_\_ by and between \_\_\_\_\_,  
a \_\_\_\_\_ organized and existing under the laws of the State of  
\_\_\_\_\_, ("Interconnection Customer,") and ISO  
New England Inc., a non-stock corporation existing under the laws of the State of Delaware  
("System Operator"), and  
\_\_\_\_\_, a \_\_\_\_\_  
existing under the laws of the State of \_\_\_\_\_,  
("Interconnecting Transmission Owner"). Interconnection Customer, System Operator and  
Interconnecting Transmission Owner each may be referred to as a "Party," or collectively as the  
"Parties."

**RECITALS**

**WHEREAS**, the Interconnection Customer is proposing to develop a Small Generating Facility  
or generating capacity addition to an existing Small Generating Facility consistent with the  
Interconnection Request completed by the Interconnection Customer  
on \_\_\_\_\_; and

**WHEREAS**, the Interconnection Customer desires to interconnect the Small Generating Facility  
with the Administered Transmission System;

**WHEREAS**, the System Operator and Interconnecting Transmission Owner have completed a  
feasibility study and provided the results of said study to the Interconnection Customer (This  
recital to be omitted if the Parties have agreed to forego the feasibility study.); and

**WHEREAS**, the Interconnection Customer has requested the System Operator and  
Interconnecting Transmission Owner to perform a system impact study(s) to assess the impact of  
interconnecting the Small Generating Facility with the facilities that are part of the  
Interconnecting Transmission Owner's Administered Transmission System, and of any Affected  
Systems;

Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: May 15, 2006

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. ER06-191-000, *et al.*,  
issued April 14, 2006, 115 FERC ¶ 61,050 (2006)

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated or the meanings specified in the standard Small Generator Interconnection Procedures.
- 2.0 The Interconnection Customer elects and the System Operator and Interconnecting Transmission Owner shall cause to be performed a system impact study(s) consistent with the standard Small Generator Interconnection Procedures in accordance with the Open Access Transmission Tariff.
- 3.0 The scope of a system impact study shall be subject to the assumptions set forth in Attachment A to this Agreement.
- 4.0 A system impact study will be based upon the results of the feasibility study and the technical information provided by Interconnection Customer in the Interconnection Request. The System Operator and Interconnecting Transmission Owner reserve the right to request additional technical information from the Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the system impact study. If the Interconnection Customer modifies its designated Point of Interconnection, Interconnection Request, or the technical information provided therein is modified, the time to complete the system impact study may be extended.
- 5.0 A system impact study shall consist of a short circuit analysis, a stability analysis, a power flow analysis, voltage drop and flicker studies, protection and set point coordination studies, and grounding reviews, as necessary. A system impact study shall state the assumptions upon which it is based, state the results of the analyses, and provide the requirement or potential impediments to providing the requested interconnection service, including a preliminary indication of the cost and length of time that would be necessary to correct any problems identified in those analyses and implement the interconnection. A system impact study shall provide a list of facilities that are required as a result of the Interconnection Request and non-binding good faith estimates of cost responsibility and time to construct.

- 6.0 A distribution system impact study shall incorporate a distribution load flow study, an analysis of equipment interrupting ratings, protection coordination study, voltage drop and flicker studies, protection and set point coordination studies, grounding reviews, and the impact on electric system operation, as necessary.
- 7.0 Affected Systems may participate in the preparation of a system impact study, with a division of costs among such entities as they may agree. All Affected Systems shall be afforded an opportunity to review and comment upon a system impact study that covers potential adverse system impacts on their electric systems, and the System Operator and Interconnecting Transmission Owner have 20 additional Business Days to complete a system impact study requiring review by Affected Systems.
- 8.0 If the System Operator uses a queuing procedure for sorting or prioritizing projects and their associated cost responsibilities for any required Network Upgrades, the system impact study shall consider all generating facilities (and with respect to paragraph 8.3 below, any identified Upgrades associated with such higher queued interconnection) that, on the date the system impact study is commenced –
- 8.1 Are directly interconnected with the Administered Transmission System;  
or
  - 8.2 Are interconnected with Affected Systems and may have an impact on the proposed interconnection; and
  - 8.3 Have a pending higher queued Interconnection Request to interconnect with the Administered Transmission System.
- 9.0 A distribution system impact study, if required, shall be completed and the results transmitted to the Interconnection Customer within 30 Business Days after this Agreement is signed by the Parties. A transmission system impact study, if required, shall be completed and the results transmitted to the Interconnection Customer within 45 Business Days

after this Agreement is signed by the Parties.

- 10.0 A deposit of the equivalent of the good faith estimated cost of a distribution system impact study shall be paid to the System Operator by the Interconnection Customer; and the one half the good faith estimated cost of a transmission system impact study shall be paid to the System Operator by the Interconnection Customer.
- 11.0 Any study fees shall be based on the System Operator's and Interconnecting Transmission Owner's actual costs, including the cost of developing the study agreement and its attachment(s) and the costs of developing the Interconnection Agreement and its attachments, and will be invoiced to the Interconnection Customer after the study is completed and delivered and will include a summary of professional time.
- 12.0 The Interconnection Customer must pay any study costs that exceed the deposit without interest within 30 calendar days on receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced fees, the System Operator or Interconnecting Transmission Owner, as applicable, shall refund such excess within 30 calendar days of the invoice without interest.
- 13.0 Miscellaneous.
- 13.1 Accuracy of Information. Except as a Party ("Providing Party") may otherwise specify in writing when it provides information to the other Parties under this Agreement, the Providing Party represents and warrants that, to the best of its knowledge, the information it provides to the other Parties shall be accurate and complete as of the date the information is provided. The Providing Party shall promptly provide the other Parties with any additional information needed to update information previously provided.
- 13.2 Disclaimer of Warranty. In preparing and/or participating in the Interconnection System Impact Study, as applicable, each Party and any subcontractor consultants employed by it shall have to rely on information provided by the Providing Party, and possibly by third parties, and may not have control over the accuracy of such information. Accordingly, beyond the commitment to use Reasonable Efforts in preparing and/or participating in the Interconnection System Impact Study



(including, but not limited to, exercise of Good Utility Practice in verifying the accuracy of information provided for or used in the Interconnection System Impact Study), as applicable, no Party nor any subcontractor consultant employed by it makes any warranties, express or implied, whether arising by operation of law, course of performance or dealing, custom, usage in the trade or profession, or otherwise, including without limitation implied warranties of merchantability and fitness for a particular purpose, with regard to the accuracy of the information considered in conducting the Interconnection System Impact Study, the content of the Interconnection System Impact Study, or the conclusions of the Interconnection System Impact Study. Interconnection Customer acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.

### 13.3 Force Majeure, Liability and Indemnification.

13.3.1 Force Majeure. Neither System Operator, Interconnecting Transmission Owner nor an Interconnection Customer will be considered in default as to any obligation under this Agreement if prevented from fulfilling the obligation due to an event of Force Majeure; provided that no event of Force Majeure affecting any entity shall excuse that entity from making any payment that it is obligated to make hereunder. However, an entity whose performance under this Agreement is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Agreement, and shall promptly notify the System Operator, the Interconnecting Transmission Owner or the Interconnection Customer, whichever is appropriate, of the commencement and end of each event of Force Majeure.

13.3.2 Liability. System Operator shall not be liable for money damages or other compensation to the Interconnection Customer for action or omissions by System Operator in performing its obligations under this Agreement, except to the extent such act or omission by System Operator is found to result from its gross negligence or willful misconduct. Interconnecting Transmission Owner shall not be liable for money damages or other compensation to the Interconnection Customer for action or omissions by Interconnecting Transmission Owner in performing its obligations under

this Agreement, except to the extent such act or omission by Interconnecting Transmission Owner is found to result from its gross negligence or willful misconduct. To the extent the Interconnection Customer has claims against System Operator or Interconnecting Transmission Owner, the Interconnection Customer may only look to the assets of System Operator or Interconnecting Transmission Owner (as the case may be) for the enforcement of such claims and may not seek to enforce any claims against the directors, members, shareholders, officers, employees or agents of System Operator or Interconnecting Transmission Owner or Affiliate of either who, the Interconnection Customer acknowledges and agrees, have no personal or other liability for obligations of System Operator or Interconnecting Transmission Owner by reason of their status as directors, members, shareholders, officers, employees or agents of System Operator or Interconnecting Transmission Owner or Affiliate of either. In no event shall System Operator, Interconnecting Transmission Owner or Interconnection Customer be liable for any incidental, consequential, multiple or punitive damages, loss of revenues or profits, attorneys fees or costs arising out of, or connected in any way with the performance or non-performance under this Agreement. Notwithstanding the foregoing, nothing in this section shall diminish an Interconnection Customer's obligations under the Indemnification section below.

- 13.3.3 Indemnification. Interconnection Customer shall at all times indemnify, defend, and save harmless System Operator and the Interconnecting Transmission Owner and their respective directors, officers, members, employees and agents from any and all damages, losses, claims and liabilities ("Losses") by or to third parties arising out of or resulting from the performance by System Operator or Interconnecting Transmission Owner under this Agreement, any bankruptcy filings made by the Interconnection Customer, or the actions or omissions of the Interconnection Customer in connection with this Agreement, except in the case of System Operator, to the extent such Losses arise from the gross negligence or willful misconduct by System Operator or its directors, officers, members, employees or agents, and, in the case of Interconnecting Transmission Owner, to the extent such Losses arise from the gross negligence or willful misconduct by Interconnecting

Transmission Owner or its directors, officers, members, employees or agents. The amount of any indemnity payment hereunder shall be reduced (including, without limitation, retroactively) by any insurance proceeds or other amounts actually recovered by the indemnified party in respect of the indemnified action, claim, demand, cost, damage or liability. The obligations of Interconnection Customer to indemnify System Operator and Interconnecting Transmission Owner shall be several, and not joint or joint and several. The liability provisions of the Transmission Operating Agreement or other applicable operating agreements shall apply to the relationship between the System Operator and the Interconnecting Transmission Owner.

- 13.4 **Third-Party Beneficiaries.** Without limitation of Sections 13.2 and 13.3 of this Agreement, the Parties agree that subcontractor consultants hired by them to conduct, participate in, or review, or to assist in the conducting, participating in, or reviewing of, an Interconnection System Impact Study shall be deemed third party beneficiaries of Sections 13.2 and 13.3.
- 13.5 **Term and Termination.** This Agreement shall be effective from the date hereof and unless earlier terminated in accordance with this Section 13.5, shall continue in effect for a term of one year or until the Interconnection System Impact Study is completed. This Agreement shall automatically terminate upon the withdrawal of Interconnection Request under Section 1.8 of the SGIP. The System Operator or the Interconnecting Transmission Owner may terminate this Agreement fifteen (15) days after providing written notice to the Interconnection Customer that it has breached one of its obligations hereunder, if the breach has not been cured within such fifteen (15) day period.
- 13.6 **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts without regard to any choice of laws provisions.
- 13.7 **Severability.** In the event that any part of this Agreement is deemed as a matter of law to be unenforceable or null and void, such unenforceable or void part shall be deemed severable from this Agreement and the Agreement shall continue in full force and effect as if each part was not contained herein.

- 13.8 Counterparts. This Agreement may be executed in counterparts, and each counterpart shall have the same force and effect as the original instrument.
- 13.9 Amendment. No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing and signed by the Parties hereto.
- 13.10 Survival. All warranties, limitations of liability and confidentiality provisions provided herein shall survive the expiration or termination hereof.
- 13.11 Independent Contractor. Each of the Parties shall at all times be deemed to be an independent contractor of the other Parties, and none of its employees or the employees of its subcontractors shall be considered to be employees of the other Parties as a result of this Agreement.
- 13.12 No Implied Waivers. The failure of a Party to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such Party's right to insist or rely on any such provision, rights and remedies in that or any other instance; rather, the same shall be and remain in full force and effect.
- 13.13 Successors and Assigns. This Agreement may not be assigned, by operation of law or otherwise, without the prior written consent of the other Parties hereto, such consent not to be unreasonably withheld. Notwithstanding the foregoing, this Agreement, and each and every term and condition hereof, shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns, to the extent the same are authorized hereunder.
- 13.14 Due Authorization. Each Party to this Agreement represents and warrants that it has full power and authority to enter into this Agreement and to perform its obligations hereunder, that execution of this Agreement will not violate any other agreement with a third party, and that the person signing this Agreement on its behalf has been properly authorized and empowered to enter into this Agreement.

**IN WITNESS THEREOF**, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**[Insert name of System Operator] [Insert name of Interconnection Customer]**

\_\_\_\_\_  
Signed \_\_\_\_\_ Signed \_\_\_\_\_

Name (Printed): Name (Printed):  
\_\_\_\_\_

Title \_\_\_\_\_ Title \_\_\_\_\_

**[Insert name of Interconnecting Transmission Owner]**

\_\_\_\_\_  
Signed \_\_\_\_\_

Name (Printed):  
\_\_\_\_\_

Title \_\_\_\_\_

**Attachment A to System  
Impact Study Agreement**

**Assumptions Used in Conducting the System Impact Study**

The system impact study shall be based upon the results of the feasibility study, subject to any modifications in accordance with the standard Small Generator Interconnection Procedures, and the following assumptions:

- 1) Designation of Point of Interconnection and configuration to be studied.
  
- 2) Designation of alternative Points of Interconnection and configuration.

1) and 2) are to be completed by the Interconnection Customer. Other assumptions (listed below) are to be provided by the Interconnection Customer, System Operator and Interconnecting Transmission Owner.

**Attachment 8**

**Facilities Study Agreement**

**THIS AGREEMENT** is made and entered into this \_\_\_\_ day of \_\_\_\_\_  
20\_\_ by and between \_\_\_\_\_,  
a \_\_\_\_\_ organized and existing under the laws of the State of \_\_\_\_\_,  
("Interconnection Customer,") and ISO  
New England Inc., a non-stock corporation existing under the laws of the State of Delaware  
("System Operator"), and  
\_\_\_\_\_, a \_\_\_\_\_  
existing under the laws of the State of \_\_\_\_\_,  
("Interconnecting Transmission Owner"). Interconnection Customer, System Operator and  
Interconnecting Transmission Owner each may be referred to as a "Party," or collectively as the  
"Parties."

**RECITALS**

**WHEREAS**, the Interconnection Customer is proposing to develop a Small Generating Facility  
or generating capacity addition to an existing Small Generating Facility consistent with the  
Interconnection Request completed by the Interconnection Customer  
on \_\_\_\_\_; and

**WHEREAS**, the Interconnection Customer desires to interconnect the Small Generating Facility  
with the Administered Transmission System;

**WHEREAS**, the System Operator and Interconnecting Transmission Owner have completed a  
system impact study and provided the results of said study to the Interconnection Customer; and

**WHEREAS**, the Interconnection Customer has requested the System Operator and  
Interconnecting Transmission Owner to perform a facilities study to specify and estimate the cost  
of the equipment, engineering, procurement and construction work needed to implement the  
conclusions of the system impact study in accordance with Good Utility Practice to physically  
and electrically connect the Small Generating Facility with the facilities that are part of the  
Interconnecting Transmission Owner's Administered Transmission System.

Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: May 15, 2006

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. ER06-191-000, *et al.*,  
issued April 14, 2006, 115 FERC ¶ 61,050 (2006)

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**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated or the meanings specified in the standard Small Generator Interconnection Procedures.
- 2.0 The Interconnection Customer elects and the System Operator and Interconnecting Transmission Owner shall cause a facilities study consistent with the standard Small Generator Interconnection Procedures to be performed in accordance with the Open Access Transmission Tariff.
- 3.0 The scope of the facilities study shall be subject to data provided in Attachment A to this Agreement.
- 4.0 The facilities study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the system impact study(s). The facilities study shall also identify (1) the electrical switching configuration of the equipment, including, without limitation, transformer, switchgear, meters, and other station equipment, (2) the nature and estimated cost of the Interconnecting Transmission Owner's Interconnection Facilities and Upgrades necessary to accomplish the interconnection, and (3) an estimate of the time required to complete the construction and installation of such facilities.
- 5.0 The System Operator and Interconnecting Transmission Owner may propose to group facilities required for more than one Interconnection Customer in order to minimize facilities costs through economies of scale, but any Interconnection Customer may require the installation of facilities required for its own Small Generating Facility if it is willing to pay the costs of those facilities.
- 6.0 A deposit, paid to the System Operator, of the good faith estimated facilities study costs shall be required from the Interconnection Customer.
- 7.0 In cases where Upgrades are required, the facilities study must be completed within 45 Business Days of the receipt of this Agreement. In cases where no Upgrades are



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necessary, and the required facilities are limited to Interconnection Facilities, the facilities study must be completed within 30 Business Days.

- 8.0 Once the facilities study is completed, a facilities study report shall be prepared and transmitted to the Interconnection Customer. Barring unusual circumstances, the facilities study must be completed and the facilities study report transmitted within 30 Business Days of the Interconnection Customer's agreement to conduct a facilities study.
- 9.0 Any study fees shall be based on the System Operator's and Interconnecting Transmission Owner's actual costs, including the cost of developing: the study agreement and its attachment(s) , and will be invoiced to the Interconnection Customer after the study is completed and delivered and will include a summary of professional time.
- 10.0 The Interconnection Customer must pay any study costs that exceed the deposit without interest within 30 calendar days on receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced fees, the System Operator or Interconnecting Transmission Owner, as applicable, shall refund such excess within 30 calendar days of the invoice without interest.
- 11.0 Miscellaneous.
- 11.1 Accuracy of Information. Except as a Party ("Providing Party") may otherwise specify in writing when it provides information to the other Parties under this Agreement, the Providing Party represents and warrants that, to the best of its knowledge, the information it provides to the other Parties shall be accurate and complete as of the date the information is provided. The Providing Party shall promptly provide the other Parties with any additional information needed to update information previously provided.
- 11.2 Disclaimer of Warranty. In preparing and/or participating in the Interconnection Facilities Study, as applicable, each Party and any subcontractor consultants employed by it shall have to rely on information provided by the Providing Party, and possibly by third parties, and may not have control over the accuracy of such information. Accordingly, beyond the commitment to use Reasonable Efforts in preparing and/or participating in the Interconnection Facilities Study (including, but not limited to, exercise of Good Utility Practice in verifying the accuracy of

information provided for or used in the Interconnection Facilities Study), as applicable, no Party nor any subcontractor consultant employed by it makes any warranties, express or implied, whether arising by operation of law, course of performance or dealing, custom, usage in the trade or profession, or otherwise, including without limitation implied warranties of merchantability and fitness for a particular purpose, with regard to the accuracy of the information considered in conducting the Interconnection Facilities Study, the content of the Interconnection Facilities Study, or the conclusions of the Interconnection Facilities Study. Interconnection Customer acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.

### 11.3 Force Majeure, Liability and Indemnification.

11.3.1 Force Majeure. Neither System Operator, Interconnecting Transmission Owner nor an Interconnection Customer will be considered in default as to any obligation under this Agreement if prevented from fulfilling the obligation due to an event of Force Majeure; provided that no event of Force Majeure affecting any entity shall excuse that entity from making any payment that it is obligated to make hereunder. However, an entity whose performance under this Agreement is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Agreement, and shall promptly notify the System Operator, the Interconnecting Transmission Owner or the Interconnection Customer, whichever is appropriate, of the commencement and end of each event of Force Majeure.

11.3.2 Liability. System Operator shall not be liable for money damages or other compensation to the Interconnection Customer for action or omissions by System Operator in performing its obligations under this Agreement, except to the extent such act or omission by System Operator is found to result from its gross negligence or willful misconduct. Interconnecting Transmission Owner shall not be liable for money damages or other compensation to the Interconnection Customer for action or omissions by Interconnecting Transmission Owner in performing its obligations under this Agreement, except to the extent such act or omission by Interconnecting Transmission Owner is found to result from its gross

negligence or willful misconduct. To the extent the Interconnection Customer has claims against System Operator or Interconnecting Transmission Owner, the Interconnection Customer may only look to the assets of System Operator or Interconnecting Transmission Owner (as the case may be) for the enforcement of such claims and may not seek to enforce any claims against the directors, members, shareholders, officers, employees or agents of System Operator or Interconnecting Transmission Owner or Affiliate of either who, the Interconnection Customer acknowledges and agrees, have no personal or other liability for obligations of System Operator or Interconnecting Transmission Owner by reason of their status as directors, members, shareholders, officers, employees or agents of System Operator or Interconnecting Transmission Owner or Affiliate of either. In no event shall System Operator, Interconnecting Transmission Owner or Interconnection Customer be liable for any incidental, consequential, multiple or punitive damages, loss of revenues or profits, attorneys fees or costs arising out of, or connected in any way with the performance or non-performance under this Agreement. Notwithstanding the foregoing, nothing in this section shall diminish an Interconnection Customer's obligations under the Indemnification section below.

- 11.3.3 Indemnification. Interconnection Customer shall at all times indemnify, defend, and save harmless System Operator and the Interconnecting Transmission Owner and their respective directors, officers, members, employees and agents from any and all damages, losses, claims and liabilities ("Losses") by or to third parties arising out of or resulting from the performance by System Operator or Interconnecting Transmission Owner under this Agreement, any bankruptcy filings made by the Interconnection Customer, or the actions or omissions of the Interconnection Customer in connection with this Agreement, except in the case of System Operator, to the extent such Losses arise from the gross negligence or willful misconduct by System Operator or its directors, officers, members, employees or agents, and, in the case of Interconnecting Transmission Owner, to the extent such Losses arise from the gross negligence or willful misconduct by Interconnecting Transmission Owner or its directors, officers, members, employees or agents. The amount of any indemnity payment hereunder shall be reduced

(including, without limitation, retroactively) by any insurance proceeds or other amounts actually recovered by the indemnified party in respect of the indemnified action, claim, demand, cost, damage or liability. The obligations of Interconnection Customer to indemnify System Operator and Interconnecting Transmission Owner shall be several, and not joint or joint and several. The liability provisions of the Transmission Operating Agreement or other applicable operating agreements shall apply to the relationship between the System Operator and the Interconnecting Transmission Owner.

- 11.4 **Third-Party Beneficiaries.** Without limitation of Sections 11.2 and 11.3 of this Agreement, the Parties agree that subcontractor consultants hired by them to conduct, participate in, or review, or to assist in the conducting, participating in, or reviewing of, an Interconnection Facilities Study shall be deemed third party beneficiaries of Sections 11.2 and 11.3.
- 11.5 **Term and Termination.** This Agreement shall be effective from the date hereof and unless earlier terminated in accordance with this Section 11.5, shall continue in effect for a term of one year or until the Interconnection Facilities Study is completed. This Agreement shall automatically terminate upon the withdrawal of Interconnection Request under Section 1.8 of the SGIP. The System Operator or the Interconnecting Transmission Owner may terminate this Agreement fifteen (15) days after providing written notice to the Interconnection Customer that it has breached one of its obligations hereunder, if the breach has not been cured within such fifteen (15) day period.
- 11.6 **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts without regard to any choice of laws provisions.
- 11.7 **Severability.** In the event that any part of this Agreement is deemed as a matter of law to be unenforceable or null and void, such unenforceable or void part shall be deemed severable from this Agreement and the Agreement shall continue in full force and effect as if each part was not contained herein.
- 11.8 **Counterparts.** This Agreement may be executed in counterparts, and each counterpart shall have the same force and effect as the original instrument.

- 11.9 Amendment. No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing and signed by the Parties hereto.
- 11.10 Survival. All warranties, limitations of liability and confidentiality provisions provided herein shall survive the expiration or termination hereof.
- 11.11 Independent Contractor. Each of the Parties shall at all times be deemed to be an independent contractor of the other Parties, and none of its employees or the employees of its subcontractors shall be considered to be employees of the other Parties as a result of this Agreement.
- 11.12 No Implied Waivers. The failure of a Party to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such Party's right to insist or rely on any such provision, rights and remedies in that or any other instance; rather, the same shall be and remain in full force and effect.
- 11.13 Successors and Assigns. This Agreement may not be assigned, by operation of law or otherwise, without the prior written consent of the other Parties hereto, such consent not to be unreasonably withheld. Notwithstanding the foregoing, this Agreement, and each and every term and condition hereof, shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns, to the extent the same are authorized hereunder.
- 11.14 Due Authorization. Each Party to this Agreement represents and warrants that it has full power and authority to enter into this Agreement and to perform its obligations hereunder, that execution of this Agreement will not violate any other agreement with a third party, and that the person signing this Agreement on its behalf has been properly authorized and empowered to enter into this Agreement.

**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**[Insert name of System Operator] [Insert name of Interconnection Customer]**

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No.2006, 111 FERC ¶61,220 (2005)

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Signed \_\_\_\_\_ Signed \_\_\_\_\_

Name (Printed): \_\_\_\_\_ Name (Printed): \_\_\_\_\_

Title \_\_\_\_\_ Title \_\_\_\_\_

**[Insert name of Interconnecting Transmission Owner]**

---

Signed \_\_\_\_\_

Name (Printed): \_\_\_\_\_

Title \_\_\_\_\_

**Attachment A to  
Facilities Study Agreement**

**Data to Be Provided by the Interconnection Customer  
with the Facilities Study Agreement**

Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, transmission circuits, etc.

On the one-line diagram, indicate the generation capacity attached at each metering location. (Maximum load on Current Transformer/Power Transformer (“CT/PT”))

On the one-line diagram, indicate the location of auxiliary power. (Minimum load on CT/PT) Amps

One set of metering is required for each generation connection to the new ring bus or existing Transmission Provider station. Number of generation connections: \_\_\_\_\_

Will an alternate source of auxiliary power be available during CT/PT maintenance?

Yes \_\_\_\_ No \_\_\_\_

Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? Yes \_\_\_\_ No \_\_\_\_

(Please indicate on the one-line diagram).

What type of control system or Power Line Carrier (“PLC”) will be located at the Small Generating Facility?

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What protocol does the control system or PLC use?

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Please provide a 7.5-minute quadrangle map of the site. Indicate the plant, station, transmission line, and property lines.

Physical dimensions of the proposed interconnection station:

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Bus length from generation to interconnection station:

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Line length from interconnection station to Administered Transmission System.

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Tower number observed in the field. (Painted on tower leg)\*:

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Number of third party easements required for transmission lines\*:

\* To be completed in coordination with Transmission Provider.

Is the Small Generating Facility located in Transmission Provider's service area?

Yes \_\_\_\_\_ No \_\_\_\_\_ If No, please provide name of local provider:



Please provide the following proposed schedule dates:

Begin Construction Date: \_\_\_\_\_

Generator step-up transformers  
receive back feed power Date: \_\_\_\_\_

Generation Testing Date: \_\_\_\_\_

Commercial Operation Date: \_\_\_\_\_

**STANDARD SMALL GENERATOR  
INTERCONNECTION AGREEMENT(SGIA)  
(APPLICABLE TO GENERATING FACILITIES NO LARGER THAN 20 MW)**

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No.2006, 111 FERC ¶61,220 (2005)

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**TABLE OF CONTENTS**

	Page No.
<b>Article 1. Scope and Limitations of Agreement.</b> .....	5519
1.5 Responsibilities of the Parties .....	5519
1.6 Parallel Operation Obligations.....	5520
1.7 Metering.....	5521
1.8 Reactive Power .....	5521
<b>Article 2. Inspection, Testing, Authorization, and Right of Access</b> .....	5524
2.1 Equipment Testing and Inspection.....	5524
2.2 Authorization Required Prior to Parallel Operation. ....	5525
2.3 Right of Access .....	5525
<b>Article 3. Effective Date, Term, Termination, and Disconnection</b> .....	5526
3.1 Effective Date .....	5526
3.2 Term of Agreement.....	5526
3.3 Termination.....	5527
3.4 Temporary Disconnection.....	5527
3.4.1 Emergency Conditions.....	5527
3.4.2 Routine Maintenance, Construction, and Repair .....	5528
3.4.3 Forced Outages .....	5529
3.4.4 Adverse Operating Effects.....	5529
3.4.5 Modification of the Small Generating Facility .....	5529
3.4.6 Reconnection.....	5530
<b>Article 4. Cost Responsibility for Interconnection Facilities and Distribution     Upgrades</b> .....	5530
4.1 Interconnection Facilities.....	5530
4.2 Distribution Upgrades .....	5531
<b>Article 5. Cost Responsibility for Network Upgrades</b> .....	5531
5.1 Applicability .....	5531
5.2 Network Upgrades .....	5531
5.2.1 Repayment of Amounts Advanced for Network Upgrades .....	5532
5.3 Special Provisions for Affected Systems .....	5532
5.4 Rights Under Other Agreements.....	5532
<b>Article 6. Billing, Payment, Milestones, and Financial Security</b> .....	5532
6.1 Billing and Payment Procedures and Final Accounting .....	5532

---

6.2	Milestones .....	5533
6.3	Financial Security Arrangements.....	5533
<b>Article 7. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default .....</b>		<b>5534</b>
7.1	Assignment .....	5534
7.2	Limitation of Liability.....	5535
7.3	Indemnity .....	5535
7.4	Consequential Damages.....	5536
7.5	Force Majeure. ....	5536
7.6	Default.....	5537
<b>Article 8. Insurance.....</b>		<b>5540</b>
<b>Article 9. Confidentiality .....</b>		<b>5541</b>
<b>Article 10. Disputes .....</b>		<b>5542</b>
<b>Article 11. Taxes.....</b>		<b>5543</b>
<b>Article 12. Miscellaneous.....</b>		<b>5543</b>
12.1	Governing Law, Regulatory Authority, and Rules .....	5543
12.2	Amendment.....	5543
12.3	No Third-Party Beneficiaries.....	5543
12.4	Waiver.....	5543
12.5	Entire Agreement .....	5544
12.6	Multiple Counterparts. ....	5544
12.7	No Partnership .....	5544
12.8	Severability .....	5544
12.9	Security Arrangements.....	5545
12.10	Environmental Releases.....	5545
12.11	Subcontractors.....	5545
12.12	Reservation of Rights.....	5546
<b>Article 13. Notices .....</b>		<b>5546</b>
13.1	General.....	5546
13.2	Billing and Payment.....	5547
13.3	Alternative Forms of Notice .....	5548
13.4	Designated Operating Representative.....	5549
13.5	Changes to the Notice Information.....	5550
<b>Article 14. Signatures.....</b>		<b>5550</b>

[Attachment 1](#) – Glossary of Terms

[Attachment 2](#) – Description and Costs of the Small Generating Facility, Interconnection Facilities, and Metering Equipment

[Attachment 3](#) – One-line Diagram Depicting the Small Generating Facility, Interconnection Facilities, Metering Equipment, and Upgrades

[Attachment 4](#) – Milestones

[Attachment 5](#) – Additional Operating Requirements for the New England Transmission System and Affected Systems Needed to Support the Interconnection Customer's Needs

[Attachment 6](#) – Interconnecting Transmission Owner's Description of its Upgrades and Best Estimate of Upgrade Costs

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**THIS STANDARD SMALL GENERATOR INTERCONNECTION AGREEMENT**

("Agreement") is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between \_\_\_\_\_, a \_\_\_\_\_ organized and existing under the laws of the State/Commonwealth of \_\_\_\_\_ ("Interconnection Customer" with a Small Generating Facility), ISO New England Inc., a non-stock corporation organized and existing under the laws of the State of Delaware ("System Operator"), and \_\_\_\_\_, a \_\_\_\_\_ organized and existing under the laws of the State/Commonwealth of \_\_\_\_\_ ("Interconnecting Transmission Owner"). Under this Agreement the Interconnection Customer, System Operator, and Interconnecting Transmission Owner each may be referred to as a "Party" or collectively as the "Parties."

**System Operator Information**

System Operator: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Interconnecting Transmission Owner Information**

Interconnecting Transmission Owner: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Interconnection Customer Information**

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Interconnection Customer Application No: \_\_\_\_\_

In consideration of the mutual covenants set forth herein, the Parties agree as follows:

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## Article 1. Scope and Limitations of Agreement

- 1.1 This Agreement shall be used for all Interconnection Requests submitted under the Small Generator Interconnection Procedures (SGIP) except for those submitted under the 10 kW Inverter Process contained in SGIP Attachment 5.
- 1.2 This Agreement governs the terms and conditions under which the Interconnection Customer's Small Generating Facility will interconnect with, and operate in parallel with, the Interconnecting Transmission Owner's facilities that are part of the Administered Transmission System.
- 1.3 This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power. The purchase or delivery of power and other services that the Interconnection Customer may require will be covered under separate agreements, if any. The Interconnection Customer will be responsible for separately making all necessary arrangements (including scheduling) for delivery of electricity with the applicable Party.
- 1.4 Nothing in this Agreement is intended to affect any other agreement between the Parties.
- 1.5 Responsibilities of the Parties
  - 1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Operating Requirements, and Good Utility Practice.
  - 1.5.2 The Interconnection Customer shall construct, interconnect, operate and maintain its Small Generating Facility and construct, operate, and maintain its Interconnection Facilities in accordance with the applicable manufacturer's recommended maintenance schedule, and in accordance with this Agreement, and with Good Utility Practice.



- 1.5.3 The Interconnecting Transmission Owner shall construct, operate, and maintain its transmission facilities and Interconnection Facilities in accordance with this Agreement, and with Good Utility Practice.
- 1.5.4 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by the National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriter's Laboratory, and Operating Requirements in effect at the time of construction and other applicable national and state codes and standards. The Interconnection Customer agrees to design, install, maintain, and operate its Small Generating Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the system or equipment of the Interconnecting Transmission Owner, the New England Transmission System and any Affected Systems.
- 1.5.5 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the point of change of ownership. The Interconnecting Transmission Owner and the Interconnection Customer, as appropriate, shall provide Interconnection Facilities that adequately protect the New England Transmission System [or Interconnecting Transmission Owner's transmission facilities], personnel, and other persons from damage and injury. The allocation of responsibility for the design, installation, operation, maintenance and ownership of Interconnection Facilities shall be delineated in the Attachments to this Agreement.
- 1.5.6 The System Operator, with input from the Interconnecting Transmission Owner, shall coordinate with all Affected Systems to support the interconnection.
- 1.6 Parallel Operation Obligations  
Once the Small Generating Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all rules and procedures pertaining to the parallel operation of the Small Generating Facility in the applicable control area,

including, but not limited to; 1) the ISO New England Operating Documents and; 2) the Operating Requirements set forth in Attachment 5 of this Agreement.

1.7 Metering

The Interconnection Customer shall be responsible for the Interconnecting Transmission Owner's reasonable and necessary cost for the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment specified in Attachments 2 and 3 of this Agreement. The Interconnection Customer's metering (and data acquisition, as required) equipment shall conform to applicable industry rules and Operating Requirements.

1.8 Reactive Power

1.8.1 The Interconnection Customer shall design its Small 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 the System Operator or Interconnecting Transmission Owner has established different requirements that apply to all similarly situated generators on a comparable basis and in accordance with Operating Requirements. The requirements of this paragraph shall not apply to wind generators.

1.8.2 Interconnection Customers shall be compensated for reactive power service in accordance with Schedule 2 of the Tariff.

1.9 Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 or the body of this Agreement. Capitalized terms in Schedule 23 that are not defined in the Glossary of Terms shall have the meanings specified in Sections I.2.2 and II.1 of the Tariff.

1.10 Scope of Service

1.10.1 Network Interconnection Service. Interconnection Customer has selected the following type of Interconnection Service:

1.10.1.1 The Product. The System Operator and Interconnecting Transmission

Owner must conduct the necessary studies and the Interconnecting Transmission Owner and Affected Parties must construct the Network Upgrades needed to interconnect the Small Generating Facility in a manner comparable to that in which all other Network Resources are interconnected under the MIS. Network Interconnection Service allows the Interconnection Customer's Small Generating Facility to be designated as a Network Resource, and to participate in the New England Markets, in accordance with Market Rule 1, up to the Small Generating Facility's full output, on the same basis as all other existing Network Resources, and to be studied as a Network Resource on the assumption that such a designation will occur.

1.10.1.2 Transmission Delivery Service Implications. Network Interconnection Service allows the Interconnection Customer's Small Generating Facility to be designated by any Network Customer under the Tariff on the New England Transmission System as a Network Resource, up to the Small Generating Facility's full output, on the same basis as all other existing Network Resources interconnected to the New England Transmission System, and to be studied as a Network Resource on the assumption that such a designation will occur. Although Network 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 Small Generating Facility in the same manner as it accesses Network Resources. A Small Generating Facility receiving Network Interconnection Service may also be used to provide Ancillary Services, in accordance with the Tariff and Market Rule 1, after technical studies and/or periodic analyses are performed with respect to the Small 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 Small 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.

Network Interconnection Service does not necessarily provide the Interconnection Customer with the capability to physically deliver the output of its Small Generating Facility to any particular load on the New England Transmission System without incurring congestion costs. In the event of transmission constraints on the New England Transmission System, the Interconnection Customer's Small Generating Facility shall be subject to the applicable congestion management procedures for the New England 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 Small 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 Small Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining Network Interconnection Service, as long as the Small Generating Facility has not been deemed to be retired, any future transmission service request for delivery from the Small Generating Facility on the New England 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 Small Generating Facility be undertaken, regardless of whether or not such Small Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Small Generating Facility. To the extent the Interconnection Customer enters into an arrangement for long-term transmission service for deliveries from the Small Generating Facility outside the New England Transmission System, or if the unit has been deemed to be

retired, such request may require additional studies and upgrades in order for Interconnecting Transmission Owner to grant such request.

- 1.10.2 Provision of Service. System Operator and Interconnecting Transmission Owner shall provide Interconnection Service for the Small Generating Facility at the Point of Interconnection.
- 1.10.3 Performance Standards. Each Party shall perform all of its obligations under this SGIA in accordance with Applicable Laws and Regulations, the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents, and Good Utility Practice, and to the extent a Party is required or prevented or limited in taking any action by such requirements and standards, such Party shall not be deemed to be in Breach of this SGIA for its compliance therewith. If such Party is the Interconnecting Transmission Owner, then that Party shall amend the SGIA and System Operator, in conjunction with the Interconnecting Transmission Owner, shall submit the amendment to the Commission for approval.
- 1.10.4 No Transmission Service Delivery. The execution of this SGIA does not constitute a request for, nor the provision of, any service except for Interconnection Service, including, but not limited to, transmission delivery service, local delivery service, distribution service, capacity service, energy service, or Ancillary Services under any applicable tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.

## **Article 2. Inspection, Testing, Authorization, and Right of Access**

### **2.1 Equipment Testing and Inspection**

- 2.1.1 The Interconnection Customer shall test and inspect its Small Generating Facility and Interconnection Facilities prior to interconnection. The Interconnection Customer shall notify the System Operator and the Interconnecting Transmission Owner of such activities no fewer than five Business Days (or as may be agreed to by the Parties) prior to such testing and inspection. Testing and inspection shall occur on a Business Day. The Interconnecting Transmission Owner may, at its own expense, send qualified personnel to the Small Generating Facility site to inspect the interconnection and observe the testing. The Interconnection

Customer shall provide the Interconnecting Transmission Owner a written test report when such testing and inspection is completed.

- 2.1.2 The Interconnecting Transmission Owner shall provide the Interconnection Customer and the System Operator written acknowledgment that it has received the Interconnection Customer's written test report. Such written acknowledgment shall not be deemed to be or construed as any representation, assurance, guarantee, or warranty by the Interconnecting Transmission Owner of the safety, durability, suitability, or reliability of the Small Generating Facility or any associated control, protective, and safety devices owned or controlled by the Interconnection Customer or the quality of power produced by the Small Generating Facility.

## 2.2 Authorization Required Prior to Parallel Operation

- 2.2.1 The Interconnecting Transmission Owner [and System Operator] shall use Reasonable Efforts to list applicable parallel operation requirements in Attachment 5 of this Agreement. Additionally, the Interconnecting Transmission Owner shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. The Interconnecting Transmission Owner shall make Reasonable Efforts to cooperate with the Interconnection Customer in meeting requirements necessary for the Interconnection Customer to commence parallel operations by the in-service date.
- 2.2.2 The Interconnection Customer shall not operate its Small Generating Facility in parallel with the New England Transmission System [or Interconnecting Transmission Owner's transmission facilities] without prior written authorization of the Interconnecting Transmission Owner. The Transmission Provider will provide such authorization once the Transmission Provider receives notification that the Interconnection Customer has complied with all applicable parallel operation requirements. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

## 2.3 Right of Access

- 2.3.1 Upon reasonable notice, the Interconnecting Transmission Owner may send a qualified person to the premises of the Interconnection Customer at or immediately before the time the Small Generating Facility first produces energy to inspect the interconnection, and observe the commissioning of the Small Generating Facility (including any required testing), startup, and operation for a period of up to three Business Days after initial start-up of the unit. In addition, the Interconnection Customer shall notify the Interconnecting Transmission Owner at least five Business Days prior to conducting any on-site verification testing of the Small Generating Facility.
- 2.3.2 Following the initial inspection process described above, at reasonable hours, and upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, the Interconnecting Transmission Owner shall have access to the Interconnection Customer's premises for any reasonable purpose in connection with the performance of the obligations imposed on it by this Agreement or if necessary to meet its legal obligation to provide service to its customers.
- 2.3.3 Each Party shall be responsible for its own costs associated with following this article.

### **Article 3. Effective Date, Term, Termination, and Disconnection**

#### **3.1 Effective Date**

This Agreement shall become effective upon execution by the Parties subject to acceptance by the Commission (if applicable), or if filed unexecuted, upon the date specified by the FERC. System Operator and Interconnecting Transmission Owner shall promptly file this Agreement with the Commission upon execution, if required.

#### **3.2 Term of Agreement**

This Agreement shall become effective on the Effective Date and by mutual agreement of the Parties shall remain in effect for a period of \_\_\_\_\_ years, but in no case less than ten 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

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automatically renewed for each successive one-year period thereafter, unless terminated earlier in accordance with article 3.3 of this Agreement.

### 3.3 Termination

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 Commission of a notice of termination of this Agreement (if required), which notice has been accepted for filing by the Commission.

3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the System Operator and Interconnecting Transmission Owner 20 Business Days written notice.

3.3.2 Each Party may terminate this Agreement after Default pursuant to article 7.6.

3.3.3 Upon termination of this Agreement, the Small Generating Facility will be disconnected from the Interconnecting Transmission Owner's Interconnection Facilities. 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 SGIA or such non-terminating Party otherwise is responsible for these costs under this SGIA.

3.3.4 The termination of this Agreement shall not relieve any Party of its liabilities and obligations, owed or continuing at the time of the termination.,

3.3.5 The provisions of this article shall survive termination or expiration of this Agreement.

### 3.4 Temporary Disconnection

Temporary disconnection shall continue only for so long as reasonably necessary under Good Utility Practice.

#### 3.4.1 Emergency Conditions --



“Emergency Condition” shall mean a condition or situation: (1) that in the judgment of the Party making the claim is likely to endanger life or property; or (2) that, in the case of the Interconnecting Transmission Owner, is likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the New England Transmission System, the Interconnecting Transmission Owner’s Interconnection Facilities or any Affected System to which the New England Transmission System is directly connected; or (3) that, in the case of the Interconnection Customer, is likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generating Facility or the Interconnection Customer's Interconnection Facilities. The System Operator and the Interconnecting Transmission Owner may immediately suspend interconnection service and temporarily disconnect the Small Generating Facility in accordance with

applicable provisions of the Operating Requirements. The System Operator and Interconnecting Transmission Owner shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generating Facility. The Interconnection Customer shall notify the System Operator and Interconnecting Transmission Owner promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the New England Transmission System or any Affected Systems. 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 the Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

### 3.4.2 Routine Maintenance, Construction, and Repair

3.4.2.1 **Outage Authority and Coordination.** The System Operator shall have the authority to coordinate facility outages in accordance with the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents. Each Party may in accordance with the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents, in coordination with the other Party(ies), remove from service any of its respective Interconnection Facilities or Network Upgrades that may impact the other Party's(ies') facilities as necessary to perform maintenance or testing or to install or replace equipment, subject to the oversight of System Operator in accordance with the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents.

3.4.2.2 **Outage Schedules.** Outage scheduling, and any related compensation, shall be in accordance with the applicable provisions of the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents.

3.4.2.3 **Interruption of Service.** In accordance with the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents, the System Operator or Interconnecting Transmission Owner may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect System Operator's or Interconnecting Transmission Owner's ability to perform such activities as are necessary to safely and reliably operate and maintain the New England Transmission System.

3.4.3 Forced Outages

During any forced outage, the Interconnecting Transmission Owner [and the System Operator] may suspend interconnection service to effect immediate repairs on the New England Transmission System. The Interconnecting Transmission Owner shall use Reasonable Efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the Interconnecting Transmission Owner shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects

The Interconnecting Transmission Owner shall notify the Interconnection Customer and the System Operator as soon as practicable if, based on Good Utility Practice, operation of the Small Generating Facility may cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Small Generating Facility could cause damage to the New England Transmission System or Affected Systems. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. If, after notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time, the Interconnecting Transmission Owner may disconnect the Small Generating Facility. The Interconnecting Transmission Owner shall provide the Interconnection Customer and the System Operator with five Business Day notice of such disconnection, unless the provisions of article 3.4.1 apply.

3.4.5 Modification of the Small Generating Facility

The Interconnection Customer must receive written authorization from: (1) the Interconnecting Transmission Owner before making any change to the Small

Generating Facility that may have a material impact on the safety or reliability of the Interconnecting Transmission Owner's Interconnection Facilities; and (2) the System Operator before making any change to the Small Generating Facility that may have a material impact on the safety or reliability of the New England Transmission System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without the System Operator's or the Interconnecting Transmission Owner's, as appropriate, prior written authorization, the latter shall have the right to temporarily disconnect the Small Generating Facility.

3.4.6 Reconnection

The Parties shall cooperate with each other to restore the Small Generating Facility, Interconnection Facilities, and the New England Transmission System to their normal operating state as soon as reasonably practicable following a temporary disconnection.

**Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades**

4.1 Interconnection Facilities

4.1.1 The Interconnection Customer shall pay for the cost of the Interconnection Facilities itemized in Attachment 2 of this Agreement. The Interconnecting Transmission Owner shall provide a best estimate cost, including overheads, for the purchase and construction of its Interconnection Facilities and provide a detailed itemization of such costs. Costs associated with Interconnection Facilities may be shared with other entities that may benefit from such facilities by agreement of the Interconnection Customer, such other entities, and the Interconnecting Transmission Owner.

4.1.2 The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its own Interconnection Facilities, and (2) operating, maintaining, repairing, and replacing the Interconnecting Transmission Owner's Interconnection Facilities.

4.2 Distribution Upgrades

The Interconnecting Transmission Owner shall design, procure, construct, install, and own the Distribution Upgrades described in Attachment 6 of this Agreement. If the Interconnecting Transmission Owner and the Interconnection Customer agree, the Interconnection Customer may construct Distribution Upgrades that are located on land owned by the Interconnection Customer. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer. The Interconnection Customer shall be responsible for its share of all reasonable expenses, associated with operating, maintaining, repairing, and replacing such Distribution Upgrades, except to the extent that a retail tariff of, or an agreement with, the Interconnecting Transmission Owner or its distribution company affiliate, if appropriate, provides otherwise.

**Article 5. Cost Responsibility for Network Upgrades**

5.1 Applicability

No portion of this article 5 shall apply unless the interconnection of the Small Generating Facility requires Network Upgrades, including Stand Alone Network Upgrades.

5.2 Network Upgrades

The Interconnecting Transmission Owner shall design, procure, construct, install, and own the Network Upgrades described in Attachment 6 of this Agreement. If the Interconnecting Transmission Owner and the Interconnection Customer agree, the Interconnection Customer may construct Network Upgrades that are located on land owned by the Interconnection Customer. Unless the Interconnecting Transmission Owner elects to pay for Network Upgrades, the actual cost of the Network Upgrades, including overheads, shall be borne by the Interconnection Customer.

5.2.1 Cost Allocation; Compensation

5.2.1.1 Cost Allocation. Cost allocation of Generator Interconnection Related Upgrades shall be in accordance with Schedule 11 of the Tariff.

5.2.2.2 Compensation. Any compensation due to the Interconnection Customer

for increases in transfer capability to the PTF resulting from its Generator Interconnection Related Upgrade shall be determined in accordance with Market Rule 1 and the Tariff.

5.3 Special Provisions for Affected Systems

The Interconnection Customer shall enter into separate related facilities agreements to address any upgrades to the Affected System(s) that are necessary for safe and reliable interconnection of the Interconnection Customer's Small Generating Facility.

5.4 Rights Under Other Agreements

Notwithstanding any other provision of this Agreement, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that the Interconnection Customer shall be entitled to, now or in the future, under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network Upgrades.

**Article 6. Billing, Payment, Milestones, and Financial Security**

6.1 Billing and Payment Procedures and Final Accounting

6.1.1 The Interconnecting Transmission Owner shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of Interconnection Facilities and Upgrades contemplated by this Agreement on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within 30 calendar days of receipt, or as otherwise agreed to by the Parties.

6.1.2 Within three months of completing the construction and installation of the Interconnecting Transmission Owner's Interconnection Facilities and/or Upgrades described in the Attachments to this Agreement, the Transmission Provider shall provide the Interconnection Customer with a final accounting report of any difference between (1) the Interconnection Customer's cost responsibility for the actual cost of such facilities or Upgrades, and (2) the Interconnection Customer's

previous aggregate payments to the Interconnecting Transmission Owner for such facilities or Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous aggregate payments, the Interconnecting Transmission Owner shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Interconnecting Transmission Owner within 30 calendar days. If the Interconnection Customer's previous aggregate payments exceed its cost responsibility under this Agreement, the Interconnecting Transmission Owner shall refund to the Interconnection Customer an amount equal to the difference within 30 calendar days of the final accounting report.

## 6.2 Milestones

The Parties shall agree on milestones for which each Party is responsible and list them in Attachment 4 of this Agreement. A Party's obligations under this provision may be extended by agreement. If a Party anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event, it shall immediately notify the other Party(ies) of the reason(s) for not meeting the milestone and (1) propose the earliest reasonable alternate date by which it can attain this and future milestones, and (2) requesting appropriate amendments to Attachment 4. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless it will suffer significant uncompensated economic or operational harm from the delay, (2) attainment of the same milestone has previously been delayed, or (3) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the Party proposing the amendment.

## 6.3 Financial Security Arrangements

At least 20 Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the Interconnecting Transmission Owner's Interconnection Facilities and Upgrades, the Interconnection Customer shall provide the Interconnecting Transmission Owner a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to the Interconnecting Transmission Owner in accordance with Section 7 of Schedule 11 of the Tariff. Such security for payment shall be in an amount sufficient to cover the costs for constructing, designing, procuring, and installing the applicable portion of the Interconnecting Transmission Owner's Interconnection Facilities and Upgrades. In addition:

- 6.3.1 The guarantee must be made by an entity that meets the creditworthiness requirements of the Interconnecting Transmission Owner, and contain terms and conditions that guarantee payment of any amount that may be due from the Interconnection Customer, up to an agreed-to maximum amount.
- 6.3.2 The letter of credit or surety bond must be issued by a financial institution or insurer reasonably acceptable to the Interconnecting Transmission Owner and must specify a reasonable expiration date.

## **Article 7. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default**

Notwithstanding any other provision of this Agreement, the liability, indemnification and insurance provisions of the Transmission Operating Agreement (“TOA”) or other applicable operating agreements shall apply to the relationship between the System Operator and the Interconnection Transmission Owner and the liability, indemnification and insurance provisions of the Tariff apply to the relationship between the System Operator and the Interconnection Customer and between the Interconnecting Transmission Owner and the Interconnection Customer.

### **7.1 Assignment**

This Agreement may be assigned by a Party upon 15 Business Days prior written notice and opportunity to object by the other Parties; provided that:

- 7.1.1 The Parties may assign this Agreement without the consent of the other Parties 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 Agreement, provided that the Interconnection Customer promptly notifies the other Parties of any such assignment.
- 7.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the Interconnecting Transmission Owner or the System Operator, for collateral security purposes to aid in providing financing for the Small Generating Facility, provided that the Interconnection Customer will promptly notify the Interconnecting Transmission Owner and the System Operator of any such assignment.



7.1.3 Any attempted assignment that violates this article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. An assignee is responsible for meeting the same financial, credit, and insurance obligations as the Interconnection Customer. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

7.2 Limitation of Liability

Each Party's liability to the other Party(ies) for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall a Party be liable to another Party for any indirect, special, consequential, or punitive damages, except as authorized by this Agreement.

7.3 Indemnity

7.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in article 7.2.

7.3.2 Each Party shall at all times indemnify, defend, and hold the other Parties 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(ies') action or failure to meet its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7.3.3 If an indemnified person is entitled to indemnification under this article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this article, 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.

7.3.4 If an indemnifying Party is obligated to indemnify and hold any indemnified person harmless under this article, 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.

7.3.5 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 this article 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.

7.4 Consequential Damages

Other than as expressly provided for in this Agreement, in no event shall a Party be liable under any provision of this Agreement 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 another Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

7.5 Force Majeure

7.5.1 As used in this article, a Force Majeure Event shall mean "any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing."

7.5.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party(ies), either in writing or via the telephone, of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance. The Affected Party shall keep the other Party(ies) informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of Reasonable Efforts. The Affected Party will use Reasonable Efforts to resume its performance as soon as possible.

## 7.6 Default

7.6.1 No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of a Force Majeure Event as defined in this Agreement or the result of an act or omission of the other Party(ies). Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in article 7.6.2, the defaulting Party shall have 60 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 60 calendar days, the defaulting Party shall commence such cure within 20 calendar days after notice and continuously and diligently complete such cure within six months from receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

7.6.2 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(ies) shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not those Parties terminate this Agreement, 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 Agreement.

## **8. Insurance Requirements**

### **8.1 General Liability**

The Interconnection Customer shall, at its own expense, maintain in force general liability insurance without any exclusion for liabilities related to the interconnection undertaken pursuant to this Agreement. The amount of such insurance shall be sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. The Interconnection Customer shall obtain additional insurance only if necessary as a function of owning and operating a generating facility. Such insurance shall be obtained from an insurance provider authorized to do business in the State where the interconnection is located. Certification that such insurance is in effect shall be provided upon request of the Interconnecting Transmission Owner, except that the Interconnection Customer shall show proof of insurance to the Interconnecting Transmission Owner no later than ten Business Days prior to the anticipated commercial operation date. An Interconnection Customer of sufficient credit-worthiness may propose to self-insure for such liabilities, and such a proposal shall not be unreasonably rejected.

## **8.2 Insurer Requirements and Endorsements**

All required insurance shall be carried by reputable insurers qualified to underwrite insurance in the state where the interconnection is located having a Best Rating of “A-”. In addition, all insurance shall, (a) include Interconnecting Transmission Owner and System Operator as additional insureds; (b) contain a severability of interest clause or cross-liability clause; (c) provide that Interconnecting Transmission Owner and System Operator shall not incur liability to the insurance carrier for payment of premium for such insurance; and (d) provide for thirty (30) calendar days’ written notice to Interconnecting Transmission Owner and System Operator prior to cancellation, termination, or material change of such insurance; provided that to the extent the Interconnection Customer is satisfying the requirements of subpart (d) of this paragraph by means of a presently existing insurance policy, the Interconnection Customer shall only be required to make good faith efforts to satisfy that requirement and will assume the responsibility for notifying the Interconnecting Transmission Owner and System Operator as required above.

If the requirement of clause (a) in the paragraph above prevents Interconnection Customer from obtaining the insurance required without added cost or due to written refusal by the insurance carrier, then upon Interconnection Customer’s written notice to Interconnecting Transmission Owner and System Operator, the requirements of clause (a) shall be waived.

## **8.3 Evidence of Insurance**

Evidence of the insurance required shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by Interconnection Customer.

The Interconnection Customer is responsible for providing the Interconnecting Transmission Owner and the System Operator with evidence of insurance in compliance with this Tariff on an annual basis.

Prior to the Interconnecting Transmission Owner commencing work on Interconnection Facilities, Network Upgrades and Distribution Upgrades, the Interconnection Customer shall have its insurer furnish to the Interconnecting Transmission Owner and the System Operator certificates of insurance evidencing the insurance coverage required above. The Interconnection Customer shall notify and send to the Interconnecting Transmission Owner

and the System Operator a certificate of insurance for any policy written on a "claims-made" basis. The Interconnecting Transmission Owner and the System Operator may at their discretion require the Interconnection Customer to maintain tail coverage for three years on all policies written on a "claims-made" basis.

#### **8.4 Self Insurance**

If Interconnection Customer is a company with a self-insurance program established in accordance with commercially acceptable risk management practices, Interconnection Customer may comply with the following in lieu of the above requirements as reasonably approved by the Interconnecting Transmission Owner and the System Operator:

- Interconnection Customer shall provide to Interconnecting Transmission Owner and System Operator, at least thirty (30) calendar days prior to the Date of Initial Operation, evidence of such program to self-insure to a level of coverage equivalent to that required.
- If Interconnection Customer ceases to self-insure to the standards required hereunder, or if Interconnection Customer is unable to provide continuing evidence of Interconnection Customer's financial ability to self-insure, Interconnection Customer agrees to promptly obtain the coverage required under Article 8.1.

#### **8.5**

The Interconnecting Transmission Owner agrees to maintain general liability insurance or self-insurance consistent with the Interconnecting Transmission Owner's commercial practice. Such insurance or self-insurance shall not exclude coverage for the Interconnecting Transmission Owner's liabilities undertaken pursuant to this Agreement.

## Article 9. Confidentiality

- 9.1 Confidential Information shall include without limitation, all information governed by the ISO New England Information Policy, all information obtained from third parties under confidentiality agreements, and any confidential and/or proprietary information provided by a Party to the another Party that is clearly marked or otherwise designated "Confidential." For purposes of this Agreement all design, operating specifications, and metering data provided by the Interconnection Customer shall be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such.
- 9.2 Confidential Information does not include information previously in the public domain, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party(ies) and after exhausting any opportunity to oppose such publication or release), or necessary to be divulged in an action to enforce this Agreement. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under this Agreement, or to fulfill legal or regulatory requirements.
- 9.2.1 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party(ies) as it employs to protect its own Confidential Information.
- 9.2.2 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.
- 9.3 Notwithstanding anything in this article to the contrary, and pursuant to 18 CFR § 1b.20, if the Commission, 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 Agreement, the Party shall provide the requested information to the Commission, within the time provided for in the request for information. In providing the information to the Commission, the Party may, consistent with 18 CFR § 388.112, request that the information be treated as confidential and non-public by the Commission and that the information be withheld from public disclosure. Parties are

prohibited from notifying the other Party(ies) to this Agreement prior to the release of the Confidential Information to the Commission. The Party shall notify the other Party(ies) to this Agreement when it is notified by the Commission that a request to release Confidential Information has been received by the Commission, at which time either of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

## **Article 10. Disputes**

- 10.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process according to the provisions of this article.
- 10.2 In the event of a dispute, a Party shall provide the other Party(ies) with a written Notice of Dispute. Such Notice shall describe in detail the nature of the dispute.
- 10.3 If the dispute has not been resolved within two Business Days after receipt of the Notice, any Party may contact the Commission's Dispute Resolution Service (DRS) for assistance in resolving the dispute.
- 10.4 The DRS will assist the Parties in either resolving their dispute or in selecting an appropriate dispute resolution venue (e.g., mediation, settlement judge, early neutral evaluation, or technical expert) to assist the Parties in resolving their dispute. DRS can be reached at 1-877-337-2237 or via the internet at <http://www.ferc.gov/legal/adr.asp>.
- 10.5 Each Party agrees to conduct all negotiations in good faith and will be responsible for its pro-rata share of any costs paid to neutral third-parties.
- 10.6 If no Party elects to seek assistance from the DRS, or if the attempted dispute resolution fails, then each Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of this Agreement.



## **Article 11. Taxes**

- 11.1 The Parties agree to follow all applicable tax laws and regulations, consistent with Commission policy and Internal Revenue Service requirements.
- 11.2 Each Party shall cooperate with the other to maintain the other Party's(ies') tax status. Nothing in this Agreement is intended to adversely affect the Interconnecting Transmission Owner's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

## **Article 12. Miscellaneous**

- 12.1 Governing Law, Regulatory Authority, and Rules  
The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the state of \_\_\_\_\_ (where the Point of Interconnection is located), without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.
- 12.2 Amendment  
The Parties may amend this Agreement by a written instrument duly executed by the Parties, or under article 12.12 of this Agreement.
- 12.3 No Third-Party Beneficiaries  
This Agreement 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.
- 12.4 Waiver
- 12.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

12.4.2 Any waiver at any time by a Party of its rights with respect to this Agreement 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 Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Interconnecting Transmission Owner. Any waiver of this Agreement shall, if requested, be provided in writing.

12.5 Entire Agreement

Except for the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents, this Agreement, including all Attachments, 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 Agreement. Except for the ISO New England Operating Documents, Applicable Reliability Standards, or successor documents, 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 Agreement.

12.6 Multiple Counterparts

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

12.7 No Partnership

This Agreement 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 any Party. No 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 Parties.

12.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable

the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

12.9 Security Arrangements

Infrastructure security of the New England Transmission System equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. The Commission expects the System Operator, Interconnecting Transmission Owners, market participants, and Interconnection Customers interconnected to the New England Transmission System to comply with the recommendations offered by the President's Critical Infrastructure Protection Board and, eventually, best practice recommendations from the electric reliability authority. All public utilities are expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

12.10 Environmental Releases

Each Party shall notify the other Party(ies), 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 Small Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party(ies). The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party(ies) copies of any publicly available reports filed with any governmental authorities addressing such events.

12.11 Subcontractors

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

12.11.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party(ies) 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 Interconnecting Transmission Owner be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

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

#### 12.12 Reservation of Rights

Consistent with Section 4.8 of Schedule 23, the Interconnecting Transmission Owner and the System Operator shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under section 205 or any other applicable provision of the Federal Power Act and the Commission's rules and regulations thereunder, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement under any applicable provision of the Federal Power Act and the Commission's rules and regulations; provided that each Party shall have the right to protest any such filing by the other Party(ies) and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of the Commission under sections 205 or 206 of the Federal Power Act and the Commission's rules and regulations, except to the extent that the Parties otherwise agree as provided herein.

### **Article 13. Notices**

#### 13.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed

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properly given if delivered in person, delivered by recognized national carrier service, or sent by first class mail, postage prepaid, to the person specified below:

If to the Interconnection Customer:

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

If to the Interconnecting Transmission Owner:

Interconnecting Transmission Owner:  
\_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

If to the System Operator:

System Operator \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

### 13.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below:

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Interconnecting Transmission Owner:

\_\_\_\_\_  
Attention: \_\_\_\_\_

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Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

System Operator: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

13.3 Alternative Forms of Notice

Any notice or request required or permitted to be given by a Party to the other Party(ies) and not required by this Agreement to be given in writing may be so given by telephone, facsimile or e-mail to the telephone numbers and e-mail addresses set out below:

If to the Interconnection Customer:

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

If to the Interconnecting Transmission Owner:

Interconnecting Transmission Owner: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

1.2

If to the System Operator:

System Operator: \_\_\_\_\_

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Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**1.3** E-mail: \_\_\_\_\_

**13.4** Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative:

Interconnection Customer: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**1.4** E-mail: \_\_\_\_\_

Interconnecting Transmission Owner's Operating Representative:

Interconnecting Transmission Owner: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

System Operator's Operating Representative:

System Operator: \_\_\_\_\_  
Attention: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

13.5 Changes to the Notice Information

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

**Article 14. Signatures**

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Interconnecting Transmission Owner

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

For the Interconnection Customer

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



For the System Operator

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Attachment 1**

**Glossary of Terms**

**Administered Transmission System** – The PTF, the Non-PTF and the MEPCO Transmission System, and distribution facilities that are subject to the Tariff.

**Affected Party or Parties** – The entity that owns, operates or controls an Affected System, or any other entity that otherwise may be a necessary party to the interconnection process.

**Affected System** – Any electric system that is within the Control Area, including, but not limited to, generator owned transmission facilities, or any other electric system that is not within the Control Area that may be affected by the proposed interconnection.

**Affiliate** – With respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

**Applicable Laws and Regulations** – All duly promulgated applicable federal, state 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 Standards** – The requirements and guidelines of NERC, NPCC and the New England Control Area, including publicly available local reliability requirements of Interconnecting Transmission Owners or other Affected Systems.

**Business Day** – Monday through Friday, excluding Federal Holidays.

**Default** – The failure of a breaching Party to cure its breach under the Small Generator Interconnection Agreement.

**Distribution System** – The Interconnecting Transmission Owner’s facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which Distribution Systems operate differ among areas.

**Distribution Upgrades** – The additions, modifications, and upgrades to the Interconnecting Transmission Owner’s Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Small Generating Facility and render the transmission service necessary to

effect the Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

**Generating Facility** – The Interconnection Customer's device for the production of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities.

**Generating Facility Capacity** – The maximum gross megawatt electrical output at an ambient temperature of 20 degrees F of the Generating Facility and the aggregate maximum gross megawatt electrical output of the Generating Facility at an ambient temperature of 20 degrees F where it includes multiple energy production devices.

**Good Utility Practice** – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Governmental Authority** – Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, the Interconnection Provider, or any Affiliate thereof.

**Interconnecting Transmission Owner** – A Transmission Owner that owns, leases or otherwise possesses an interest in the portion of the Administered Transmission System at the Point of Interconnection and shall be a Party to the Standard Small Generator Interconnection Agreement. The term Interconnecting Transmission Owner shall not be read to include the System Operator.

**Interconnection Customer** – Any entity, including a transmission owner or its Affiliates or subsidiaries, that proposes to interconnect its Small Generating Facility with the Administered Transmission System.

**Interconnection Facilities** – The Interconnecting Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that

are necessary to physically and electrically interconnect the Small Generating Facility to the Administered Transmission System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

**Interconnection Request** – The Interconnection Request (a) shall mean an Interconnection Customer's request, in accordance with the Tariff, to: (i) interconnect a new Generating Facility to the Administered Transmission System; or (ii) increase the capacity of, make a Material Modification to the operating characteristics of, or commence participation in the wholesale markets, an existing Generating Facility that is interconnected with the Administered Transmission System; (b) shall not include: (i) a retail customer interconnecting a new Generating Facility that will produce electric energy to be consumed only on the retail customer's site; (ii) a request to interconnect a new Generating Facility to a distribution facility that is subject to the Tariff if the Interconnection Customer does not intend to make wholesale sales of electricity in interstate commerce; or (iii) a request to interconnect a Qualifying Facility (as defined by the Public Utility Regulatory Policies Act, as amended by the Energy Policy Act of 2005 and the regulations thereto), where the Qualifying Facility's owner intent is to sell 100% of the Qualifying Facility's output to its interconnected electric utility.

**Interconnection Service** – The service provided by the System Operator and the Interconnecting Transmission Owner, associated with interconnecting the Interconnection Customer's Generating Facility to the Administered Transmission System and enabling the receipt of electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Standard Small Generator Interconnection Agreement and, if applicable, the Tariff.

**Material Modification** – (i) Those modifications to the technical data provided by the Interconnection Customer or to the interconnection configuration, requested by the Interconnection Customer, that either require significant additional study of the same Interconnection Request and could substantially change the interconnection design; or have a material impact on the cost or timing of any Interconnection Studies or upgrades associated with an Interconnection Request with a later queue priority date; or (ii) a change to the design or operating characteristics of an existing Generating Facility that is interconnected with the Administered Transmission System which may have a significant adverse effect on the reliability or operating characteristics of the New England Transmission System; or (iii) a delay to the Commercial Operation Date, In-Service Date, or Initial Synchronization Date of greater than three (3) years where the reason for delay is unrelated to construction schedules or permitting which delay is beyond the Interconnection Customer's control.

**Minimum Interconnection Standard (MIS)** – The minimum criteria required to permit the Interconnection Customer to interconnect in a manner that avoids any significant adverse effect on the reliability, stability, and operability of the New England Transmission System, including protecting against the degradation of transfer capability for interfaces affected by the unit.

**Network Interconnection Service** – An Interconnection Service that allows the Interconnection Customer to interconnect its Small Generating Facility with the Administered Transmission System in a manner comparable to that in which all other Network Resources are interconnected to the Administered Transmission System under the Minimum Interconnection Standard as set forth in the Tariff.

**Network Resource** – That portion of a Generating Facility that is interconnected to the Administered Transmission System under the MIS, and designated as a Network Resource pursuant to the terms of the Tariff, eligible to participate in the Markets in accordance with Market Rule 1, and subjected to redispatch directives as ordered by the System Operator in accordance with the Tariff.

**Network Upgrades** – Additions, modifications, and upgrades to the New England Transmission System required at or beyond the point at which the Small Generating Facility interconnects with the Administered Transmission System to accommodate the interconnection of the Small Generating Facility with the Administered Transmission System. Network Upgrades do not include Distribution Upgrades.

**Notice of Dispute** – A written notice of a dispute or claim that arises out of or in connection with the Standard Small Generator Interconnection Agreement or its performance.

**Operating Requirements** – Any operating and technical requirements that may be applicable due to System Operator or the Interconnecting Transmission Owner's requirements, including those set forth in the Small Generator Interconnection Agreement, ISO New England Operating Documents, Applicable Reliability Standards, or successor documents.

**Party or Parties** – The System Operator, Interconnecting Transmission Owner, Interconnection Customer or any combination of the above.

**Point of Interconnection** – The point where the Interconnection Facilities connect with the Administered Transmission System.

**Reasonable Efforts** – With respect to an action required to be attempted or taken by a Party under the Small Generator Interconnection 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.

**Small Generating Facility** – A Generating Facility having a Generating Facility Capacity of 20 MW or less.

**Stand Alone Network Upgrades** – Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the New England Transmission System

during their construction. The System Operator, Interconnection Customer, Interconnecting Transmission Owner, and any Affected Party as deemed appropriate by the System Operator in accordance with applicable codes of conduct and confidentiality requirements, must agree as to what constitutes Stand Alone Network Upgrades and identify them in Attachment 2 to the Standard Small Generator Interconnection Agreement.

**System Operator** – ISO New England Inc. or a successor organization.

**Tariff** – The System Operator’s or Affected System's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Commission, and as amended or supplemented from time to time, or any successor tariff.

**Upgrades** – The required additions and modifications to the Administered Transmission System at or beyond the Point of Interconnection. Upgrades may be Network Upgrades or Distribution Upgrades. Upgrades do not include Interconnection Facilities.

**Attachment 2**

**Description and Costs of the Small Generating Facility,  
Interconnection Facilities, and Metering Equipment**

Equipment, including the Small Generating Facility, Interconnection Facilities, and metering equipment shall be itemized and identified as being owned by the Interconnection Customer or the Interconnecting Transmission Owner. The Interconnecting Transmission Owner will provide a best estimate itemized cost, including overheads, of its Interconnection Facilities and metering equipment, and a best estimate itemized cost of the annual operation and maintenance expenses associated with its Interconnection Facilities and metering equipment.

**Attachment 3**

**One-line Diagram Depicting the Small Generating Facility, Interconnection  
Facilities, Metering Equipment, and Upgrades**



**Attachment 4**

**Milestones**

In-Service Date: \_\_\_\_\_

Critical milestones and responsibility as agreed to by the Parties:

	<b>Milestone/Date</b>	<b>Responsible Party</b>
(1)	_____	_____
(2)	_____	_____
(3)	_____	_____
(4)	_____	_____
(5)	_____	_____
(6)	_____	_____
(7)	_____	_____
(8)	_____	_____
(9)	_____	_____
(10)	_____	_____

Agreed to by:

For the System Operator \_\_\_\_\_ Date \_\_\_\_\_

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No.2006, 111 FERC ¶61,220 (2005)

ISO New England Inc.  
FERC Electric Tariff No. 3  
Open Access Transmission Tariff  
Schedule 23 – Small Generator Interconnection Procedures

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Original Sheet No. 5560

For the Interconnecting Transmission Owner \_\_\_\_\_ Date \_\_\_\_\_

For the Interconnection Customer \_\_\_\_\_ Date \_\_\_\_\_

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Issued by: Kathleen A. Carrigan,  
Senior Vice President and General Counsel  
Issued on: November 10, 2005

Effective: March 10, 2006  
Filed to comply with order of the Federal Energy  
Regulatory Commission, Docket Nos. RM02-12-000,  
issued May 12, 2005, Order No.2006, 111 FERC ¶61,220 (2005)

**Attachment 5**

**Additional Operating Requirements for the  
New England Transmission System and Affected Systems Needed to Support  
the Interconnection Customer's Needs**

The Interconnecting Transmission Owner shall also provide requirements that must be met by the Interconnection Customer prior to initiating parallel operation with the New England Transmission System.

**Attachment 6**

**Interconnecting Transmission Owner's  
Description of its Upgrades  
and Best Estimate of Upgrade Costs**

The Interconnecting Transmission Owner shall describe Upgrades and provide an itemized best estimate of the cost, including overheads, of the Upgrades and annual operation and maintenance expenses associated with such Upgrades. The Interconnecting Transmission Owner shall functionalize Upgrade costs and annual expenses as either transmission or distribution related.

Sheet Nos. 5563 through 5999 are reserved for future use.