Camal O. Robinson
Associate Counsel

March 27, 2014

Via Hand Delivery and Electronic Mail

Mark D. Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

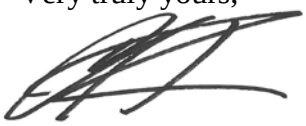
Re: Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid; D.P.U. 14-01

Dear Secretary Marini:

On behalf of Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid (the "Company"), I am enclosing the Company's responses to the Office of the Attorney General's First Set of Information Requests in the above-captioned docket.

Thank you very much for your time and attention to this filing.

Very truly yours,



Camal O. Robinson

cc: Jeffrey Leupold, Department of Public Utilities
Erik Bennett, Office of the Attorney General
Jamie Tosches, Office of the Attorney General
Jack Habib, Keegan Werlin LLP
Michael Koehler, Keegan Werlin LLP
Brooke Skulley, National Grid
Richard Umoff, Solar Energy Industries Association

40 Sylvan Road, Waltham, MA 02451-1600
T: 781-907-3336 ■ F: 781-907-5701 ■ camal.robinson@nationalgrid.com ■ www.nationalgrid.com

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

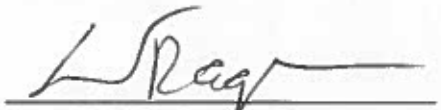
Affidavit of Fouad E. Dagher

I, Fouad E. Dagher, do attest and swear to the following:

1. I am employed by National Grid USA Service Company, Inc. as the Director of Products and Energy Services in the Customer and Business Strategy group within the Customer organization of National Grid USA ("National Grid"). My group is responsible for developing large-scale generation across National Grid's U.S. service territory. Among other duties, I am the project manager for development of National Grid's solar generation facilities in Massachusetts.

2. I am responsible for certain responses to information requests in this proceeding, D.P.U. 14-01, and those responses are true and correct to the best of my knowledge.

Signed under the pains and penalties of perjury.



Fouad E. Dagher

Dated: March 27, 2014

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

Affidavit of Margaret M. Janzen

I, Margaret M. Janzen, do attest and swear to the following:

1. I am the Director of Wholesale Electric Supply for National Grid USA Service Company, Inc. I oversee the procurement of energy, capacity and ancillary services, portfolio hedging strategies and other energy supply related activities for National Grid's operating companies, including Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid ("Company"). For the Company, these activities include the procurement of power for Basic Service customers as well as the procurement or renewable energy certificates ("RECs").

2. I am responsible for certain responses to information requests in this proceeding, D.P.U. 14-01, and those responses are true and correct to the best of my knowledge.

Signed under the pains and penalties of perjury.

Margaret M. Janzen

Dated: March 27, 2014

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

Affidavit of Timothy R. Roughan

I, Timothy R. Roughan, do attest and swear to the following:

1. I am Director of Energy and Environmental Policy. In my current position, I am responsible for all distributed generation and demand response related policy for various National Grid companies, including Massachusetts Electric Company and Nantucket Electric Company.

2. I am responsible for certain responses to information requests in this proceeding, D.P.U. 14-01, and those responses are true and correct to the best of my knowledge.

Signed under the pains and penalties of perjury.

Dated: March 27, 2014

Timothy R. Roughan

COMMONWEALTH OF MASSACHUSETTS

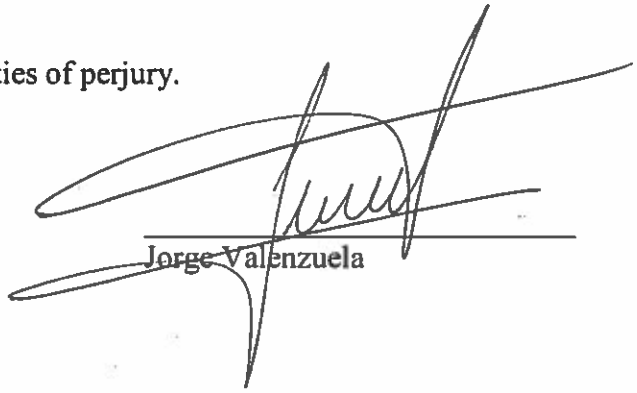
DEPARTMENT OF PUBLIC UTILITIES

Affidavit of Jorge Valenzuela

I, Jorge Valenzuela, do attest and swear to the following:

1. I am employed by National Grid USA Service Company, Inc. as a Senior Engineer of the Advanced Grid Engineering group in the Utility of Future department within Network Strategy of National Grid USA ("National Grid"). My group is responsible for specifying, evaluating and implementing new technologies in National Grid's territory in alignment with National Grid's modernization plans. Among other duties, I'm responsible for the delivery of several components of the Worcester Smart Grid Pilot, including advanced monitoring of Distributed Generation in the distribution system.
2. I am responsible for certain responses to information requests in this proceeding, D.P.U. 14-01, and those responses are true and correct to the best of my knowledge.

Signed under the pains and penalties of perjury.



Jorge Valenzuela

Dated: March 27, 2014

Information Request AG 1-1

Request:

Please refer to Exh. EHW-1, p. 3. Provide a detailed description of the advanced technology inverter and provide a list of manufacturers and manufacturer contact information for the manufacturers and/or vendors that provide such advanced technology inverters being considered by National Grid. Provide the cost of the advanced technology inverter versus the cost for a conventional converter which had been customarily used on PV projects. Additionally, please explain any efforts that National Grid has made to request or require third-party developers to substitute advanced technology inverters for conventional inverters that provide the Company with control capabilities at compensation to the third party.

Response:

Advanced technology inverters have varying operational characteristics which may benefit solar installations. The Company has included in its RFP requirements the following advanced inverter functionalities:

Functionality	Modes	Description
Active Power Control	Real Power Curtailment	Ability to limit the active power production of the PV site to a value below its potential
	Ramp Rate Control	Ability to limit the rate of change in magnitude of active power supplied
Reactive Power Control	Fixed Power Factor: PF_{fixed}	Ability to maintain a power factor at the PV site's Point of Common Coupling (PCC) by changing reactive power injection (under the right conditions)
	Fixed Reactive Setpoint: Q_{Fixed}	Ability to inject a fixed amount of reactive power (percentage of nameplate) at the PCC (under the right conditions)
	Power factor compensation - Power factor/active power characteristic curve PF(P)	Ability to establish a Power Factor level at the PCC based on actual Active Power production
	Voltage Compensation - Reactive power/voltage characteristic curve Q(U)	Ability to inject Reactive Power at the PCC based on actual Voltage level
	Voltage Regulation – closed loop regulation of the voltage	Ability to establish a Voltage level at the PCC by injecting Reactive Power (under the right conditions)

Prepared by or under the supervision of: Fouad E. Dagher

Functionality	Modes	Description
	Ramp Rate Control	Ability to limit the rate of change in magnitude of reactive power supplied
Frequency Droop Response		Ability to curtail Active Power during higher than normal frequency at the PCC
Low Voltage Ride Through (LVRT) & High Voltage Ride Through (HVRT)		Ability to configure the tripping of the PV site during Under and Over Voltage events at the PCC (beyond what UL1741 specifies)
Frequency Ride Through (FRT)		Ability to configure the tripping of the PV site during Under and Over Voltage events at the PCC (beyond what UL1741 specifies)

The Company does not have a comprehensive list of manufacturers that provide inverters with the advanced functionalities described. However, the Company had informal conversations with some manufacturers that have expressed the availability of these functionalities.

These manufactures are:

Company	Phone	Address
Solectria Renewables	1-978-683-9700	360 Merrimack Street Building 9, 2nd Floor Lawrence, MA 01843
SMA America	1-916-625-0870	6020 West Oaks Blvd, Ste 300 Rocklin, CA 95765
Schneider Electric	1-978-975-9600	1 High St North Andover, MA 01845

The Company has drafted a "Minimum Technical Requirements" document which was distributed to the potential developers to assist them in finding the inverter manufacturers able to provide equipment with the advanced functionalities required.

As the advanced functionalities specified in the Company's RFP may require some customizations from the inverter's manufacturer, the Company does not have specific incremental cost information to compare to conventional inverters. The Company expects this information to be included in the bid responses.

The Company has made no requests to third-party developers, outside of the framework of this filing, to substitute advanced technology inverters for conventional inverters.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-2

Request:

Provide a detailed description of the anticipated square feet of space anticipated to be required for each of the three categories of the solar generation projects. This request is based on providing the square footage for one project at the maximum size anticipated in each of the three categories of PV installations which are:

a. Up to 200 KW
b. Up to 500 KW
c. Up 1000 KW

Will some of these system sizes be ground mounted versus rooftop mounted? If so, please describe which system sizes will be ground mounted.

Response:

The Company did not predetermine the square footage allotment of any of the three categories of PV installations. However, the Company previously developed five Department-approved solar generation facilities. Four of the five sites were ground mounted (Dorchester, Revere, Everett and Haverhill) while the fifth was rooftop mounted (Sutton/Northbridge). Approximately four acres (174,500 square feet) of land were used for the almost one megawatt ground-mounted solar facility the Company developed on its land in Haverhill, MA. Also, about three acres (approximately 130,000 square feet) of roof space was used to develop the Company's solar facility installed on the roof of its warehouse at the Sutton/Northbridge border in MA. Based on these numbers and the Company's knowledge of developing solar generation facilities, the Company anticipates the following:

a. for a 200 kW solar generation facility, a parcel of land of approximately 35,00 square feet or a rooftop of about 26,000 square feet may be required;

b. for a 500 kW solar generation facility, a parcel of land of approximately 87,000 square feet or a rooftop of about 65,000 square feet may be required; and

c. for a 1,000 kW solar generation facility, a parcel of land of approximately 174,500 square feet or a rooftop of about 130,000 square feet may be needed.

The above sizes are estimates only and will vary based on factors including, but not limited to, the efficiency of PV panels, service and emergency vehicle requirements, roof setbacks, tilt angle, tracking requirements, and zoning statutes.

Prepared by or under the supervision of: Fouad E. Dagher

Absent responses to the Company's solar RFP, the Company is not able to predict which size systems will be ground-mounted and rooftop-mounted; however, the Company expects to receive bids for ground-mounted and rooftop-mounted systems from all three categories of PV installations.

Information Request AG 1-3

Request:

Has National Grid evaluated the amount of available rooftop space for the installation of solar generation? If so, provide what the range is for that estimate.

Response:

The Company has not evaluated the amount of available rooftop space owned by third parties in the targeted towns and cities. As for National Grid-owned properties, the Company has identified seven sites that could potentially be suited for the installation of rooftop solar generation facilities. The Company's evaluation of the responses to the RFP will allow the Company to better determine the locations of proposed solar generation facilities on third-party and National Grid-owned rooftops.

Please also refer to the Company's responses to Information Requests DPU 1-1, DPU 1-3 and DPU 1-14.

Information Request AG 1-4

Request:

Has National Grid evaluated the amount of land available for ground mounted solar project installation? If so, provide a range of what the estimated acreage.

Response:

The Company has not evaluated the amount of available land owned by third parties in the targeted towns and cities. As for National Grid-owned properties, the Company has identified eleven parcels of land that could possibly be suited for the installation of solar generation facilities. The Company's evaluation of the responses to the RFP will allow the Company to better determine the locations of the proposed solar generation facilities on third-party and National Grid-owned land.

Please also refer to the Company's responses to Information Requests DPU 1-1, DPU 1-3 and DPU 1-14.

Information Request AG 1-5

Request:

For this specific filing for an additional 20 MW of solar generation installation, National Grid had identified the communities for targeting the installation. Provide by community the square feet of available rooftop space that National Grid has identified and the availability of ground mounted solar space in square feet that National Grid has identified.

Response:

The Company has not identified the square feet of available rooftop or land space for the installation of solar generation facilities by community.

Please also refer to the Company's responses to Information Requests AG 1-3 and AG 1-4.

Information Request AG 1-6

Request:

On page 3 of Exh. EHW-1, Mr. White states that the requests for solar DG continue to grow and the Company needs to determine how to enable this increase and provide benefits to the Company's distribution system. Has National Grid evaluated or considered any studies by other utilities, EPRI or other solar groups that have evaluated advanced inverters? If so, please identify and explain.

Response:

National Grid has reviewed the following studies regarding advanced inverter functionalities within the scope of this filing:

- *Grid Impacts of Distributed Generation with Advanced Inverter Functions: Hosting Capacity of Large-Scale Solar Photovoltaic Using Smart Inverters*, EPRI (Dec. 20, 2012), http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000003002001246 (presented the findings of increased penetration levels on distribution feeders including inverters with advanced capabilities).

- *Recommendations for Updating I-DER Technical Requirements in Rule 21*, CALIFORNIA ENERGY COMMISSION(October 2, 2013), http://www.energy.ca.gov/electricity_analysis/rule21/documents/recommendations_and_test_plan_documents/CPUC_Rule_21_Recommendations_v5.docx (presented the recommendations for to the technical requirements of California's Rule 21, including the adoption of the advanced inverter functionalities proposed in National Grid's filing).

Additionally, National Grid is currently collaborating with EPRI and the New York Power Authority on a modeling study, funded by the New York State Energy Research and Development Authority (NYSERDA), where multiple NY state utilities will provide distribution circuit data for actual feeders of varying voltages, lengths and types. See *Smart Grid Inverters to Support Photovoltaic Generation in Distribution Systems*, NYSERDA PON-2474. Maximum generation hosting capabilities will be calculated based on a high penetration of smart grid inverters with advanced functionalities, versus standard methods with conventional equipment. Id.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-7

Request:

Please refer to Exh. EHW-1, p. 10. Mr. White references the fact that Governor Patrick has indicated the desire for the installation of 1,600 MW of solar generation. Please provide a detailed description of the following:

a. Does National Grid plan on having firming capabilities for solar generation, and, if so, at what megawatt level will National Grid begin the process of assuring that it has firming capability on the solar generation installation?

b. What, if any, adverse reliability impact issues has National Grid identified and how will it address those issues if the Commonwealth of Massachusetts reaches 1,600 MW of solar generation installed?

c. What studies has National Grid completed identifying the square footage of rooftop and land mass available for solar generation installation?

d. How many square feet and/or acres does National Grid estimate will be required to install 1,600 MW of solar generation, and has National Grid identified that there is in fact this availability of land in Massachusetts for such installation?

Response:

a. National Grid currently has no plans on having firming capabilities for its large scale solar generation facilities. ISO-NE is responsible for 'firming' capabilities at the level of the bulk power system. The Company is an electric distribution company and owns no bulk generation aside from the 5 MW of solar assets the Company already has installed. ISO-NE has formed a DG Forecasting Working Group. One aspect of this working group is to determine whether firming capabilities are needed, and if so, how much is needed. Please see the following link for more details: http://iso-ne.com/committees/comm_wkgrps/othr/distributed_generation_frcst/index.html.

b. In terms of reliability at the level of the bulk power system, please see the Company's response to part(a) above. In terms of the operation of the distribution system, particularly at the local or feeder level, the Company is concerned about the impact of large scale solar generation facilities on voltage fluctuation, voltage flicker, unintentional islanding, harmonics, rapid variation in power output, voltage regulation, and overloading of lightly loaded circuits. To prevent reliability impacts on the local distribution system, all proposed interconnections the Company reviews

are required to follow the Company's interconnection tariff as described in the Company's responses to Information Requests AG 1-21 and 1-32. Once the projects have complied with all aspects of the tariff, the Company does not expect to see any reliability impacts.

One of the goals of the Company's proposed Solar Phase II program is to evaluate the advanced functionalities that can be included in the dc to ac inverters to help the Company, future developers, and others mitigate these issues in a more expedient or cost effective manner than at present, especially with the expectation of greater penetration of solar PV on the distribution system in the near future. Also, the results of the Company's evaluation will help the Company, future developers, and others understand if additional mitigation of these impacts is needed, which could take the form of distribution system upgrades, firming capabilities, and/or PV installations in targeted locations.

c. The Company has not conducted any such studies. Please also refer to the Company's responses to Information Requests DPU 1-1, DPU 1-3 and DPU 1-14.

d. The Company is not proposing to construct 1600 MW of solar generation and does not have sufficient information to estimate the amount of land needed to do so in the Commonwealth of Massachusetts. The Company has requested the installation of up to 20 MW in this filing. For this 20 MW of capacity, the Company estimates it would take approximately 3,484,800 to 5,227,200 square feet using approximately 4-6 acres (174,240 to 261,360 square feet) of land per MW. As the Company indicated in its response to part (c) above, the Company has not studied land availability. Please also refer to the Company's responses to Information Requests DPU 1-1, DPU 1-3, and DPU 1-14.

Information Request AG 1-8

Request:

Refer to Exh. EHW-1, p. 12. Please describe how the system will be designed in order to meet the loads at the time of peak and what is expected to be the capacity factor of the solar generation to meet these loads.

Response:

The Company will consider installations with configurations designed to best match the time of the feeder's peak. Specifically, the Company will require the solar panels to be oriented to align with the position of the sun during or near peak conditions. The capacity factors for each installation will be calculated once the sites have been identified.

Prepared by or under the supervision of: Jorge Valenzuela

Information Request AG 1-9

Request:

Provide by month for the last ten (10) years, the five highest peaks and the time those peaks occurred for each month.

Response:

According to the ISO-NE Net Energy & Peak Load Report[1], the 5 highest peaks in Massachusetts in the last ten years were registered at:

Year	Month	Time (Hour Ending)[2]	Peak Demand (MW)[3]
2005	July	3:00PM	12,436
2006	August	3:00PM	13,054
2010	July	3:00PM	12,598
2011	July	3:00PM	12,953
2013	July	5:00PM	12,838

[1] http://www.iso-ne.com/markets/hstdata/rpts/ann_seasonal_pks/seasonal_peak_data_summary.xls.
[2] Starting from previous hour.
[3] Aggregation of SEMA, WCMA, and NEMABOS ISO-NE areas.

Information Request AG 1-10

Request:

Refer to Exh. EHW-1, p. 13. Mr. White states that there is the unique ability to locate solar to optimize peak load requirements. Please provide a detailed description of what experience, and, exactly, how and where the solar will be located to optimize the solar capacity issue, and provide a list of each specific unique ability that is anticipated based on Mr. White's testimony. What percent of the 20 MW Solar DG is projected to be available during winter and summer monthly peaks?

Response:

The Company has detailed loading and operational information for all of the circuits in the areas targeted for installations. For that reason, the Company is in an excellent position to select locations that maximize load relief and operational benefits. As an example, for the capacity relief portion of the filing, the Company will select applications for locations on feeders with peak loads closer to noon (comparatively). By doing so, the amount of relief that solar generation could bring to the system is expected to be greater than for feeders peaking later in the afternoon. Another example would be to orient the panels to maximize the solar output around the historical peak time instead of the standard orientation used to maximize energy production.

The specific unique abilities that the Company has related to this filing are the following:

- The Company has a detailed knowledge of its distribution system in Massachusetts;
- The Company will be able to select the specific locations where the benefits of the installation of solar generation will be maximized;
- The Company will be able to coordinate the testing of the advanced functionalities of the proposed inverters. This will ensure that safety and quality of service is guaranteed for its customers and employees;
- The Company will have control of the solar installations which will provide the flexibility needed to create and execute a large number of tests.

Until the projects are operational, it is difficult to say what percent of the proposed 20 MW will be available during summer peak loading conditions. The Company does not plan to locate the solar installations to meet winter peaks since they are lower than summer peaks on its system.

Information Request AG 1-11

Request:

Refer to Exh. EHW-1, p. 13. Mr. White states that advanced inverter designs have not been constructed, because they are not allowed without utility approval. Is this because, advanced inverter design, as National Grid intends to use, fails to meet the IEEE 1547 non-islanding requirement? If National Grid will allow islanding, what steps has National Grid taken to ensure operational safety and reliability?

Response:

Yes. Currently, the Company does not allow advanced inverter systems to be installed because they fail to meet IEEE 1547's anti-islanding requirement.

The Company may consider allowing intentional islanding on these installations as part of the testing of the advanced inverters as long as it can do so safely and reliably without affecting other neighboring customers. The Company intends to use inverters that provide Low and High voltage ride-through (L/HVRT) and Low and High frequency voltage ride-through (L/HFRT) functionalities that effectively extend some of the current IEEE 1547 limits on frequency and voltage ride-though. Through the interconnection process described in the Company's response to Information Request AG 1-32, the Company will assure these installations will not affect operational safety and reliability.

Prepared by or under the supervision of: Jorge Valenzuela

Information Request AG 1-12

Request:

Refer to Exh. EHW-1, p. 14. Mr. White indicates there will be deferred distribution system upgrades. Please provide a detailed list of what distribution system upgrades are anticipated to be deferred, and the duration of the deferral. Also, provide a list of the location of each distribution system upgrade that will be deferred. Describe whether the solar generation will allow the deferral of any improvements that would be driven by the system winter peak.

Response:

In Exh. EHW-1, p. 14, Mr. White indicated that there may be deferred distributed system upgrades. As intended in this filing, the Company will consider some proposals with configurations designed to better match some of the feeders' summer peak conditions. Given that almost all of the investment in distribution improvements made by National Grid target summer peak conditions, National Grid expects that these installations will provide valuable information about their potential use for and impact on local load relief, and, consequently, whether they could be used for deferral of future investment and demand reduction during summer peak times. It is not expected that the solar generation will allow the deferral of much, if any, improvements that would be driven by the system winter peak.

As further stated in Exhibit EHW-1, p.14, the Company is not able to specify deferral benefits at this time. However, as the level of sustained peak load relief is measured and evaluated under this program; the Company would look to determine deferral opportunities in those areas where load growth exists over time, but not in areas where reliability or asset conditions are of concern.

Information Request AG 1-13

Request:

Refer to Exh. EHW-1, p. 14, where Mr. White discusses the deferral of distribution system upgrades. Is it National Grid's position that solar generation will allow for the company to have less capacity in its substations and on distribution lines, necessary to meet extreme winter or extreme summer peak demands, as a result of the utilization of distributed solar generation on its distribution circuits? Describe in detail how National Grid will mitigate cloud cover that may impact solar production, but does not impact summer or winter peaks, and the contingency plan for reliability, voltage support and capacity requirements on the distribution system will be in such an eventuality.

Response:

It is the Company's position that solar generation, when producing energy, may increase available capacity on the Company's distribution system at various times during the year. The Company would expect this increase in capacity could be optimized during the summer months by maximizing the output at or near peak loading conditions. The Company does not expect to see a measurable increase in capacity during the winter months as the output of solar projects does not coincide with the early morning or early evening peaks the Company experiences in the winter, and the peaks during the winter months are lower than the peaks during the summer months.

The results of the installation of solar generation at selected sites in different geographical areas will provide the Company with the opportunity to assess, with real data, solar's contribution to capacity relief during peak conditions, including the impact of cloud cover. The Company will not operate the proposed program in a way to detrimentally affect its obligations to serve its customers safely and reliably.

Information Request AG 1-14

Request:

Refer to Exh. EHW-1, p. 14, where Mr. White addresses the fact there will be a modification in panel orientation. Please describe in detail what is meant by modified panel orientation and how this orientation will benefit capacity over energy production. Please provide PV watts input and output for a sample installation of 1MW DC, installed on a select National Grid site, for two cases: 1) a solar array oriented to maximize energy production, and 2) a solar array with a modified panel orientation to benefit capacity over energy production.

Response:

Peak demand conditions on feeders vary depending on the type and pattern of consumption of the customers being served from the feeder. To better match peak demand conditions of a feeder, solar panels may be installed with a modified panel orientation that maximizes the coincidence of the capacity output of the solar array and usage on the feeder. This can be accomplished with either a fixed-panel tilt or azimuth heading, or by using a tracking system.

(1) For a solar array oriented to maximize the energy production, the solar array is oriented to face true south, which means the azimuth angle is set at 180 degrees where zero degrees refers to true north. Based on NREL PV Watts simulation model, a 1 MW dc solar array in Boston, Massachusetts with an azimuth of 180 degrees generates approximately 1,243,680 kWh ac per year. The detailed input and output of the 1 MW sample is illustrated in Attachment AG 1-14-1. Please refer to Attachment AG 1-14-1, case 1.

(2) For a solar array with a modified panel orientation to benefit capacity over energy production, the solar array is oriented away from true south, which means the azimuth angle is moved away from 180 degrees. For illustrative purposes for this case, the azimuth of the solar array is set at 225 degrees, which means the solar array is facing southwest rather than due south. Based on NREL PV Watts simulation model, a 1 MW dc solar array in Boston, Massachusetts with an azimuth of 225 degrees generates approximately 1,149,346 kWh ac per year. This is 7.6% less energy than the solar array that has an azimuth angle of 180 degrees. However, the capacity from this solar array is higher in the afternoon than the solar array that has an azimuth angle of 180 degrees. The detailed input and output of the 1 MW sample is illustrated in Attachment AG 1-14-1. Please refer to Attachment AG 1-14-1, case 2.

The illustrative capacity output of the two cases for a day in a month over an entire year is shown in Attachment AG 1-14-2. This illustrative capacity output was generated by the NREL PV Watt simulation model.

Case 1: Solar Array orineted to maximize energy production

Input Data: Maximize Energy Output

"Station Identification"
"City:","Boston"
"State:","Massachusetts"
"Lat (deg N):", 42.37
"Long (deg W):", 71.03
"Elev (m): ", 5
"PV System Specifications"
"DC Rating:","1000.0 kW"
"DC to AC Derate Factor:"," 0.770"
"AC Rating:"," 770.0 kW"
"Array Type: Fixed Tilt"
"Array Tilt:"," 42.4"
"Array Azimuth:","180.0"

Output Data: Maximize Energy Output

	AC Energy (kWh)
Month	**from 1MW**
1	
2	98004
3	114805
4	111403
5	119033
6	112682
7	120227
8	122071
9	110201
10	107035
11	72354
12	72282
Year	1243680

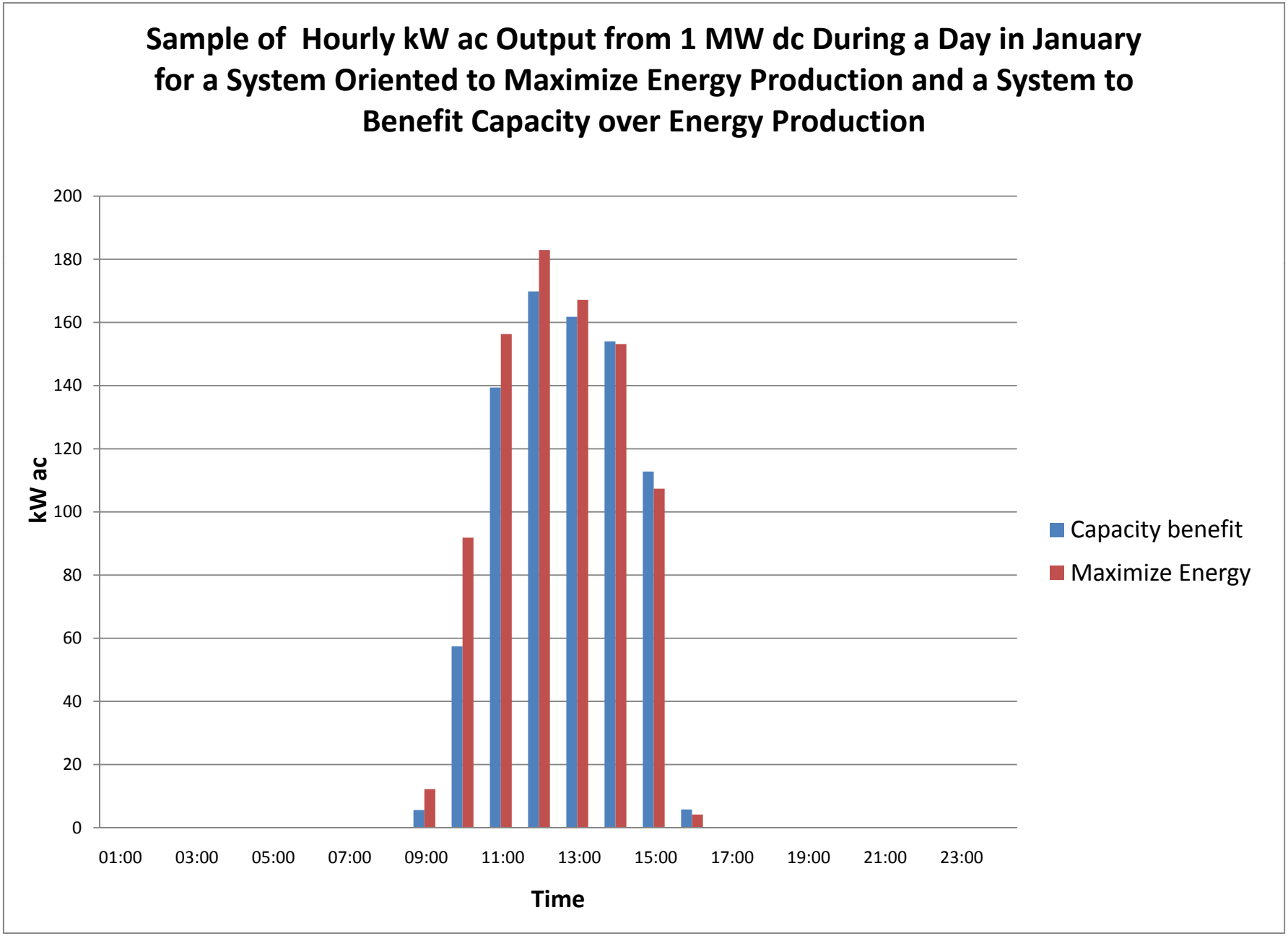
Case 2: Solar Array with modified panel orintation to benefit capacity over energy production

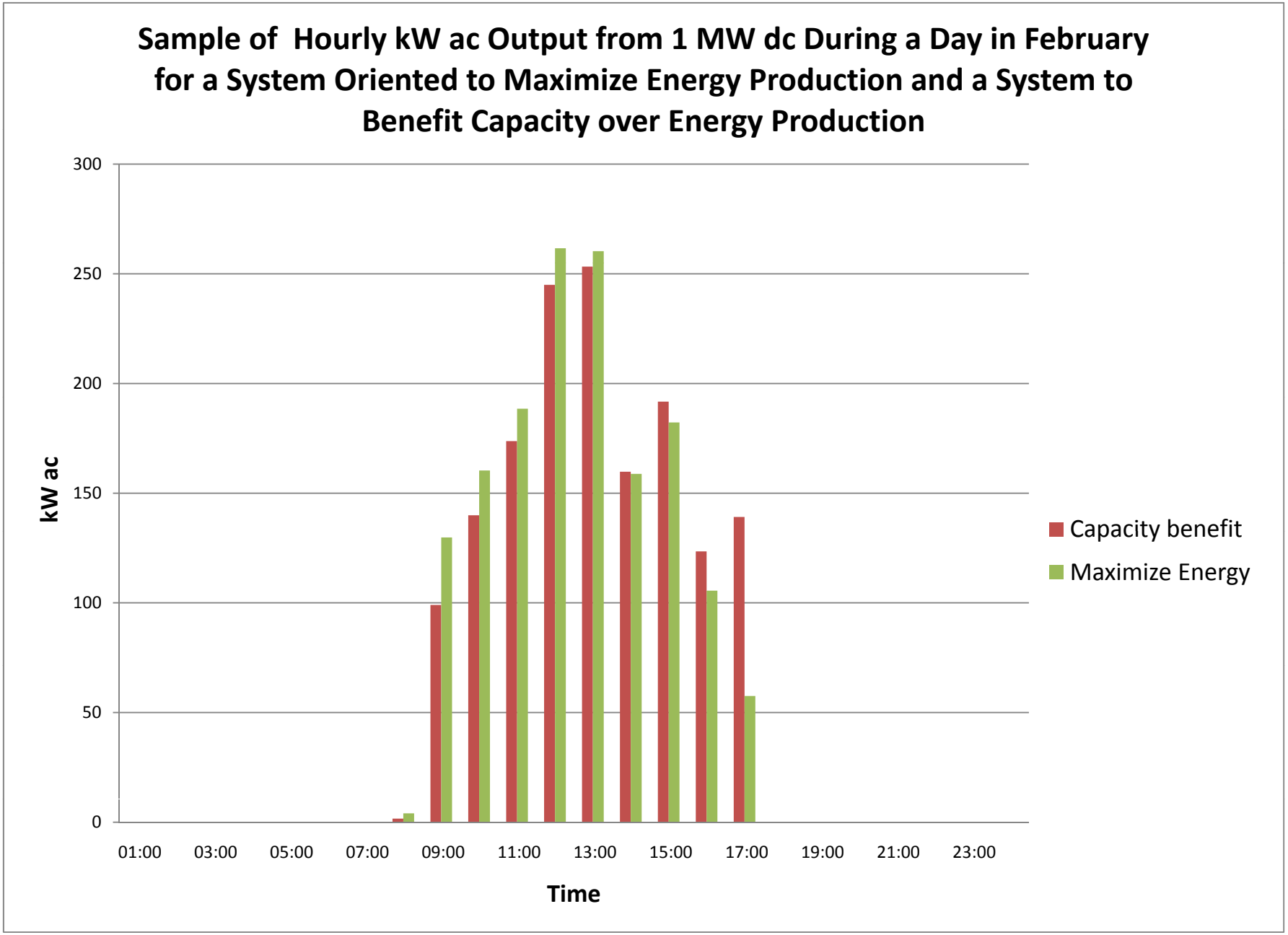
Input Data: Maximize Capacity Output

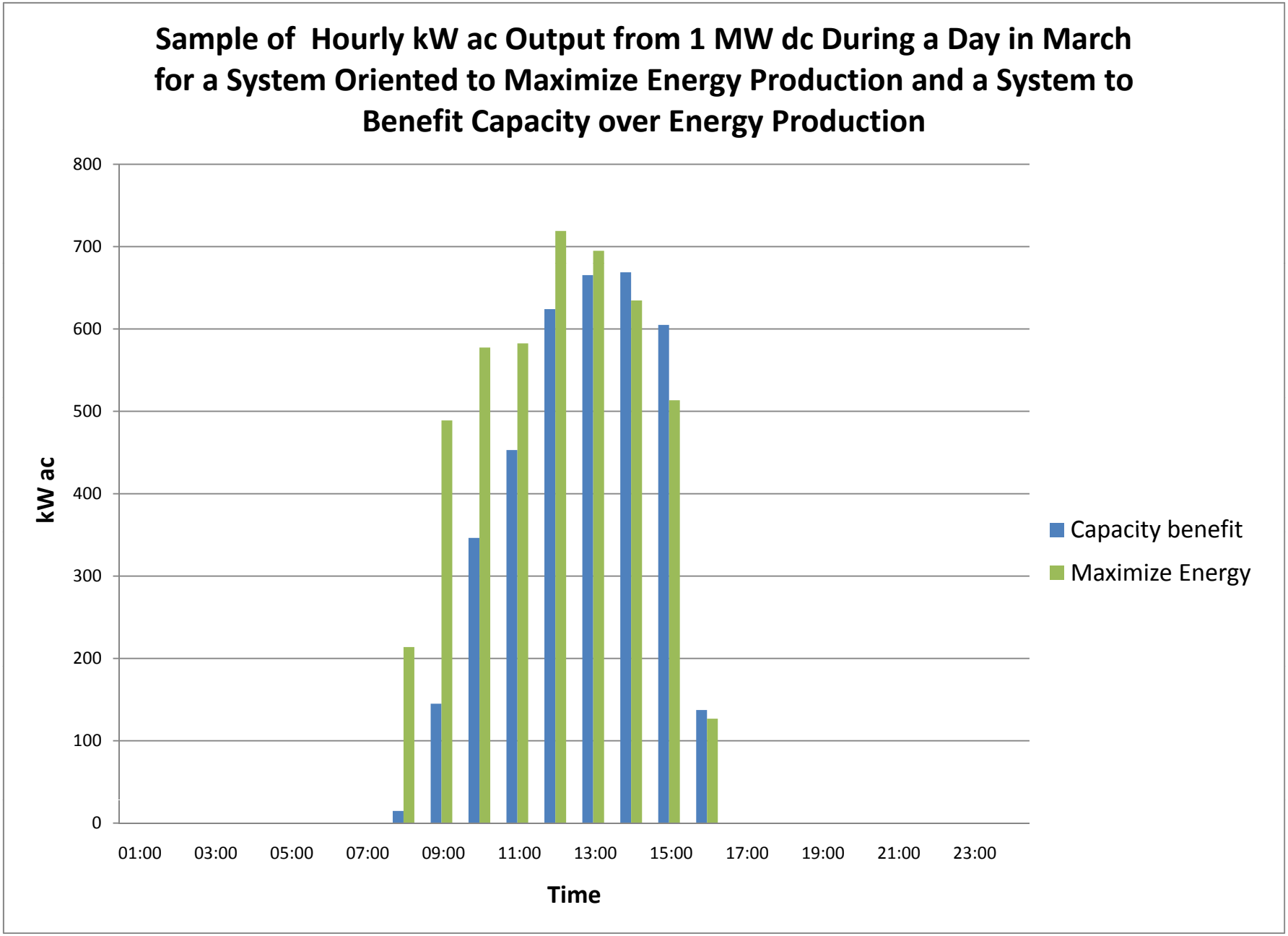
"Station Identification"
"City:","Boston"
"State:","Massachusetts"
"Lat (deg N):", 42.37
"Long (deg W):", 71.03
"Elev (m): ", 5
"PV System Specifications"
"DC Rating:","1000.0 kW"
"DC to AC Derate Factor:"," 0.770"
"AC Rating:"," 770.0 kW"
"Array Type: Fixed Tilt"
"Array Tilt:"," 42.4"
"Array Azimuth:","225.0"

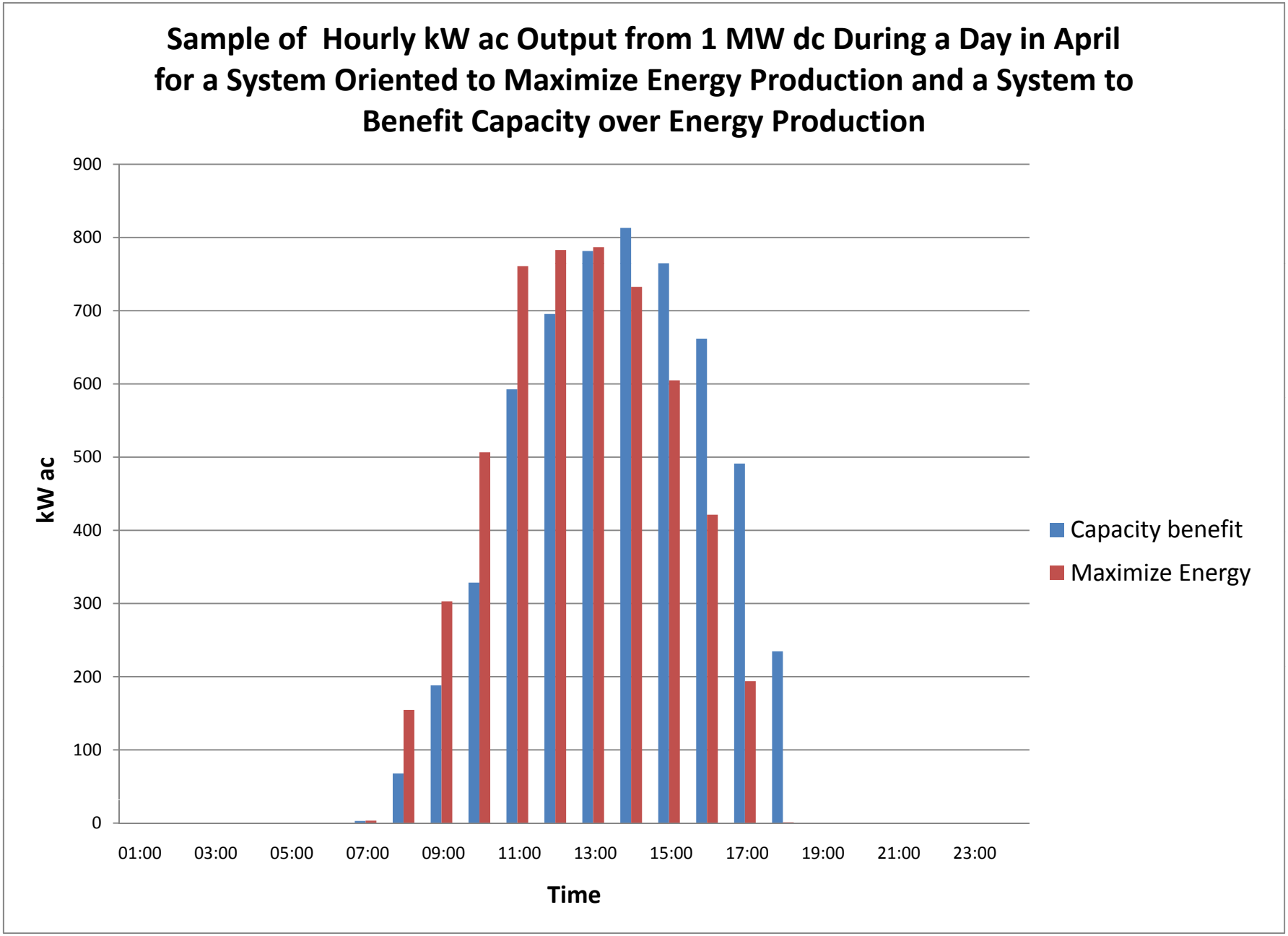
Output Data: Maximize Capacity Output

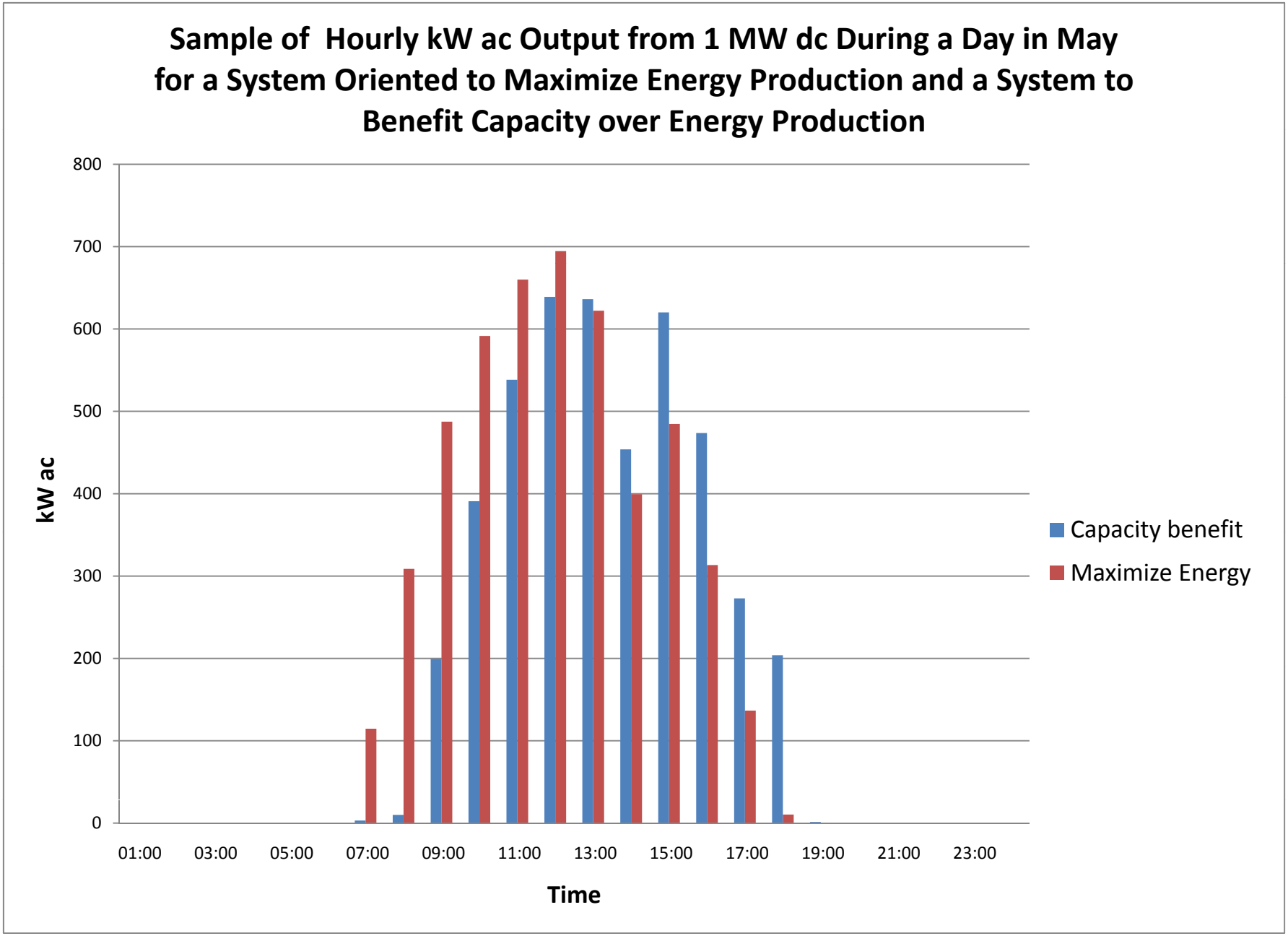
	AC Energy (kWh)
Month	**from 1MW**
1	68370
2	85233
3	102894
4	106083
5	115505
6	113068
7	116413
8	117201
9	98836
10	92611
11	60850
12	72282
Year	1149346

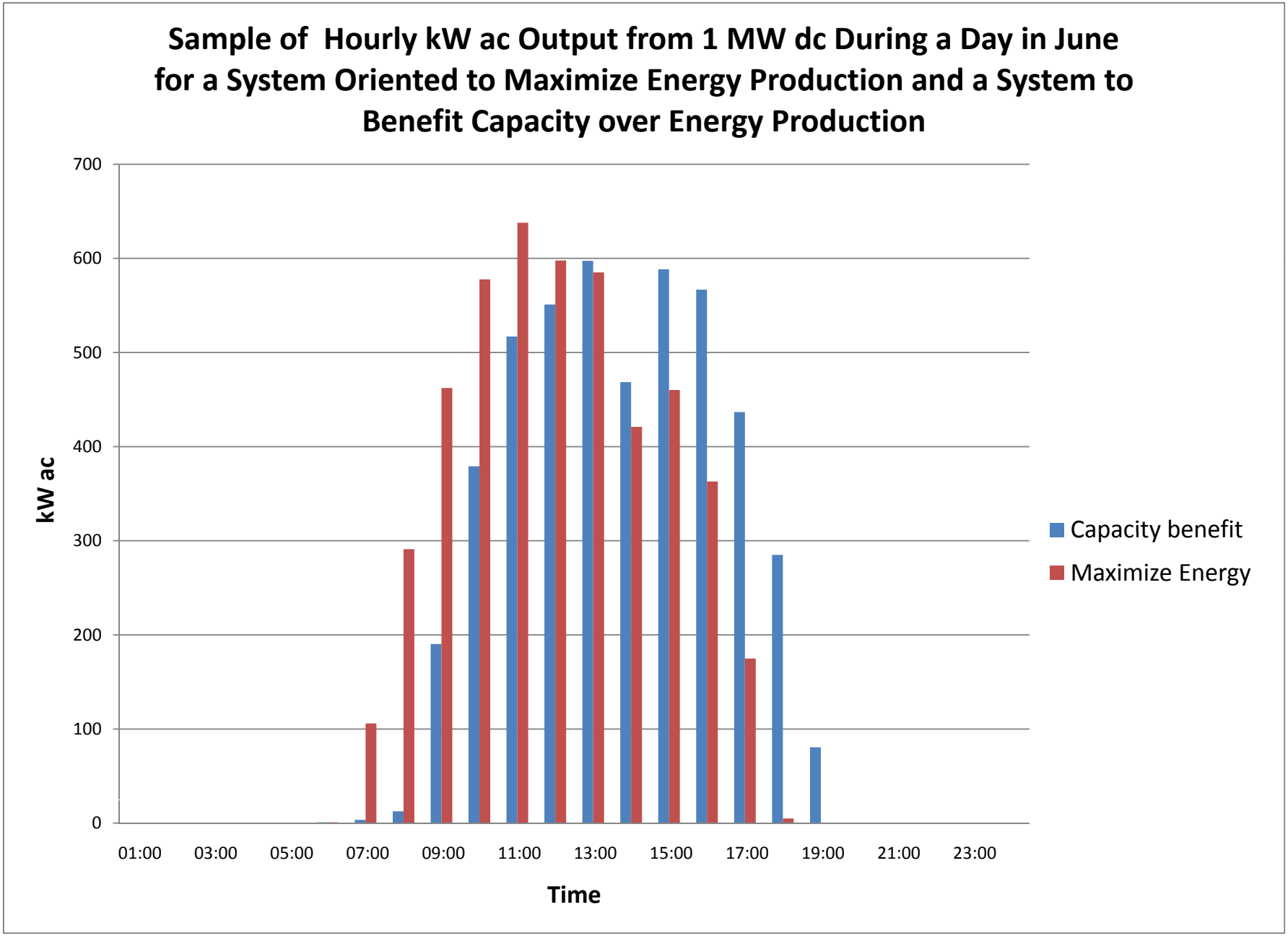

Sample of Hourly kW ac Output from 1 MW dc During a Day in January for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
200
180
160
140
120
100
80
60
40
20
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

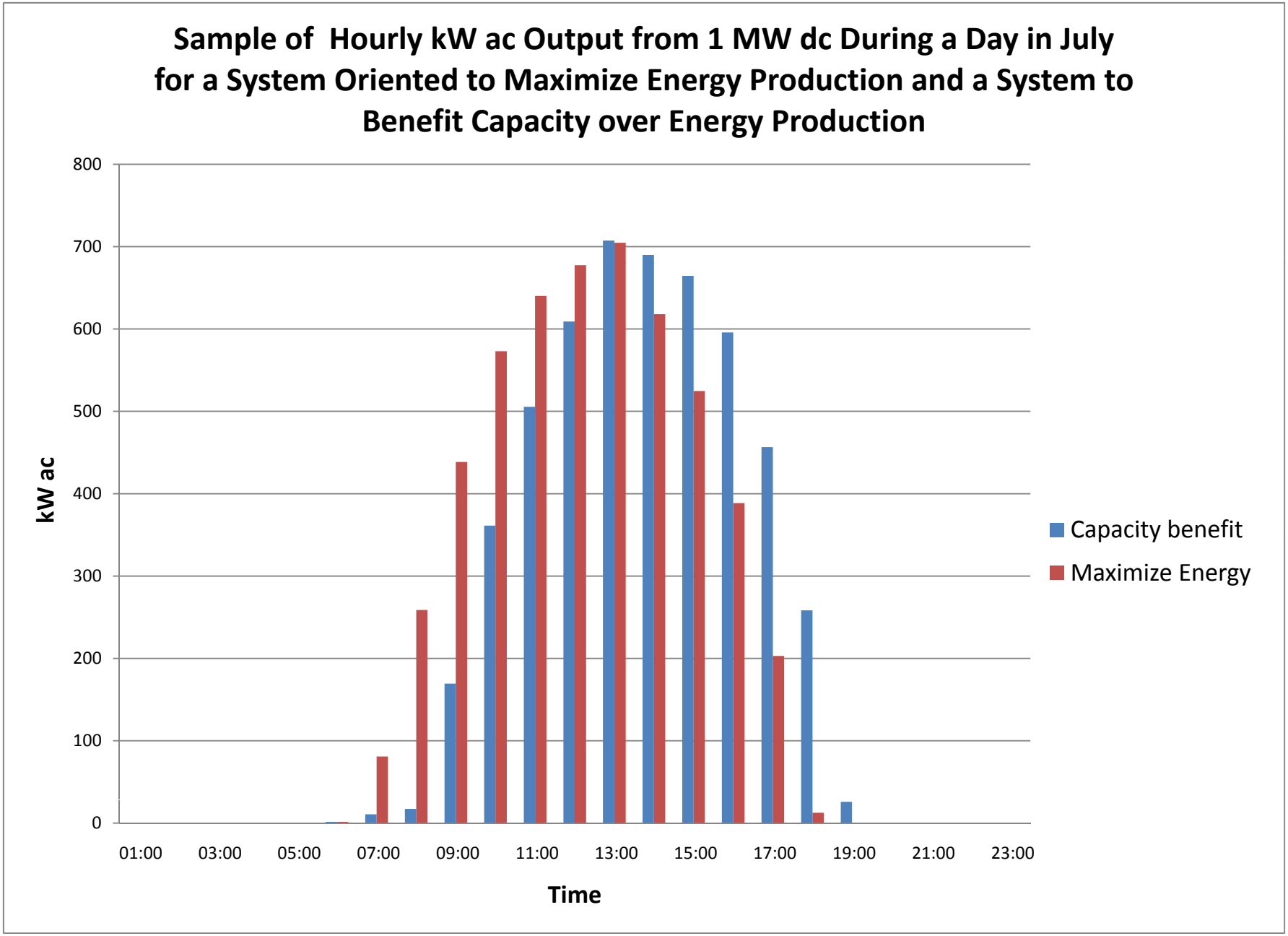

Sample of Hourly kW ac Output from 1 MW dc During a Day in February for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
300
250
200
150
100
50
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

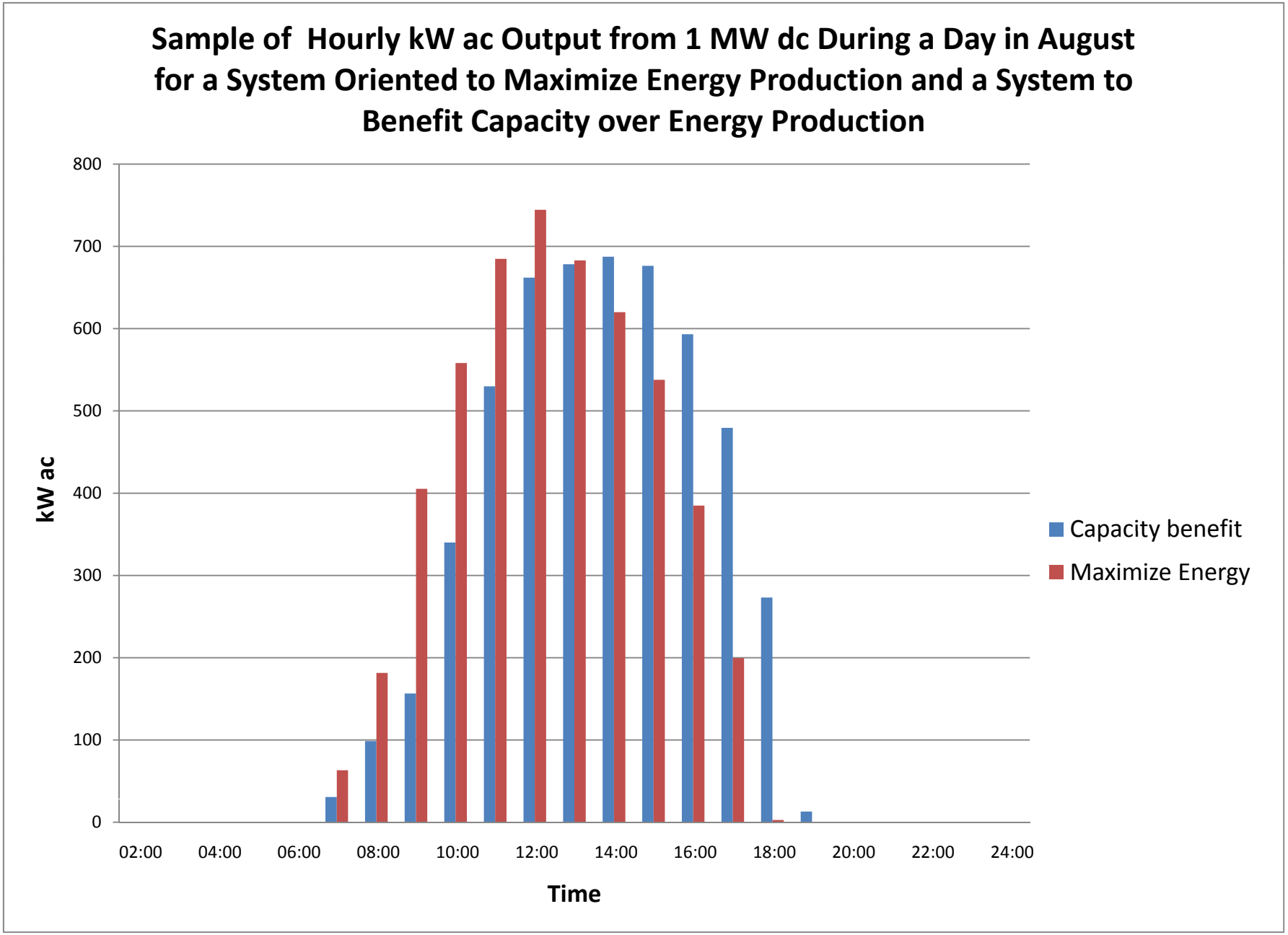

Sample of Hourly kW ac Output from 1 MW dc During a Day in March for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
800
700
600
500
400
300
200
100
0
kW ac
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

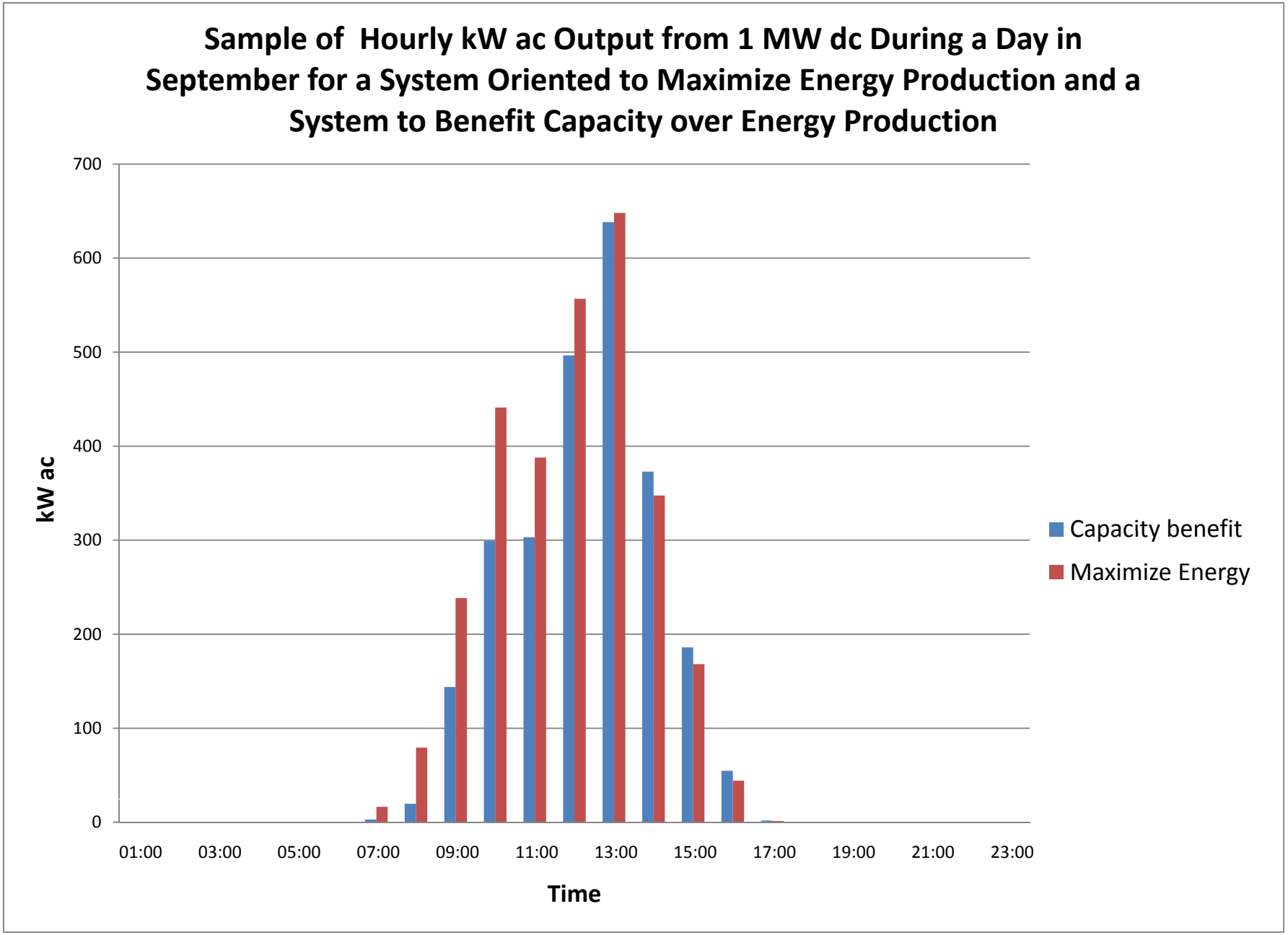

Sample of Hourly kW ac Output from 1 MW dc During a Day in April for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
900
800
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

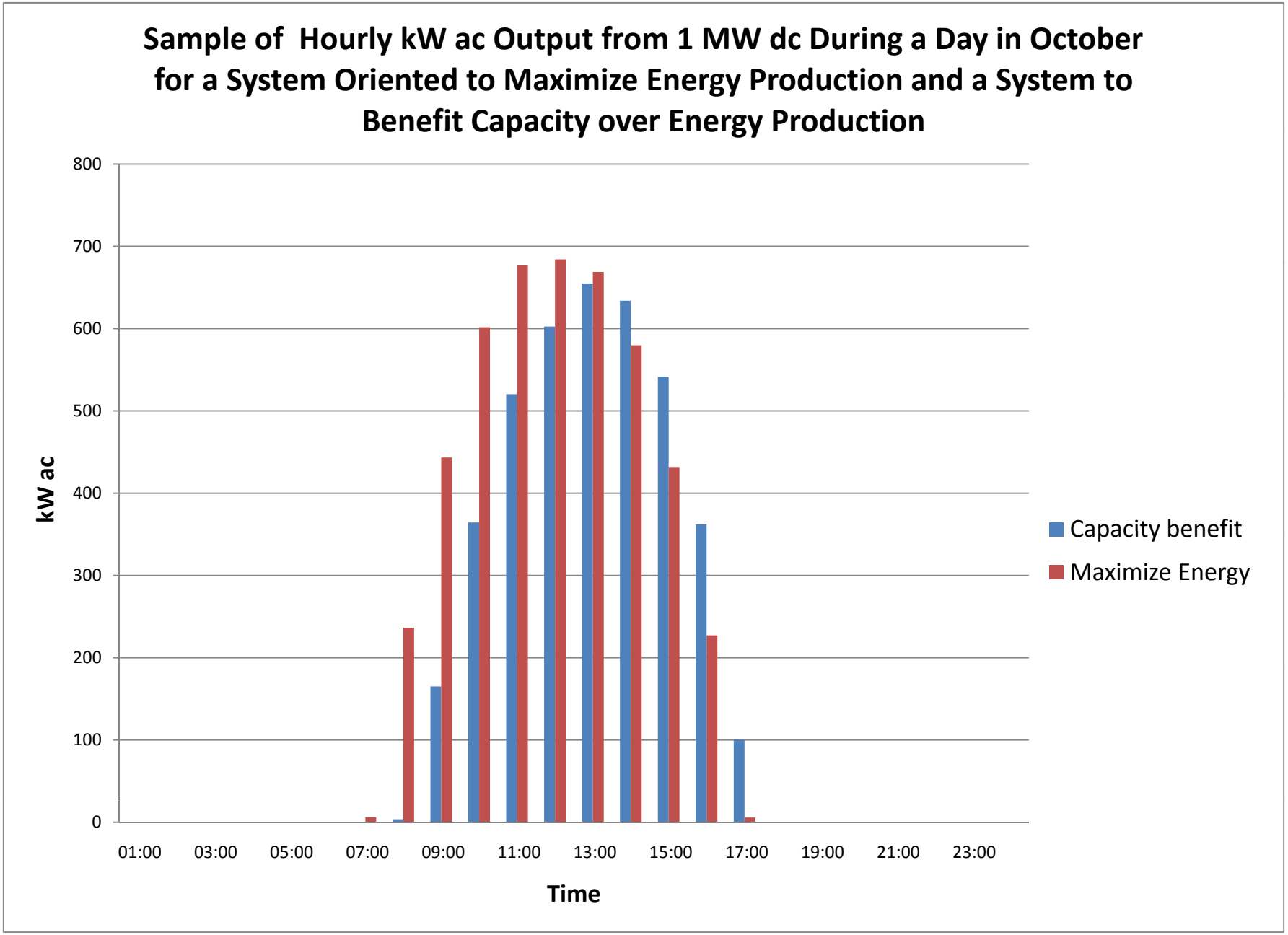

Sample of Hourly kW ac Output from 1 MW dc During a Day in May for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
800
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

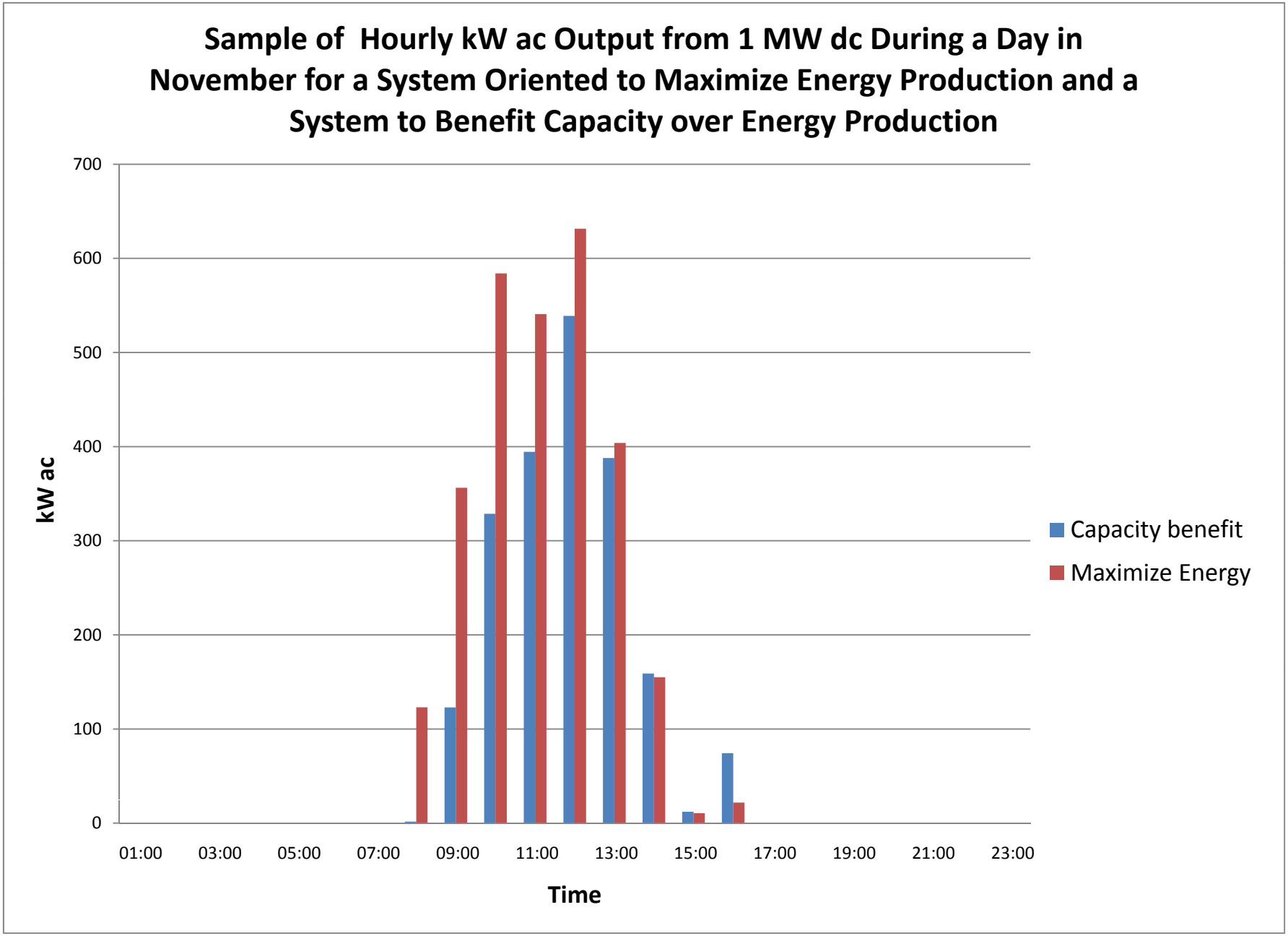

Sample of Hourly kW ac Output from 1 MW dc During a Day in June for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

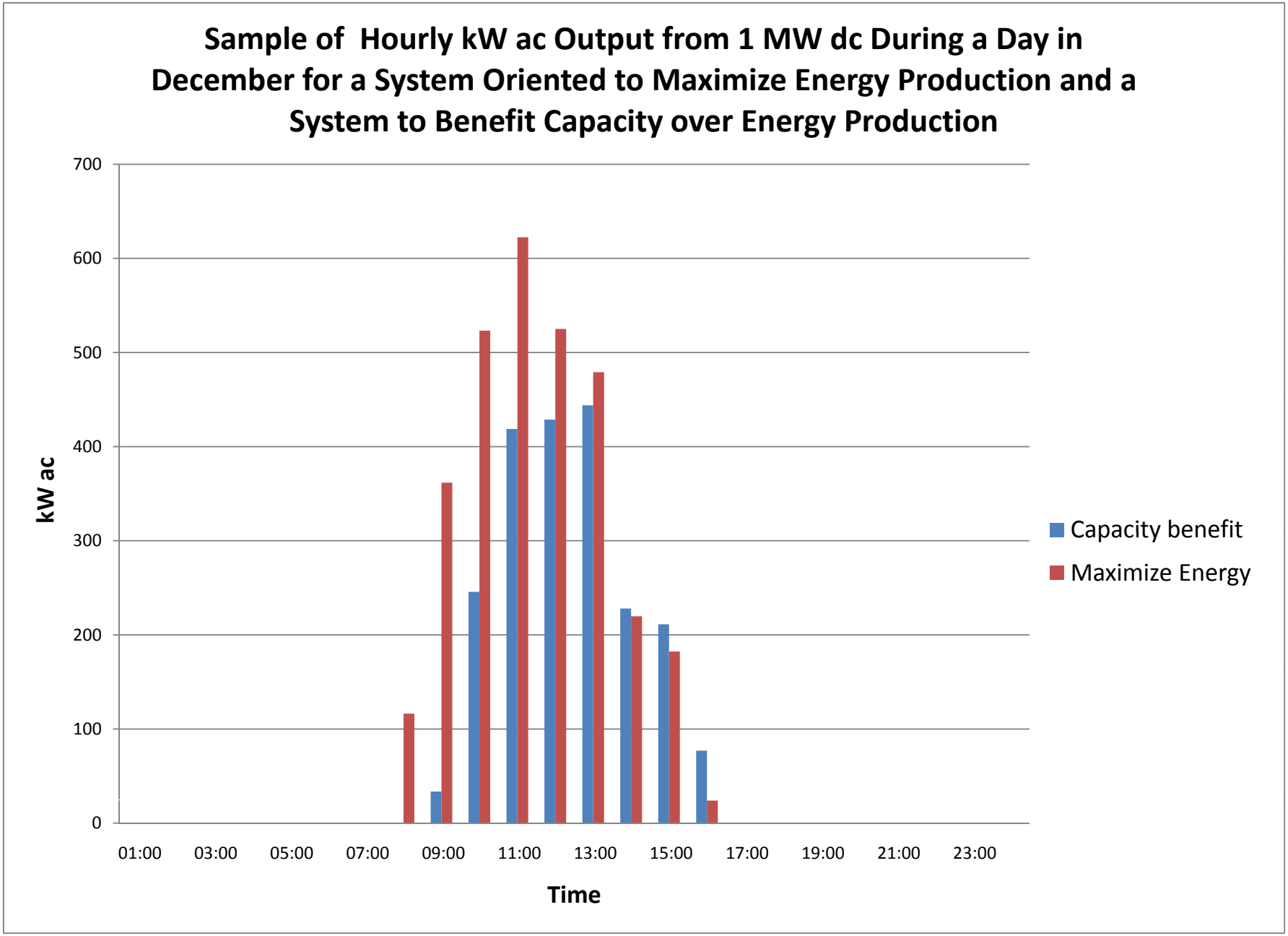

Sample of Hourly kW ac Output from 1 MW dc During a Day in July for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
800
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy


Sample of Hourly kW ac Output from 1 MW dc During a Day in August for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
800
700
600
500
400
300
200
100
0
02:00
04:00
06:00
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
Time
Capacity benefit
Maximize Energy


Sample of Hourly kW ac Output from 1 MW dc During a Day in September for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy


Sample of Hourly kW ac Output from 1 MW dc During a Day in October for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
800
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy


Sample of Hourly kW ac Output from 1 MW dc During a Day in November for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy


Sample of Hourly kW ac Output from 1 MW dc During a Day in December for a System Oriented to Maximize Energy Production and a System to Benefit Capacity over Energy Production
kW ac
700
600
500
400
300
200
100
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00
Time
Capacity benefit
Maximize Energy

Information Request AG 1-15

Request:

Refer to Exh. EHW-1, p. 15. Mr. White states that the Company's Solar Phase II program will make it easier for load-serving entities (LSEs) in the Commonwealth to meet RPS requirements set forth in the Massachusetts General Laws, Chapter 25A, Section 11F. For a 20-year period, beginning with January 2015, please provide:

a) the Commonwealth's annual total solar RPS requirements (MWh),
b) the Company's proportionate requirement (MWh),
c) the annual number of SRECs expected to be produced by facilities installed through the Company's proposed Solar Program Phase II,
d) the annual number of SRECs that would be produced if the Solar Phase II facilities were installed to maximize energy rather than capacity, and
e) the net SRECs remaining for LSEs to meet their RPS obligations (in both cases).
f) Can the Company make any representations or assurances that other LSEs will utilize excess RECs produced by the Company?

Response:

(a) The future requirements of the solar RPS are not known beyond 2014 (for the SREC I program) and beyond 2015 (for the SREC II program in its current draft form) because the solar RPS requirements are calculated annually using formulas that require actual and estimated production of SRECs and actual loads. Once the final size of the SREC I program is determined, the amount available to SREC II projects will be known. It is also not known what the average SREC factor (i.e., the proportion of output eligible for SREC creation as proposed by DOER) will be for SREC II. The Company notes that the Commonwealth's solar RPS requirements (SREC I and SREC II programs) are a carve-out of the MA RPS Class I requirements which are 9% in 2014, 10% in 2015, and increasing 1% per year up to 15% in 2020 (and increasing 1% per year thereafter unless modified by law). The total gross (non-factored) output of the 1,600 MW of solar at the conclusion of the two programs, projected to be installed by 2020, would be approximately 1,851,500MWh per the DOER's capacity factor assumption, which is slightly less than 4% of the total current load subject to the RPS.

(b) The Company's proportionate requirement of this annual total solar RPS requirement would be a function of the Company's Basic Service load, or those customers remaining with the Company for commodity supply. Please see the response to part (a) regarding future requirements.

Prepared by or under the supervision of: Margaret M. Janzen and Fouad E. Dagher

(c) The annual number of SRECs expected to be produced by facilities installed through the Company's proposed Solar Program Phase II would be approximately 23,000 SRECs, assuming the entire 20 MW is installed to maximize capacity, which in reality will not be the case for all of the projects. This estimate also assumes an SREC factor of 1.0 for all projects in this phase, since it is not known at this point in what SREC II categories the project proposals will qualify.

(d) The annual number of SRECs that would be produced if all of the 20 MW of Solar Phase II facilities were installed to maximize energy rather than capacity would be approximately 24,900 SRECs, which is approximately 8% different from the value given in part (c).

(e) The Company would note that the future requirements of the solar RPS are not yet published for the period beyond 2014, so it would not be able to calculate the net SRECs remaining for LSEs to meeting their RPS obligations in both cases (c) and (d) above. In addition, the output of the arrays proposed in the Company's filing would be a small proportion of the expected total requirement (output from 20 MW out of a total goal of 1,600 MW), and would most likely all be used internally by National Grid for its compliance with the RPS. If not needed for that compliance, the SRECs would be sold in the market to other LSEs, as proposed.

(f) No, the Company cannot make any representations or assurances that other LSEs will utilize excess RECs produced by the Company. The Company would simply point out that any excess RECs produced by the Company would help increase the amount of supply in the market, thus helping to meet the demand of the RPS requirements for other LSEs. Also, the full output from facilities qualified for SREC I and SREC II programs can be used to comply with MA RPS Class I requirements once the SREC programs end, which will further add to supply and help meet the Commonwealth's RPS goals.

Information Request AG 1-16

Request:

Refer to Exh. EHW-1, p. 16. Provide a detailed cost breakdown of all the components in the cost estimate that make up the $84.86 million dollar cost estimate.

Response:

The Company is estimating costs in the range of $72.1 million to $97.6 million, with a mid-point of $84.9 million, for its proposal for ownership of 20 MW of additional solar facilities. The mid-point of $84.9 million consists of approximately: (1) $71.8 million for the development of turn-key solar generation facilities; (2) $1.1 million for project management; (3) $0.9 million for the commissioning of the solar generation facilities; and (4) $11.1 million for the Company's capital overhead allocations. In January 2014, the Company issued an RFP to developers soliciting bids to develop turnkey solar generation systems in the pre-selected geographical areas.

The $71.8 million is the mid-point of the estimated cost to develop (by the potential developers) turn-key solar generation systems in three categories of PV installations. The first category is systems that range between 60 and 200 kW, the second category is for systems between 201 and 500 kW, and the third category is for systems between 501 and 1,000 kW. Included in the estimated $71.8 million of developers' costs are the cost of completing/securing the following: site location; site preparation; applicable permits; detailed designs; site mobilization; site grading/clearing; ground or roof structure installation; photovoltaic ("PV") panel purchase; PV panels installation; inverter purchase; inverter installation; wiring of PV panels, inverters and other equipment; data acquisition system purchase and installation; purchase and installation of communication and metering equipment; O&M manual/as-built drawings; fencing/security; interconnection with the host utility; interconnection permits and signed-off construction permits; plans for acceptance tests; and the demonstration of successful operation of all the components and functionalities of the system.

Because the Company has not yet received responses to the RFP, the Company relied on publicly available development costs of turnkey systems installed in Massachusetts in order to estimate the total cost of the proposed Solar Phase II program.

Information Request AG 1-17

Request:

Refer to Exh. FED-1 (Corrected), p. 5. What requirements and inspection processes has National Grid instituted for rooftop systems to mitigate risks with excess physical loading, roof damage, and fire hazards?

Response:

The Company is seeking proposals from experienced developers. The developers will be responsible for performing structural reviews and building systems in compliance with all local, state and federal codes. Additionally, selected projects will require a Massachusetts licensed and registered professional engineer to review, approve, and sign off on all designs, calculations, estimates, and drawings. The developers will be required to document and present to the Company engineering plans, analysis, and calculations stamped and approved for construction by a Massachusetts licensed and registered professional engineer. The Company, at its discretion, may hire a third-party engineering firm to review and verify all submittals.

Information Request AG 1-18

Request:

Refer to Exh. FED-1 (Corrected), pp. 6-8, where Mr. Dagher outlines customer benefits. Provide what will be the specific electric system operating benefits, and describe in detail what specific load relief to customer benefits will be associated with the proposed solar generation installation and modification in operation.

Response:

The installation of up to 20 MW of solar generation with advanced inverter technology should help the Company evaluate and better understand the economic and operational benefits of expanded Company-owned solar in targeted areas on its distribution system.

As a result of this implementation, the Company expects to see similar operating benefits as the benefits described in detail in the "Recommendations for Updating I-DER Technical Requirements in Rule 21" from the California Energy Commission posted on December 4, 2013 (accessible online at: http://www.energy.ca.gov/electricity_analysis/rule21/documents/recommendations_and_test_plan_documents/CPUC_Rule_21_Recommendations_v7.docx).

The expected operational and customer benefits of using advanced inverters over conventional ones in the selected areas include:

- Improved local voltage and power factor due to the inverter's regulation and control capabilities (increasing distribution system efficiency);

- A reduction of power quality problems due to solar variation. By including Ramp Rate control capabilities, the installations would be able to limit the impact that sudden variation of power production (for example, such as variations due to passing clouds) could have in the area of the distribution system where they are operating;

- Support to the Bulk Power System during disturbances. By incorporating Low Voltage and Low frequency ride-through capabilities, the installations would be able to support the Bulk Power System during large disturbances, reducing the probability of a widespread blackout.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-19

Request:

Refer to Exh. FED-1 (Corrected), pp. 6-7. Provide a description of the specific manner of orienting for kW output load relief as opposed to the previous practice of energy production, precisely how that will be accomplished, and whether any type of firming capacity or batteries will be incorporated. Also provide an estimate of the power line loss reduction expected.

Response:

As part of the activities of the proposed Solar Phase II Program, the Company intends to consider proposals for locations where there may be potential contribution to capacity relief.

Peak conditions on feeders vary depending on the type and pattern of consumption of the customers being served from the feeder. To better match peak conditions of a feeder, solar panels may be installed with an orientation that maximizes the coincidence of the output of the solar array and usage on the feeder. This can be accomplished with either a fixed-panel tilt and azimuth heading, or by using a tracking system.

The Company has not included specific provisions for firming capacity or battery storage requirements as part of the proposed Solar Phase II Program. However, some developers may consider including energy storage as an option in their proposals. Such options will be evaluated on a case by case basis. Firming capacity, or other generation sources needed due to the intermittent nature of solar generation, is the responsibility of ISO-NE at the bulk power level.

As losses on power lines depend on the location of generation, the lines themselves, and their corresponding loading levels, the Company cannot make an assessment of power line loss reduction until specific locations have been identified and studied.

Information Request AG 1-20

Request:

Refer to Exh. FED-1 (Corrected), p. 7, where there is some discussion of advanced technology inverters being applied, and that there will be greater penetration and voltage control. Provide a detailed description of what is meantby greater penetration and describe how the inverters will achieve voltage control. Furthermore, describe in detail how the advanced technology inverter will allow for focusing the control on kW demand output in lieu of the customary PV project energy production.

Response:

Greater penetration of solar projects using advanced inverter technology refers to the Company accommodating more solar capacity with advanced inverters on certain feeders as compared to installations using conventional inverters.

The voltage control functionality is achieved by regulating the flow of reactive power supplied by the inverter in order to mitigate voltage regulation issues caused by large power flow changes due to the systems tripping off or changes in cloud cover.

The advanced functionalities of the inverter include the possibility of controlling active and reactive power production of the solar installation. Specifically, active power control functionality provides the ability to limit active power production from the inverter. This may or may not result in a reduction of energy production. The test results will inform the Company as to the effect on energy production.

Prepared by or under the supervision of: Jorge Valenzuela

Information Request AG 1-21

Request:

Refer to Exh. FED-1 (Corrected), pp. 8-9. Mr. Dagher states that the Company is concerned if DG Systems are installed, then adverse outcomes may occur and substantial distribution upgrades may be required. Please explain the Interconnection Requirements of National Grid and the Impact Study process used to insure these issues will not impact the ratepayers.

Response:

Pursuant to the Company's Standards for Interconnection of Distributed Generation tariff ("Interconnection Tariff"), M.D.P.U. No. 1219, an integral part of providing interconnection services to the Company's customers includes conducting a study of a customer's proposed interconnection to determine the impact of the proposed project on the distribution system. This can either be done through a series of screens for smaller projects (see section 3.3 Expedited Process), or through an impact study for larger projects (see section 3.4 Standard Process).

Once a study is complete, the customer is required to adhere to the outcomes, and a witness (or commissioning) test is undertaken to prove the customer has complied with the outcomes of the study. Only upon successful completion of a witness test is the customer allowed to operate in parallel with the Company's distribution system. The costs of upgrades to the distribution system to mitigate issues caused by the addition of solar PV at a specific location are borne by the customer proposing the interconnection pursuant to the Interconnection Tariff.

Information Request AG 1-22

Request:

Refer to Exh. FED-1 (Corrected), pp. 9-12, where there is additional discussion of the advanced technology inverters. How will these inverters, and the modification to focusing on kW demand production in lieu of energy production, impact bulk electric system instability, if this becomes the targeted method of operation by National Grid, thus having solar more focused on peak demand reduction versus long period energy production? The answer should focus on specifically how, if there is significantly more demand production focus by the solar projects, presumably creating greater reduction in generation capacity delivery from base and intermediate and peaking plants, and, if the weather or other conditions bring substantially more solar capacity offline, will the instability of such a situation be dealt with in the bulk electric system by National Grid? Additionally, describe how this situation is being evaluated in light of the requested modified focus and substantially greater cost for solar generation installation under Docket 14-01.

Response:

The Company's proposal and the resulting evaluation are intended to address the concerns expressed in the question above. The Company expects to gain a better understating of the impact that a widespread adoption of smart inverters will have in the operation and stability of the system. Given the overall size of the Company's proposal and the sparse nature of the geographical locations to be covered in this filing, the Company does not expect an impact to the stability of the bulk electric system resulting from its proposal. The Company is a party to the ISO-NE DG Forecasting Working Group which is working on these issues.

The Company acknowledges that the requested modified focus under the Company's proposal could maximize the kW production at certain locations which could lead to energy reduction. However, the Company proposes to evaluate the potential benefits, costs, and risks from such an approach to determine if the potential capacity benefits exceed the cost to provide the capacity while not creating any harmful risks to stability if widespread adoption of advanced inverters were to occur.

The costs in the proposal are estimates. After bidders are selected and projects installed, the Company will have a better understanding of the costs of the program.

Prepared by or under the supervision of: Jorge Valenzuela

Information Request AG 1-23

Request:

Refer to Exh. FED-1 (Corrected), p. 12. Mr. Dagher discusses designing a series of tests to be done at each project location. Has National Grid developed protocol for these tests? If so, provide a copy of this protocol.

Response:

The Company is currently developing the procedures to test the effectiveness of the different advanced functionalities and will determine the final tests applicable to the various sites only after the locations have been selected.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-24

Request:

Refer to Exh. FED-1 (Corrected), pp. 13-14. Mr. Dagher discusses targeting specific geographic locations. Please provide a map of these locations, the land availability and rooftop availability of each of the specific targeted geographical locations.

Response:

Please see the Company's response to Information Request DPU 1-3.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-25

Request:

Refer to Exh. FED-1 (Corrected), pp. 13-14. Mr. Dagher discusses the fact that solar does not match the regular load profile of a typical electric distribution circuit. Please describe how National Grid plans on providing firming for the solar, and enhancing the matching of the solar projects to the load profile to optimize the kW production.

Response:

Please see the Company's responses to Information Requests AG 1-8 and AG 1-19.

Information Request AG 1-26

Request:

Refer to Exh. FED-1 (Corrected), pp. 14-16. Mr. Dagher provides discussions concerning geographical location criteria. Regarding the circuit parameters, one of the parameters is that it will be for circuits that have load above 9 megawatts, and then he also states that it will focus on circuits expected to have peak load below 4 megawatts. Please reconcile these two statements. Additionally, a parameter indicates that it will be circuits with low levels of PB, then he also includes circuits that have high levels of PB above 5 megawatts. Please reconcile this apparent inconsistency. Additionally, in your explanation, please indicate which of the parameters will actually control the decision for the new installations.

Response:

The Company selected locations having feeders with different levels of loading. As described in the response to Information Request DPU 1-8, feeders with more than 9 MW of load (considered heavily loaded) or feeders with a low level of PV penetration (comparatively) were selected for "the minimum impact and load relief" portion of the program. At the same time, feeders with peak load below 4 MW or feeders with more than 5 MW of solar generation were selected for the "R&D" portion of filing. The parameters are mutually exclusive, meaning that they all do not have to exist on a feeder in order to select the feeder for the program.

The parameters used to select the potential areas are described in detail in the Company's response to Information Request DPU 1-8.

Prepared by or under the supervision of: Jorge Valenzuela

Information Request AG 1-27

Request:

Refer to Exh. FED-1 (Corrected), pp. 14-15. Mr. Dagher discusses the parameters for power transformers. Is it National Grid's position that it is willing to sacrifice power transformer loss of life, if, in a peak period, the distributed solar generation is not capable of producing the required capacity output, or any capacity output, during a peak condition and during a contingency overload condition?

Response:

No. The Company's proposal is intended to provide the Company with the opportunity to better understand whether solar installations of the nature proposed can provide reliable reduction of loading during peak conditions.

Prepared by or under the supervision of: Jorge Valenzuela

Information Request AG 1-28

Request:

Refer to Exh. FED-1 (Corrected), p. 15. Mr. Dagher states that existing PV located to match overloaded transformer in areas of high level PV were discarded. This statement seems to conflict with the parameters outlined on pages 14-15 of his testimony. Please reconcile these two positions.

Response:

For the capacity relief portion of its proposed program, the Company selected heavily-loaded areas, which include areas with heavily-loaded transformers. The Company selected areas without high levels of solar PV penetration in order to allow it to control the operation of the solar installations so that it could better evaluate how various operating characteristics would impact the level of load relief that could result. By including high solar PV penetration areas, the Company would be at risk of the operation of existing solar facilities not in the Company's control impacting the observation and evaluation of capacity relief in those areas.

Information Request AG 1-29

Request:

Refer to Exh. FED-1 (Corrected), pp. 17-20. Mr. Dagher discusses the RFP process and scheduling. Provide a detailed explanation as to how the RFP, which appears to impose 100% of the responsibilities for siting, design, construction and commissioning on the successful proposer, can, in fact, result in 20 megawatts of PV being online in one year from the date of issuance of a contract. Also, describe what National Grid believes is the likelihood of having all 20 megawatts installed within the one year. Additionally, provide a list of risks that have been considered that would adversely impact the likelihood that all 20 megawatts would be installed and operational within the year.

Response:

The Company specified in the RFP that developers should only propose systems that can be completed within one year. The Company requested proposals for less than 1 MW to facilitate the installation within the timeline.

Verbal discussion with developers indicated that the one-year timeframe is feasible. In addition, the Company will only select bids from developers who believe they can deliver projects within the defined timeline. The Company would only select as many projects that can be delivered within the given timeline even if it means that the Company does not fill the 20 MW cap.

The Company reviewed potential risks that could adversely impact the proposal and used them to build the evaluation criteria for the project. For example, the Company will evaluate a bidder's ability to fund the engineering, procurement, and construction of any projects included in its bid to help mitigate risk that not all 20 MW would be installed. For the list of evaluation criteria, please see the Company's response to Information Request DPU 1-11.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-30

Request:

Refer to Exh. FED-1 (Corrected), p. 20. Is it National Grid's intention to award solar generation contracts to more than one vendor in order to meet the one year schedule?

Response:

Yes. Please refer to the Company's response to Information Request DPU 1-24 (c).

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-31

Request:

Refer to Exh. FED-1 (Corrected), p. 20. Has the RFP been issued? If the RFP has been issued, provide a copy of the RFP.

Response:

Yes, the RFP was issued in January 2014. Please refer to Attachment DPU 1-10 for a copy of the RFP.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-32

Request:

Refer to Exh. FED-1 (Corrected), p. 21. Mr. Dagher indicates that the interconnection will be per Tariff M.D.P.U. 1219. Provide a copy of this Tariff. Please provide the total number of projects currently in the interconnection queue and the average or typical time to complete the interconnection process for a project. Also, for the categories below, please provide the total number of projects currently in the interconnection queue and indicate the average or typical time required to interconnect a correspondingly sized project. Please provide a range of typical interconnection times to include projects that do not require system upgrades and projects that do require significant system upgrades such as an express feeder.

a. Up to 200 KW
b. Up to 500 KW
c. Up 1000 KW

Response:

The Company's currently effective tariff entitled Standards for Interconnection of Distributed Generation, M.P.D.U. No. 1219 ("Interconnection Tariff"), is provided at Attachment AG-1-32. The number of active projects currently in queue is:

a) Up to 200 kWs – 93
b) 201 to 500 kWs – 57
c) 501- 1,000 kWs – 81

The Interconnection Tariff provides for the study timelines allowed for various projects and the Company adheres to these timelines. Construction is dependent on the customer executing an interconnection service agreement, thereby agreeing to move forward with the project. The customer has the option for extensions of time for a project's interconnection with the Company's system, therefore, the total time for interconnection may vary widely based on customer decisions. In addition, there are many cases where the study needed for interconnection is delayed while the Company waits for additional information about the proposed project from the customer.

In general, for projects of the sizes stated above, where the customer makes expedient decisions, and no distribution system upgrades are required, the process can be completed in two to four months. These projects, however, are the exception since, in most cases, the customer has yet to sort out many aspects of a particular project (e.g. permitting, town approvals, negotiating off-take agreements, financing, etc.) when they apply for interconnection.

Prepared by or under the supervision of: Timothy R. Roughan

The range for the total interconnection process can vary from the two to four months described above up to 24 months or more for projects that are affected by a lack of decisions from the customer and that also require a system upgrade. The Company does not foresee this sort of issue with the projects that will be selected for the proposed Solar Phase II program, however, given that the selection process is designed to not allow incomplete projects to be a part of a winning bid.

Massachusetts Electric Company

Nantucket Electric Company

d/b/a National Grid

Standards for Interconnecting Distributed Generation

M.D.P.U. No 1219

Canceling M.D.P.U. 1176

Effective: May 1, 2013

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

TABLE OF CONTENTS

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

1.0 GENERAL

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, except as provided under the applicable ISO-NE tariff, and/or under the Qualifying Facility regulations in 220 CMR 8.04.

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" shall mean any neighboring EPS not under the control of the Company (i.e., a municipal electric light company or other regulated utility).

"Affiliate" shall mean a person or entity controlling, controlled by or under common control with a Party.

"Anti-Islanding" shall mean a description of the ability of a Facility to avoid unintentional islanding through some form of active control technique.

"Interconnection Application" shall mean the notice (which will serve as the Notice of Intent to Interconnect under 220 C.M.R. §§ 8.00 et seq. when required) provided by Interconnecting Customer to the Company in the form shown in Exhibits A, B, and C which initiates the interconnection process.

"Area EPS" shall mean 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").

"Authorization to Interconnect" shall mean an official written notification provided by the Company to the Interconnecting Customer, authorizing the

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Interconnecting Customer to activate and operate the Facility subject to the terms of the Interconnection Service Agreement.

"Business Day" shall be defined as the next working day, not including Saturday, Sunday or a legal holiday, after a request or application has been received by the Company.

"Certificate of Completion" shall mean the form required as proof that the installed Facility has been inspected by the local electrical wiring inspector or other jurisdictional authority.

"Class I Net Metering Facility" shall mean a plant or equipment that is used to produce, manufacture, or otherwise generate electricity and that is not a transmission facility and that has a design capacity of 60 kilowatts or less.

"Class II Net Metering Facility" shall mean an Agricultural Net Metering Facility, Solar Net Metering Facility, or Wind Net Metering Facility with a generating capacity of more than 60 kilowatts but less than or equal to one megawatt; provided, however, that a Class II Net Metering Facility owned or operated by an Interconnecting Customer or Customer which is a municipality or other governmental entity may have a generating capacity of more than 60 kilowatts but less than or equal to one megawatt per unit.

"Class III Net Metering Facility" shall mean an Agricultural Net Metering Facility, Solar Net Metering Facility, or Wind Net Metering Facility with a generating capacity of more than one megawatt but less than or equal to two megawatts; provided, however, that a Class III Net Metering Facility owned or operated by an Interconnecting Customer or Customer which is a municipality or other governmental entity may have a generating capacity of more than one megawatt but less than or equal to two megawatts per unit.

"Company" shall mean Massachusetts Electric Company and Nantucket Electric Company, as applicable.

"Company EPS" shall mean the electric power system owned, controlled or operated by the Company used to provide distribution service to its Customers.

"Conditional Approval to Interconnect" shall mean an official written notification provided by the Company to the Interconnecting Customer approving of the proposed system design of a proposed Facility and authorizing the Interconnecting Customer to test but not commence commercial operation of that Facility subject to the terms of the Interconnection Service Agreement.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

"Customer" shall mean the Company's retail customer; host site or premises, may be the same as Interconnecting Customer.

"Department" shall mean the Massachusetts Department of Public Utilities.

"Detailed Study" shall mean 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 and a construction schedule for such modifications that will be required to provide the requested interconnection service.

"DG" shall mean Distributed Generation.

"DR" shall mean the Facility. This term is used in IEEE Standard 1547-2003.

"Expedited Process" shall mean, as described in Section 3.3, process steps for Listed 2 Facilities from initial application to final written authorization, using a set of technical screens to determine grid impact.

"Facility" shall mean a source of electricity owned and/or operated by the Interconnecting Customer that is located on the 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" shall mean Federal Energy Regulatory Commission.

"Force Majeure Event" shall mean any event that is beyond the reasonable control of the affected Company or Interconnecting Customer; and that the affected Company or Interconnecting Customer is unable to prevent or provide against by exercising commercially reasonable efforts, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: acts of war or terrorism, public disorder, insurrection, or rebellion; floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; explosions or fire; strikes, work stoppages, or labor disputes; embargoes; and sabotage. For the treatment of Force Majeure see Section 3.7.

"Good Utility Practice" shall mean 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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: shall mean 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" shall mean 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" shall mean the entity that owns and/or operates the Facility interconnected to the Company EPS, with legal authority to enter into agreements regarding the construction or operation of the Facility.[1]

"Interconnection Service Agreement" shall mean an agreement for interconnection service, the form of which is provided in Exhibit G, between the Interconnecting Customer and the Company. The agreement also includes terms and conditions, attachments describing the Facility, system modifications, payment terms and construction schedule (if applicable) and any amendments or supplements thereto entered into by the Interconnecting Customer and the Company.

"Interconnection Tariff" shall mean these Standards for Interconnection of Distributed Generation. The Interconnection Tariff is a regulatory document enforced by the Department.

"Islanding" shall mean 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 an Interconnecting Customer or Customer's premises are provided power

[1] An entity which owns the Facility interconnected to the Company EPS solely as part of a financing arrangement, which could include the acquisition of the tax credits related to the Facility, but is neither the Customer nor the operator of that Facility, shall not be considered the Interconnecting Customer hereunder.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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")" shall mean 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" shall mean the state of operating the Facility when electrically disconnected from the Company EPS on the Interconnecting Customer's side of the PCC.

"Local EPS" shall mean the Interconnecting Customer or Customer premises within which are contained the Facility. This term is used in the IEEE Standard 1547-2003.

"Listed" shall mean a Facility that has successfully passed all pertinent tests to conform with IEEE 1547.1.

"Metering Point" shall mean, 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" shall mean New England Power Pool.

"Net Metering" shall mean the process of measuring the difference between electricity delivered by a Distribution Company and electricity generated by a Class I, Class II, Class III or Neighborhood Net Metering Facility and fed back to the Distribution Company.

"Network Distribution System (Area or Spot)" shall mean 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" shall mean the ability of a Facility to avoid unintentional islanding through the operation of its interconnection equipment.

"NPCC" shall mean Northeast Power Coordinating Council.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

"On-Site Generating Facility" shall mean a class of Interconnecting Customer-owned generating Facilities with peak capacity of 60 kW or less, as defined in 220 C.M.R. § 8.00.

"Parallel" shall mean the state of operating the Facility when electrically connected to the Company EPS (sometimes known as grid-parallel).

"Parties" shall mean the Company and the Interconnecting Customer.

"Point of Common Coupling (PCC)" shall mean 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" shall mean 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' shall mean 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.

"Pre-Application Report" shall mean, as described in Section 3.2, a non-binding report of certain information specific to a proposed Facility interconnection location provided to the Interconnecting Customer by the Company prior to the Application.

"Public Facility" shall mean any Facility (1) that is owned or operated by a municipality or other governmental entity; or (2) that is sited on land of a municipality or other governmental entity; or (3) which for purposes of Net Metering qualifies as a net metering facility of a municipality or other governmental entity.

"Qualifying Facility" shall mean 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. § 11.04.

"Radial Distribution Circuit" shall mean electrical service from an EPS consisting of one primary circuit extending from a single substation or transmission supply

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

point arranged such that the primary circuit serves Interconnecting Customers in a particular local area.

"Screen(s)" shall mean 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" shall mean, as described in Section 3.1, process steps from initial application to final written authorization for certain inverter-based Facilities of limited scale and minimal apparent grid impact.

"Solar Facility" shall mean a facility for the production of electrical energy that uses sunlight to generate electricity and is interconnected to a Distribution Company.

"Standard Process" shall mean, as described in Section 3.4, process steps from initial application to final written authorization for Facilities that do not qualify for Simplified or Expedited treatment.

"Supplemental Review" shall mean 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" shall mean modifications or additions to distribution-related Company facilities that are integrated with the Company EPS for the benefit of the Interconnecting Customer.

"Time Frame" shall mean each step in the pertinent interconnection process with a Company or Interconnecting Customer obligation of completion within the relevant Business Days in this Interconnection Tariff beginning on the next Business Day following the completion of the prior step and concluding with the applicable deliverable in this Interconnection Tariff.

"Unintentional Islanding" shall mean 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" shall mean the Company's right to witness the commissioning testing and/or Company-required Interconnecting Customer-owned communication system. Commissioning testing is defined in IEEE Standard 1547-2003.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 G) referencing Attachments 1 – 6 (Attachments 1-6 to be developed and included as appropriate for each specific Interconnection Service Agreement) as follows:

   Attachment 1: Description of Facilities, including demarcation of Point of Common Coupling

   Attachment 2: Description of System Modifications

   Attachment 3: Costs of System Modifications & Payment Terms

   Attachment 4: Special Operating Requirements, if any

   Attachment 5: Agreement between the Company and the Company's Retail Customer (to be signed by the Company's retail Customer where DG installation and interconnection will be placed, when retail Customer is not the owner and/or operator of the distributed generation facility -- Exhibit H)

   Attachment 6: System Modifications construction schedule

2) Application forms

   a) Simplified Process (Facilities meeting the requirements of Section 3.1) application form and service agreement (Exhibit A)

   b) Pre-Application Report Form (Exhibit B)

   c) Expedited and Standard Process application form (Exhibit C)

3) Supplemental Review Agreement for those projects which have failed one or more screens in the Expedited Process (Exhibit D)

4) Impact Study Agreement under the Standard Process (Exhibit E)

5) Detailed Study Agreement for the more detailed study under the Standard Process which requires substantial System Modifications (Exhibit F)

6) Agreement Between the Company and the Company's Retail Customer (Exhibit H)

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

7) Schedule Z – Additional Information Required for Net Metering Service

2.0 BASIC UNDERSTANDINGS

Interconnecting Customer intends to install a Facility on the Interconnecting 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 G to this Interconnection Tariff. If the Interconnecting Customer is not the Customer, an Agreement between the Company and the Company's Customer must be signed and included as an attachment to the Interconnection Service Agreement; a form of this agreement is attached as Exhibit H.

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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Time Frames and fees for these paths. Unless otherwise noted, all Time Frames in the Interconnection Tariff reference Company Business Days.

Prior to submitting an Application through either the Expedited or Standard Process, all Interconnecting Customers with Facilities that are 500kW or greater must request and receive a Pre-Application Report from the Company. If the Pre-Application is not received within the applicable Time Frame, the Interconnecting Customer can file its Application. The Pre-Application Form is located in Exhibit B and the Pre-Application Report process is described in more detail in Section 3.2.

1) Simplified – This is for Listed inverter-based Facilities with a power rating of 15 kW or less single phase or 25 kW or less three-phase depending on the service configuration, and located on radial EPSs under certain conditions. A Listed inverter-based Facility located on a spot network EPS with a rating less than 1/15 of the Interconnecting Customer's minimum load or on an areas network EPS with a rating less than 1/15 of the Interconnecting Customer's minimum load and 15 kW or less would also be eligible.

2) Expedited – This is for Listed 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 have their Interconnection Applications reviewed under the Simplified Process or the Standard Process, depending on the proposed Facility type and/or size as described in the Interconnection Tariff. All other Interconnecting Customers must proceed through a series of screens to determine their ultimate interconnection path. Interconnecting Customers who are 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 an application and the Company will verify the circuit type.

If the Interconnecting Customer has not yet selected the generation equipment, the Interconnecting Customer has the right to ask the Company to perform an Impact Study for up to three options of the same generation type and location. However, the cost of the Impact Study will increase in accordance with the complexity of the requested options. Also, the Time Frame for the Impact Study will revert to a mutually agreed upon duration but not to exceed an additional one-third of the allowable Time Frame for each additional option.

If the Interconnecting Customer requests that the Company study "significant" alternative equipment or changes the capacity of the interconnecting Facility that requires Company restudying, subsequent to an executed Interconnection Service Agreement, the Company and Interconnecting Customer will determine a mutually agreed to Time Frame and applicable fees/costs covered by the Interconnecting Customer. "Significant" shall be defined by the Company-specific technical standards.

3.1 Simplified Process – Radial Distribution Circuit

This process is for Interconnecting Customers using Listed single-phase inverter-based Facilities with power ratings of 15 kW or less at locations receiving single-phase service from a single-phase transformer, or using Listed three-phase inverter-based Facilities with power ratings of 25 kW or less at locations receiving three-phase service from a three-phase transformer configuration, and requesting an interconnection on radial EPSs where the aggregate generating Facility capacity is less than 15% of feeder/circuit annual peak load and, if available, line segment. This is the fastest and least costly interconnection path.

The Simplified Process for Radial Distribution Circuits is as follows:

a) Application process:

i) Interconnecting Customer submits a Simplified Process application filled out properly and completely (Exhibit A).

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 completes review of all screens. When the Company verifies Facility equipment passes Screens 1, 2, 3, and 4 in Figure 1 if a radial EPS, the project shall follow the Simplified Process. If a Facility fails Screen #5 in Figure 1, the Facility shall not be automatically evaluated under the Expedited Process. The Company shall have 20 Business Days to review an application where the Facility has failed screen #5 in Figure 1.

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. The Company signature on the application approval line constitutes a Conditional Approval to Interconnect.

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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

g) Assuming the wiring inspection, all compliance documentation and/or Witness Test is satisfactory, the Company notifies the Interconnecting Customer in writing that interconnection is authorized and issues the Authorization to Interconnect. 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 to receive the Authorization to Interconnect.

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.

3.1.1 Simplified Process – Networks

This process is for Interconnecting Customers using Listed inverter-based Facilities where the aggregate generating Facility capacity is less than one fifteenth of the Interconnecting Customer's minimum load and requesting an interconnection on a Spot or Area Network. For Interconnecting Customers interconnecting on an Area Network, the power rating of the Listed inverter must be 15 kW or less. This is the fastest and least costly interconnection path for interconnection on a network.

The Simplified Process for Networks is as follows:

a) Application process:

i) Interconnecting Customer submits a Simplified Process application filled out properly and completely (Exhibit A).

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 completes review of all applicable screens in Figure 2. For proposed facilities on a Spot Network, Screen 3 in not required for the review and should be bypassed. When the Company verifies Facility equipment passes all applicable Screens in Figure 2 the project shall follow the Simplified Process. If the Interconnecting Customer minimum load is known, the Company shall have 30 Business Days to review an application. If the Interconnecting Customer minimum load is not known and an interval meter needs to be installed, the Company will install, at the Interconnecting Customer's expense, an interval

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

meter to measure 3 months of continuous customer load capturing the annual minimum load. The maximum time the interval metering will be used to measure the minimum load is 9 months from the point of the time the analysis was commenced.

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. The Company signature on the application approval line constitutes a Conditional Approval to Interconnect.

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, all compliance documentation and/or Witness Test is satisfactory, the Company notifies the Interconnecting Customer in writing that interconnection is authorized and issues the Authorization to Interconnect. 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 to receive the Authorization to Interconnect. In addition, the Interconnecting Customer will be required to have a load monitoring system

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

in place to prevent the 1/15th minimum load from being exceeded and to provide annual test results of the system pursuant to Sections 6.3 and 6.4.3.

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 Pre-Application Reports

Prior to submitting an Interconnection Application through either the Expedited or Standard Process (see Sections 3.3 and 3.4), all Interconnecting Customers with Facilities that are 500kW or greater must request and receive a Pre-Application Report from the Company. The Pre-Application Form is located in Exhibit B. The Pre-Application Report is optional at the election of the Interconnecting Customer for those Facilities that are less than 500kW. There is no fee for either a mandatory or optional Pre-Application Report.

Following the submission for either a mandatory or optional Pre-Application Report, the Company shall provide the Report within 10 Business Days. The Pre-Application Report produced by the Company is non-binding, and the Interconnecting Customer must still successfully apply to interconnect to the Company's EPS.

The Company shall provide the following information for the proposed Facility interconnection location in the Pre-Application Report:

1) Circuit voltage at the substation;
2) Circuit name;
3) Circuit voltage at proposed Facility;
4) Whether Single or three phase is available near site;
5) If single phase – distance from three phase service;
6) Aggregate connected Facilities (kW) on circuit;
7) Submitted complete applications of Facilities (kW) on circuit that have not yet been interconnected;
8) Whether the Interconnecting Customer is served by an area network, a spot network, or radial system;
9) Identification of feeders within ¼ mile of the proposed interconnection site through a snap-shot of GIS map or other means; and
10) Other potential system constraints or critical items that may impact the proposed Facility.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

3.3 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 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 then conducts a complete review of all screens, which includes applying the screening methodology (Screens 1 through 10 in Figure 1).

The Company reserves the right to conduct internal studies if 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.

c) 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Supplemental Review to determine those requirements. The time allocated for Supplemental Review is a maximum of 30 hours of engineering time. 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 within 10 Business Days the Interconnecting Customer an executable Interconnection Service Agreement, which will include a quote for any required System Modifications and/or reasonable Witness Test costs, and a construction schedule for any required System Modifications.

e) If one or more Screens are not passed, the Company will provide a Supplemental Review Agreement (Exhibit D). If the Interconnecting Customer executes the agreement, the Company will conduct the review within 20 Business Days. If the Supplemental Review determines the requirements for processing the application through the Expedited Process including any System Modifications, then the Company will offer the Interconnecting Customer a Conditional Approval to Interconnect, which will include an executable Interconnection Service Agreement that identifies System Modification requirements, reasoning, and costs for these modifications as defined in Section 5.0, as well as a construction schedule for such modifications 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 30 hours of engineering time.

f) If an Interconnection Application fails the Supplemental Review, the Company shall provide, in writing, the specific Screens that the Application failed, including the technical reason for failure, and the data and the analysis supporting the Supplemental Review the Company shall provide the Interconnecting Customer the option to participate in a Supplemental Review results meeting. Within 5 Business Days of the Interconnecting Customer's request for a Supplemental Review results meeting, the Company shall contact the Interconnecting Customer and offer to convene a meeting at a mutually acceptable time to review the Supplemental Review screen analysis and related results to determine what modifications, if any, may permit the Facility to be connected safely and reliably without requiring the Interconnection Application to be reviewed in the Standard Process, including conducting an Impact Study.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

g) An Interconnecting Customer will have 20 Business Days in which to either sign the Interconnection Service Agreement provided by the Company or provide comments on the Interconnection Service Agreement to the Company. Failure to either sign or provide comments on the Interconnection Service Agreement will result in the withdrawal of the Interconnecting Customer's Interconnection Application from the application process. The Interconnecting Customer will need to reapply for interconnection. Any fees paid by the Interconnecting Customer shall not be refunded. In the event that the Interconnecting Customer provides comments on the Interconnection Service Agreement to the Company, the Company and the Interconnecting Customer have 30 Business Days to resolve any issues raised by the Interconnecting Customer. If, after the conclusion of 30 Business Days, resolution has not been achieved and the Interconnecting Customer has not requested that the issues be addressed through the alternative dispute resolution process contained in Section 9.0, the Interconnecting Customer's application will be considered withdrawn and the Interconnecting Customer will need to reapply for interconnection. Any fees paid by the Interconnecting Customer shall not be refunded.

h) Interconnecting Customer returns the signed Interconnection Service Agreement which is then executed by the Company. The Interconnecting Customer is not required to pay any costs associated with System Modifications upon execution of the Interconnection Service Agreement or upon provision of the construction schedule by the Company. An Interconnecting Customer shall have 120 Business Days from the date of the Interconnection Service Agreement execution in which to pay 25% of the System Modifications costs. If an Interconnecting Customer pays 25% of the System Modifications costs within the 120 Business Day Time Frame, the Interconnecting Customer shall have an additional 120 Business Days from the date of the initial payment to pay the remainder of the System Modifications costs. Construction estimates are valid for 60 Business Days from when they are delivered to the Interconnecting Customer. If an Interconnecting Customer payment is not received within 60 Business Days of the delivery of the of the Interconnection Service Agreement to the Interconnecting Customer, the Company has the right to reassess the System Modifications costs and construction schedule. In the event that the Interconnecting Customer fails to pay the System Modification costs to the Company within the above Time Frame, the Company shall require the Interconnecting Customer to reapply for interconnection. Any fees paid by the Interconnecting Customer shall not be refunded. It should be noted that the Company is not required to order any of its equipment without receiving adequate payment (as defined in each Interconnecting Customer's Interconnection Service Agreement) from the Interconnecting Customer nor will it be required to initiate any construction

before it has received full payment from the Interconnecting Customer. The timing of the payments is likely to have an impact on the construction schedule. The Company's obligation to the System Modifications construction schedule in the Interconnection Service Agreement begins on the next Business Day after the Company receives full payment for such construction.

i) Interconnecting Customer completes installation and, upon receipt of payment in full, the Company completes System Modifications, if required, within the mutually agreed upon Time Frame provided in the System Modifications construction schedule in the Interconnection Service Agreement.

j) Interconnecting Customer sends Certificate of Completion to Company. See Attachment 2 of the Interconnection Service Agreement.

k) 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, and if required, Company-approved Witness Test procedure. If the Company does not inspect in 10 Business Days or by mutual agreement of the Parties, the Witness Test is deemed waived.

l) Assuming the wiring inspection, all compliance documentation and/or Witness Test is satisfactory, the Company notifies the Interconnecting Customer in writing that interconnection is authorized and issues the Authorization to Interconnect. 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 to receive the Authorization to Interconnect.

m) An Interconnecting Customer's Interconnection application may only be moved from the Expedited Process to the Standard Process if the application fails a Screen in Figure 1 or 2 or the Supplemental Review of an application that failed a Screen in Figure 1 or 2 exceeds 30 hours of engineering time.

3.4 Standard Process

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

a) Interconnecting Customers may choose to proceed immediately to the Standard Process. Application process:

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

i) Interconnecting Customer submits an Expedited/Standard Application filled out properly and completely (Exhibit C).

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.

b) Based upon the results of the initial and Supplemental Reviews, Interconnecting Customers may be required to enter the Standard Process.

c) 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, which may include if requested, a scoping meeting/discussion with the Interconnecting Customer to review the application. From the initial review, 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.
- If the application is subject to the Pre-Application Report requirement in Section 3.2, the Pre-Application Report may, as necessary, be discussed at the initial review.

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 Time Frames in Tables 1 through 5 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 megawatts

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

("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 ±25%) and a Detailed Study Agreement and cost for Interconnecting Customer's approval.

e) At the conclusion of the Impact Study, an Interconnecting Customer may request and sign an Interconnection Service Agreement. If an Interconnecting Customer chooses to sign an Interconnection Service Agreement following the conclusion of the Impact Study, the Interconnecting Customer agrees to be bound by the ±25% System Modification costs identified in the Impact Study (see 3.4(a)(d) above). The Company will not be required to provide a construction schedule until after it completes the Detailed Study.

f) Once the Interconnecting Customer executes the Detailed Study Agreement and pays pursuant to the terms thereof, the Company will conduct the Detailed Study.

g) Upon completion of any necessary studies and, in the event that the Interconnecting Customer did not exercise the early Interconnection Service Agreement option above, the Company shall send the Interconnecting Customer an executable Interconnection Service Agreement, which will include a quote for any required System Modifications and reasonable Witness Test costs as well as a construction schedule.

h) An Interconnecting Customer will have 20 Business Days in which to either sign the Interconnection Service Agreement provided by the Company or provide comments on the Interconnection Service Agreement to the Company. Failure to either sign or provide comments on the Interconnection Service Agreement will result in the withdrawal of the Interconnecting Customer's application for interconnection from the application process. The Interconnecting Customer will need to reapply for interconnection. Any fees paid by the Interconnecting Customer shall not be refunded. In the event that the Interconnecting Customer provides comments on the Interconnection Service Agreement to the Company, the Company and the Interconnecting Customer have 30 Business Days to resolve

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

any issues raised by the Interconnecting Customer. If, after the conclusion of 30 Business Days, resolution has not been achieved and the Interconnecting Customer has not requested that the issues be addressed through the alternative dispute resolution process contained in Section 9.0, the Interconnecting Customer's application will be considered withdrawn and the Interconnecting Customer will need to reapply for interconnection. Any fees paid by the Interconnecting Customer shall not be refunded.

i) If the Interconnecting Customer executes the Interconnection Service Agreement, the Interconnecting Customer is not required to pay any costs associated with System Modifications upon execution of the Interconnection Service Agreement or upon provision of the System Modifications construction schedule by the Company. An Interconnecting Customer shall have 120 Business Days from the date of the Interconnection Service Agreement execution in which to pay 25% of the System Modifications costs. If an Interconnecting Customer pays 25% of the System Modifications costs within the 120 Business Day Time Frame, the Interconnecting Customer shall have an additional 120 Business Days from the date of the initial payment to pay the remainder of the System Modifications costs. Construction estimates are valid for 60 Business Days from when they are delivered to the Interconnecting Customer. If an Interconnecting Customer payment is not received within 60 Business Days of receiving the Impact Study, the Company has the right to reassess the System Modifications costs and construction schedule. In the event that the Interconnecting Customer fails to pay the System Modification costs to the Company within the above Time Frame, the Company shall require the Interconnecting Customer to reapply for interconnection. Any fees paid by the Interconnecting Customer shall not be refunded. It should be noted that the Company is not required to conduct the Detailed Study or order any of its equipment without receiving adequate payment from the Interconnecting Customer nor will it be required to initiate any construction before it has received full payment from the Interconnecting Customer. The timing of the payments is likely to have an impact on the construction schedule. The Company's obligation to the construction schedule (as it appears in either the Interconnection Service Agreement or the Detailed Study, if the Interconnecting Customer has opted to sign the Interconnection Service Agreement without a Detailed Study) begins on the next Business Day after the Company receives full payment for such construction.

j) The Interconnecting Customer completes installation and the Company, upon receipt of payment in full, completes any required System Modifications within the mutually agreed upon Time Frame provided in the construction schedule in the Interconnection Service Agreement or Detailed Study as applicable.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

k) Company inspects completed installation for compliance with requirements. The Company shall require a Witness Test of the Facility as approved by the Company. The Interconnecting Customer will provide a proposed Witness Test and all requisite supporting documentation for review by the Company once the Interconnecting Customer has completed the installation of the Facility. Once all requisite information has been provided by the Interconnecting Customer, the Company shall have 8 Business Days to approve the Interconnecting Customer's proposed Witness Test. The Company shall then inform the Interconnecting Customer when it has approved the Witness Test procedures. Once the Witness Test has been approved by the Company, the Interconnecting Customer will call the Company to arrange for the Witness Test. The Interconnecting Customer has no right to operate in parallel until a Witness Test has been passed. The Company is obligated to complete this Witness Test within 10 Business Days or by mutual agreement upon receipt of the Interconnecting Customer's proposed Witness Test.

l) Interconnecting Customer sends Certificate of Completion to Company. See Attachment 2 of the Interconnection Service Agreement.

m) Assuming inspection is satisfactory, Company notifies Interconnecting Customer in writing that interconnection is authorized with the Authorization to Interconnect.

3.5 Time Frames

The Company and Interconnecting Customer will meet Time Frames for each step in the pertinent interconnection process. The Time Frames provided in this tariff represent a Company or Interconnecting Customer obligation of completion within the relevant Business Days in the Tariff beginning with the next Business Day following the completion of the prior step and concluding with the applicable deliverable in the tariff. All steps with a Time Frame represent a regulatory obligation of the Company where applicable and an Interconnecting Customer obligation to ensure maintaining their place in the interconnection process. Time Frames are subject to Force Majeure as provided in Section 3.7 and Parties' extensions as described in Section 3.6(b).

Unless otherwise noted, all Time Frames in the Interconnection Tariff reference Company Business Days. In addition, in the event information has been requested of the Interconnecting Customer, all application time keeping shall commence the next Business Day following receipt of information from the Interconnecting Customer.

If the Interconnecting Customer requests an extension within 1/3 of the expiration of the end of a step Time Frame, the Company shall receive an additional number of days to complete the step,

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

equal to 1/3 of the total Company Time Frame for that step in the Interconnection Application, to complete its obligations.

If an Interconnecting Customer requests a project change during the interconnection process, and if the Company determines the change is "significant", the Interconnecting Customer will be required to submit a new Interconnection Application with associated fees and the revised project shall be placed at the end of the project queue. If the Company determines the change results in "moderate" alterations to the project, the Interconnecting Customer will be required to resubmit their Interconnection Application with all updated information. For proposed changes with "moderate" impacts on the project, the Company shall determine whether additional fees are required. While the Interconnecting Customer will not have to reapply and start the Interconnection Application process over, the Company will reset the Study Time Frame to the beginning, but endeavor to complete the Study earlier than that allotted time. "Significant" and "moderate" shall be defined by the Company-specific technical standards.

Table 1 lays out the maximum Time Frames allowed under the Simplified Process. The maximum time allowed for the Company to execute the entire Simplified Process is 15 Business Days (except that the Company has 5 extra days for Interconnection Applications that fail Screen #5 to keep those applications in the Simplified Review). Table 2 lays out the maximum Time Frames allowed under the Expedited Process. The maximum time allowed for the Company to execute the entire Expedited Process on a radial system is 40 Business Days where no Supplemental Review is needed and 60 days where it is needed. Table 3 lays out the maximum Time Frames allowed under the Standard Process. The maximum time allowed for the Company to execute the entire Standard Process is 125 days for the Standard Review Process if the Interconnecting Customer goes directly to Standard Review and 150 days if the Interconnecting Customer goes from the Expedited Process into Standard Review. For Interconnecting 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.

Table 4 lays out the maximum Time Frames allowed under the Standard Process for Projects deemed to be Complex Projects. Within the Standard Process are extended Time Frames applicable to Complex Facility Interconnection Applications that will require extensive System Modifications. If the Interconnection Application will require any Sub-Station modifications, the Company shall have the following time periods in which to complete the Impact Study for each Interconnection Application: 75 Business Days in 2013; 75 Business Days in 2014; 70 Business Days in 2015; and 60 Business Days in 2016 and thereafter. The applicable Time Frame for the Impact Study is determined by the year the Impact Study commences and remains in effect for the duration of the Impact Study, regardless if the Impact Study concludes in a year with a shorter Time Frame. If the System Modifications identified in the Impact Study are likely to be $200,000 or greater in EPS upgrades not including service upgrades for the Interconnecting Customer site, the Company shall have the following time periods in which to complete the Detailed Study for each Interconnection Application: 75 Business Days in 2013; 75 Business

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Days in 2014; 70 Business Days in 2015; and 60 Business days in 2016 and thereafter. The applicable Time Frame for the Detailed Study is determined by the year the Detailed Study commences and remains in effect for the duration of the Detailed Study, regardless if the Detailed Study concludes in a year with a shorter Time Frame. If System Modifications are estimated to cost $1 million or greater, the Time Frames for both the Impact and Detailed Studies will be by mutual agreement. The Company will track adherence to the mutually agreed upon Time Frame. In the event that the Company later determines that the System Modifications will cost less than $1 million, the Interconnection Application will revert to the Time Frames for Sub-Station Modifications or System Modifications costing $200,000 or more, but less than $1 million as appropriate. The Company will inform the Interconnecting Customer within 20 days following the commencement of the Impact study whether the Interconnection Application shall be treated as a Complex Project under the Standard Process. If at any time during the Impact Study the Company determines that the System Modifications will cost $1 million or more, the Detailed Study Time Frame shall be by mutual agreement.

The Time Frame for each step is stopped when awaiting information from Interconnecting Customers. Any delays caused by Interconnecting Customer will interrupt the applicable Time Frame.

If the Interconnecting Customer does not initiate construction within twelve (12) months of signing the Interconnection Service Agreement, the Company may require the Interconnecting Customer to provide evidence that the project is moving toward construction. In the event that the Interconnecting Customer cannot provide such evidence, the Company reserves the right to require additional study or require the Interconnecting Customer to reapply for interconnection. Situations that could trigger enforcement of this time limit are: (1) material changes on the distribution circuits (e.g., load changes, circuit reconfiguration) or (2) a second application for interconnection received by the Company on a circuit from the same substation. The same rights of the Company to require the Interconnecting Customer to reapply for interconnection pertains if the Interconnecting Customer, after initiating construction, does not complete construction within twenty-four months. Notwithstanding these maximum Time Frames, the Company shall endeavor to meet the Interconnecting Customer's needs. 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.

In the Standard process, where there are multiple interdependent Interconnection Applications on the same feeder, any subsequent Interconnecting Customer behind another Interconnection Application on a feeder can request that an Impact Study be conducted with mutually agreed upon Time Frames, or request that their Impact Study be suspended until the initial Interconnection Application's study and any other preceding Interconnection Application's Impact Study are completed. These provisions shall serve as an interim measure until the DG Working Group develops and implements a more permanent method of addressing multiple

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Interconnection Applications on a single feeder through group studies or other means and suspension of Time Frames for such studies.

3.6 Interconnection Application and Facility Construction Time Frame Management

3.6.1 Initial Withdrawal Process (one time event within 2-3 months after DPU Order)

For those Interconnecting Customers with Interconnection Applications pending on the effective date of these tariff revisions, at any stage in the Interconnection Application or Facility construction process, if a Company has not had contact with an Interconnecting Customer for more than 30 Business Days, the Company shall contact, via letter and email or telephone if the Company does not have an email address for the Interconnecting Customer, the Interconnecting Customer, alternative contact(s), and the most recent point of contact. The Company must note in this communication that, in the event the Interconnecting Customer does not contact the Company within 30 Business Days, the Interconnecting Customer's Interconnection Application will be considered withdrawn as authorized by the Department and that, if the Interconnecting Customer wished to pursue interconnection in the future, he/she would need to reapply. If the Interconnecting Customer responds, the Interconnection Application shall follow the On-Going Interconnecting Customer Time Frame Compliance set out below. If the Interconnecting Customer does not contact the Company within the allotted 30 Business Days, the Interconnection Application shall be considered withdrawn and, any fees paid shall not be refunded. 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.

3.6.2 On-Going Interconnecting Customer Time Frame Compliance

A request from the Company to an Interconnecting Customer for information or signature will allow the greater of 15 Business Days or half the allotted time within the step for the Interconnecting Customer to respond. In the event that an Interconnecting Customer misses a deadline under the Time Frames outlined above, the Company shall notify the Interconnecting Customer via email of the missed deadline and that the Interconnecting Customer will be given 10 Business Days to cure the failure to meet the Time Frame obligation or request an extension. If the Interconnecting Customer requests an extension, he/she will be granted one extension equal to the length of the Time Frame for that step of the Interconnection Application or Facility construction process. Additionally, for non-solar Facilities, additional extensions for cause will be allowed pursuant to a mutual agreement between the Company and the Interconnecting Customer.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

The following provisions regarding Time Frame extensions are solely applicable to Solar Facilities. The Interconnecting Customer may request an additional extension period of 30 Business Days if the Interconnecting Customer cannot meet a request for information related to the engineering studies and reviews being performed by the Company within the relevant Time Frame because the information requested is held by a third party (i.e., equipment manufacturer) and such information cannot be obtained by the Interconnecting Customer despite reasonable efforts to do so. The Interconnecting Customer may request such an extension up to two times prior to the Company's provision of an Interconnection Service Agreement to the Interconnecting Customer or prior to the completion of the Detailed Study if the Interconnecting Customer elected to accelerate execution of the Interconnection Service Agreement pursuant to Section 3.4(e). There shall be no additional fee for an extension under this provision.

Once during the interconnection process, an Interconnecting Customer seeking to interconnect a Solar Facility may request an additional extension period of six months for legal challenges related to the Facility. The Interconnecting Customer shall submit a Certification that a governmental permit or approval for the Facility is subject to a pending legal challenge prior to the Time Frame deadline or during the initial Time Frame extension period described above. This additional extension period for legal challenges terminates at the end of the legal challenge or six months after the first day of this additional extension period, whichever comes first. There shall be no additional fee for an extension under this provision.

Once during the interconnection process, an Interconnecting Customer of a Public Facility seeking to interconnect a Solar Facility may request an additional extension period of six months by certifying to the Company that one or more of the following situations exists: (1) a town meeting vote is required for the Public Facility; (2) special legislation is required in relation to the Public Facility; or (3) any approval for the Public Facility is necessary under Article 97 of the Massachusetts Constitution. The additional extension period for Public Facilities shall terminate at the end of the governmental process specified above or six months after the first day of the additional extension period for Public Facilities, whichever comes first. There shall be no additional fee for an extension under this provision. Pursuant to this provision, Certification shall consist of a written statement based on knowledge, information, and belief that the relevant claims are true.

The Company shall track all extensions granted under this Section.

If the Interconnecting Customer requests an extension within 1/3 of the expiration of the end of a step Time Frame, the Company shall receive an additional number of days to complete the step, equal to 1/3 of the total Company Time Frame for that step in the Interconnection Application, to complete its obligations.

In the event that an Interconnecting Customer fails to meet his/her obligations under the Time Frame extensions, the Interconnection Application shall be considered withdrawn, and, if the

Interconnecting Customer determines to move forward, he/she would need to reapply for interconnection. Any fees paid shall not be refunded.

Interconnecting Customers will have 20 Business Days to sign an Interconnection Service Agreement provided by the Company or provide comments to the Company on the Interconnection Service Agreement, or the Interconnection Application shall be considered withdrawn and the Interconnecting Customer would need to reapply for interconnection. Further, any fees paid will not be refunded. If the Interconnecting Customer provides comments, the Interconnecting Customer and the Company will have 30 Business Days to resolve issues presented in the comments. After 30 Business Days, if there is no resolution and no request from the Interconnecting Customer for ADR, the Interconnection Application will be considered withdrawn and the Interconnecting Customer would need to reapply for interconnection. Any fees paid will not be refunded.

Interconnecting Customers shall not be required to pay any costs related to Company infrastructure upgrades or system modifications upon execution of the Interconnection Service Agreement (or once the Interconnecting Customer receives the construction schedule). Interconnecting Customers shall have 120 Business Days from the date of execution of an Interconnection Service Agreement to pay 25 percent of those costs. If an Interconnecting Customer pays such cost within the 120 Business Day Time Frame, the Interconnecting Customer shall have an additional 120 Business Days from the date of first payment to pay the remainder of the costs. Construction estimates are valid for 60 Business Days from when they are delivered to the Interconnecting Customer. If an Interconnecting Customer payment is not received within 60 Business Days of receiving the Impact Study, the Company has the right to reassess construction costs and Time Frames. In the event that the Interconnecting Customer fails to pay the Company within the Time Frame required by this provision (or within any extension to such Time Frame as authorized in this Section), the Company will require the Interconnecting Customer to reapply for interconnection. Further, any fees paid will not be refunded. The construction schedule will commence once the Interconnecting Customer's financial payment has been made in full.

It should be noted that the Company is not required to conduct the Detailed Study or order any of its equipment without receiving adequate payment from the Interconnecting Customer nor will it be required to initiate any construction before it has received full payment from the Interconnecting Customer. The timing of the payments is likely to have an impact on the construction schedule.

3.7 Force Majeure

a) If a Force Majeure Event prevents a Party from fulfilling any obligations under this Interconnection Tariff, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

and duration of the Force Majeure Event. The affected Party will 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 will be entitled to suspend or modify its performance of obligations under this Interconnection Tariff, other than the obligation to make payments then due or becoming due under this Interconnection Tariff, but 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. In no event will the unavailability or inability to obtain funds constitute a Force Majeure Event.

b) Changes in local, state or federal laws, regulations or policy relating to distributed generation or distributed generation price changes will not constitute an event of Force Majeure, but if they have substantial impact on a Company's ability to meet Time Frames such changes should constitute a mitigating factor in the measurement or enforcement of Company Time Frames, for example through a Service Quality Metric or alternate enforcement mechanism established by the Department pursuant to Section 49 of Chapter 209 of the Laws of 2012.

3.8 Time Frame Notification

An Interconnecting Customer may request a review of Time Frame compliance at any time in the interconnection process or at each stage of the interconnection process if a Time Frame deadline has been missed. The Company will provide, via email, a response to the request within 10 Business Days and provide, if a Time Frame deadline was missed, the reason for the missed deadline and the expected date the process step will be completed.

3.9 Interim Interconnection Application Fee Refund

1) Within 30 Business Days after the Interconnection Service Agreement has been delivered or any time after when the Interconnection Service Agreement should have been delivered but has not been delivered, an Interconnecting Customer may claim that the maximum Time Frame allowable has been exceeded (see applicable Time Frame Table) and that the non-compliance with the Time Frame is due to the Company's actions or inaction.

2) The Company shall have 15 Business Days to review the Interconnecting Customer's documentation of Time Frame non-compliance and make a determination as to whether it adhered to the relevant Time Frame. In communicating its determination to the Interconnecting Customer, the Company shall provide the basis for the determination.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

3) The Interconnecting Customer has 10 Business Days to appeal the Company determination through the appropriate mechanism, e.g. Department Interconnecting Customer complaint procedure, Alternative Dispute Resolution as set out in Section 9.0., etc.

4) If the Company has not complied with the maximum Time Frame, it shall process a refund of the Interconnecting Customer's application fee within 30 Business Days following the final determination of non-compliance.

5) Nothing in Section 3.6 (Interconnection Application and Facility Construction Time Frame Management) prevents an Interconnecting Customer from pursuing an application fee refund as set out in the interim application fee refund language.

6) The refunding of application fees for Expedited and Standard Process fees is an interim measure which shall expire on the implementation of a service quality metric or other such enforcement mechanism pursuant to Section 49 of Chapter 209 the Laws of 2012 in the calendar year in which penalties and offsets are applicable.

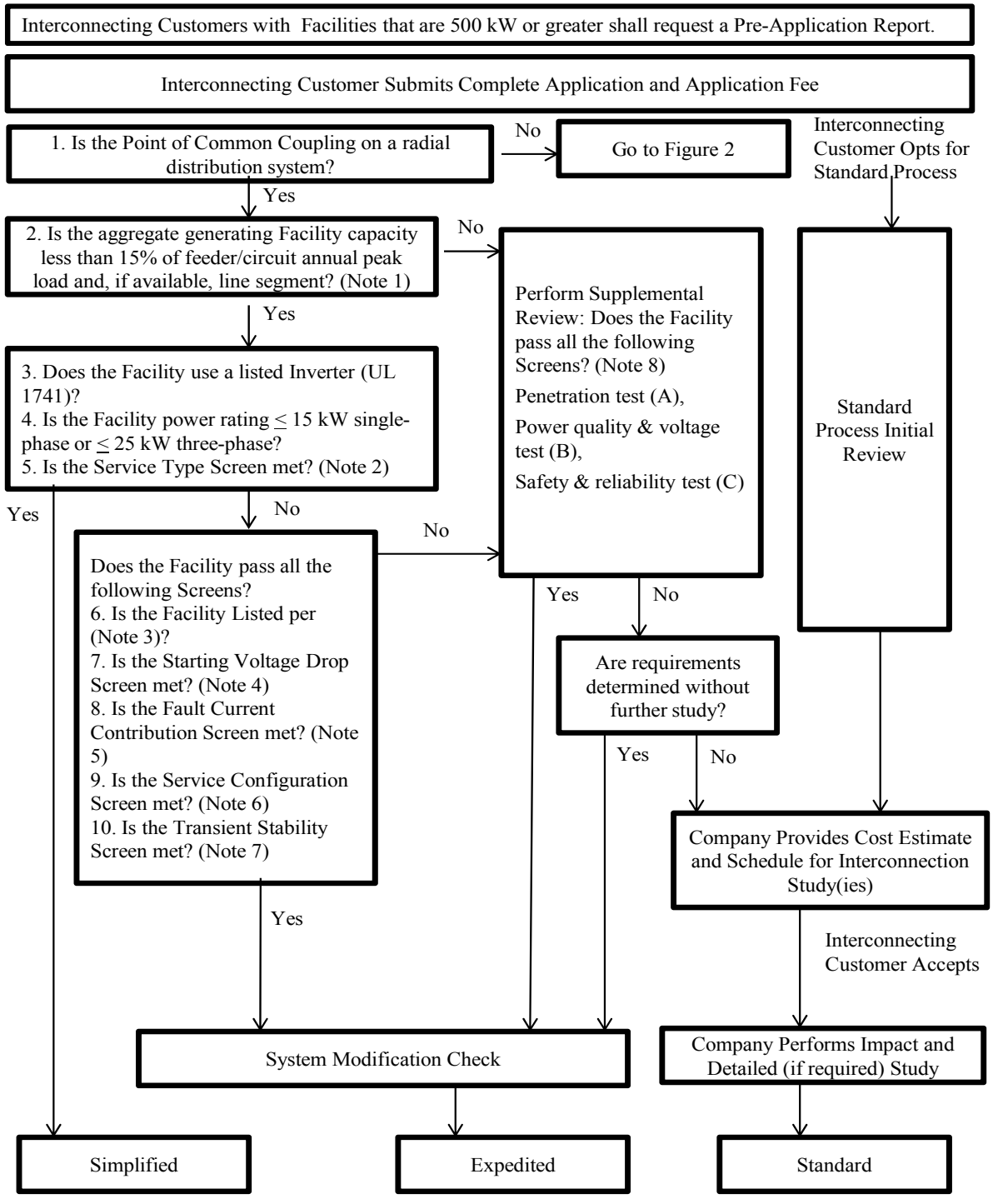
3.10 Fee Schedules

Table 6 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 $4.50/kW application fee (minimum of $300 and maximum of $7,500) plus $150/hour up to 30 hours ($4,500) 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. [Transition Note: These fee schedules apply to Interconnecting Customers only from the effective date of the tariff revisions and may not be retroactively applied to Interconnecting Customers with an Interconnection Application on file with the Company prior to the tariff revisions effective date.]

If a Company conducts a group study where multiple Interconnection Applications on the same feeder would require extensive System Modifications, the costs of the group study shall be allocated to the Interconnecting Customers based on Facility MW. If one or more of the Interconnection Applications are withdrawn by the Interconnecting Customer or by the Company, the remaining Interconnecting Customers shall pay their pro rata share of costs of any additional restudies required by the Company pursuant to the Facility MW.

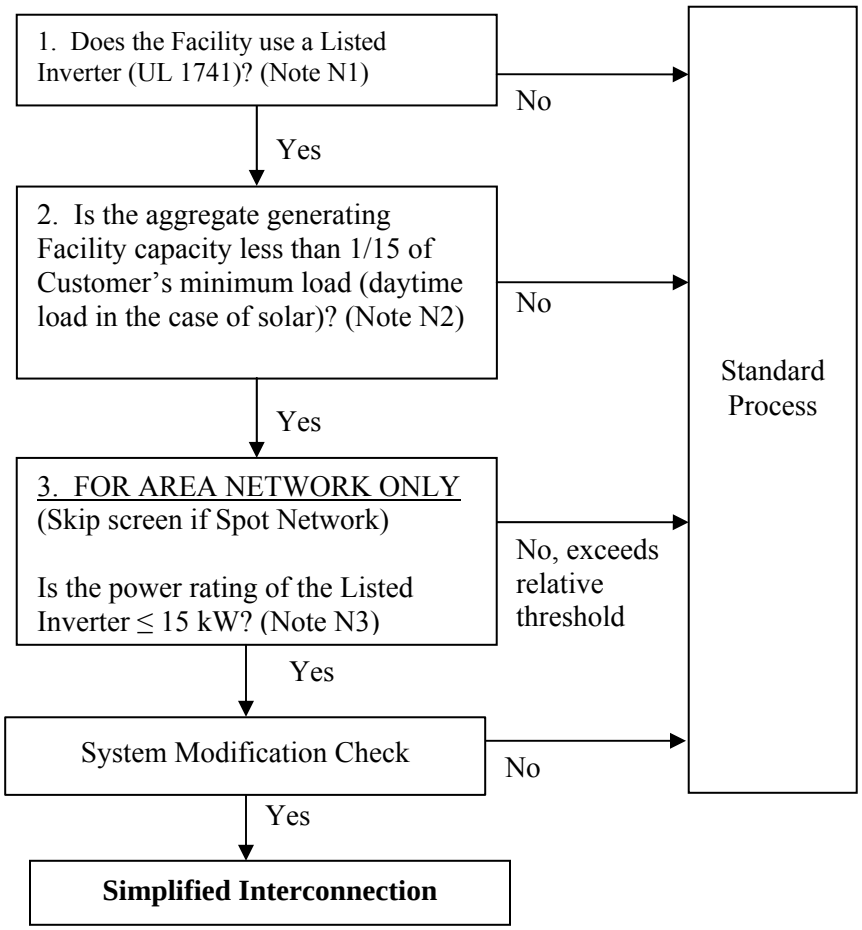
STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Figure 1 – Schematic of Massachusetts DG Interconnection Process



STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Figure 2 – Simplified Interconnection to Networks



Massachusetts Electric Company
Nantucket Electric Company

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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. This screen includes a review of the type of electrical service provided to the Interconnecting Customer, including the service transformer configuration and service type to limit the potential for creating unacceptable voltage imbalance, over-voltage or under-voltage conditions, or service equipment overloads on the Company EPS due to a mismatch between the size and phasing of the energy source, the service loads fed from the service transformer(s), and the service equipment ratings.

To be eligible for the Simplified Process, a Listed inverter-based Facility must be either (1) a single-phase unit on an Interconnecting Customer's local EPS receiving single-phase secondary service at the PCC from a single-phase service transformer, or (2) a three-phase unit on an Interconnecting Customer's local EPS receiving three-phase secondary service at the PCC from a three-phase transformer configuration.

In the event that an Interconnection Application fails Screen 5 (Service Type Screen), it shall remain in the Simplified Process, but the Company shall have up to 20 total Business Days to review the Interconnection Application.

Note 3. A Listed Facility has successfully passed all pertinent tests to conform with IEEE Standard 1547. IEEE Standard 1547 includes design specifications, operational requirements, and a list of tests that are required for Facilities. IEEE Standard 1547.1 describes how to conduct tests to show compliance with provisions of IEEE Standard 1547. To meet Screen 3 or 4, Interconnecting Customers must provide information or documentation that demonstrates how the Facility is in compliance with the IEEE Standard 1547.1 A Facility will be deemed to be in compliance with the IEEE Standard 1547.1 if the Company previously determined it was in compliance. Interconnecting Customers who can demonstrate Facility compliance with IEEE Standard 1547.1, with the testing done by a nationally recognized testing laboratory, will be eligible for the Expedited Process, and may be eligible for the Simplified Process upon review by the Company.

Massachusetts has adopted UL1741 (Inverters, Converters and Charge Controllers for Use in Independent Power Systems) and UL2200 (Stationary Engine Generator Assemblies) as the standard for power systems to comply with IEEE Std 1547 and 1547.1. Equipment listed to UL1741 or UL2200 by a nationally recognized testing laboratory will be considered in

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

compliance with IEEE Std 1547 and 1547.1. An Interconnecting Customer should contact the Facility supplier(s) to determine if it has been listed to either of these standards.

Note 4. 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 5. 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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

Note 6. 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 7. 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).

Note 8. Below are the three Screens that are included in the Company's Supplemental Review of an Expedited Project.

The Supplemental Review consists of Supplemental Review Screens A through C. If any of the Screens are not passed, a quick review of the failed Screen(s) will determine the requirements to address the failure(s) or that an Impact Study is required. In certain instances, the Distribution Provider may be able to identify the necessary solution and determine that Detailed Studies are unnecessary. Some examples of solutions that may be available to mitigate the impact of a failed Screen are:

i) Replacing a fixed capacitor bank with a switched capacitor bank

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

ii) Adjustment of line regulation settings

iii) Simple reconfiguration of the distribution circuit

Screen A: Penetration Test

Where 12 months of line section minimum load data is available, can be calculated, can be estimated from existing data, or determined from a power flow model, is the aggregate Generating Facility capacity on the Line Section less than (67)% of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the Generating Facility?

- If yes (pass), continue to Screen B.
- If no (fail), a quick review of the failure may determine the requirements to address the failure; otherwise either a group study or an Impact Study is required. Continue to Screen B.

Note 1: The type of generation will be taken into account when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application of this screen. Solar generation systems with no battery storage use daytime minimum load (i.e. 10 am to 4 pm for fixed panel systems and 8 am to 6 pm for PV systems utilizing tracking systems), while all other generation uses absolute minimum load.

Note 2: Distribution Provider will not consider as part of the aggregate generation for purposes of this screen Generating Facility capacity known to be already reflected in the minimum load data.

Significance: Penetration of Generating Facility installations that does not result in power flow from the circuit back toward the substation will have a minimal impact on equipment loading, operation, and protection of the Distribution System.

Screen B: Power Quality and Voltage Tests

In aggregate with existing generation on the line section,

a) Can it be determined within the Supplemental Review that the voltage regulation on the line section can be maintained in compliance with current voltage regulation requirements under all system conditions?

b) Can it be determined within the Supplemental Review that the voltage fluctuation is within acceptable limits as defined by IEEE 1453 or utility practice similar to IEEE1453?

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

c) Can it be determined within the Supplemental Review that the harmonic levels meet IEEE 519 limits at the Point of Common Coupling (PCC)?

- ☐ If yes to all of the above (pass), continue to Screen C.
- ☐ If no to any of the above (fail), a quick review of the failure may determine the requirements to address the failure; otherwise a group or Impact Study is required. Continue to Screen C.

Significance: Adverse voltages and undesirable interference may be experienced by other Customers on Distribution Provider's Distribution System caused by operation of the Generating Facility(ies).

Screen C: Safety and Reliability Tests

Does the location of the proposed Generating Facility or the aggregate generation capacity on the Line Section create impacts to safety or reliability that cannot be adequately addressed without a group or Impact Study?

- ☐ If yes (fail), review of the failure may determine the requirements to address the failure; otherwise a group or Impact Study is required.
- ☐ If no (pass), Supplemental Review is complete.

Significance: In the safety and reliability test, there are several factors that may affect the nature and performance of an Interconnection. These include, but are not limited to:

i) Generation energy source
ii) Modes of synchronization
iii) Unique system topology
iv) Possible impacts to critical load Customers
v) Possible safety impacts

The specific combination of these factors will determine if any system study requirements are needed. The following are some examples of the items that may be considered under this screen:

i) Does the Line Section have significant minimum loading levels dominated by a small number of Customers (i.e. several large commercial Customers)?
ii) Is there an even or uneven distribution of loading along the feeder?
iii) Is the proposed Generating Facility located in close proximity to the substation (i.e. <2.5 electrical line miles), and is the distribution line from

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

the substation to the Customer composed of large conductor/cable (i.e. 600A class cable)?

iv) Does the Generating Facility incorporate a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time?

v) Is operational flexibility reduced by the proposed Generating Facility, such that transfer of the line section(s) of the Generating Facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues?

vi) Does the Generating Facility utilize UL 1741/IEEE 1547 Certified anti-islanding functions and equipment?

Explanatory Notes to Accompany Figure 2

Note N1. A Listed Facility has successfully passed all pertinent tests to conform with IEEE Standard 1547. IEEE Standard 1547 includes design specifications, operational requirements, and a list of tests that are required for Facilities. IEEE Standard 1547.1 describes how to conduct tests to show compliance with provisions of IEEE Standard 1547. To meet Screen 3 or 4, Interconnecting Customers must provide information or documentation that demonstrates how the Facility is in compliance with the IEEE Standard 1547.1 A Facility will be deemed to be in compliance with the IEEE Standard 1547.1 if the Company previously determined it was in compliance. Interconnecting Customers who can demonstrate Facility compliance with IEEE Standard 1547.1, with the testing done by a nationally recognized testing laboratory, will be eligible for the Expedited Process, and may be eligible for the Simplified Process upon review by the Company.

Massachusetts has adopted UL1741 (Inverters, Converters and Charge Controllers for Use in Independent Power Systems) and UL2200 (Stationary Engine Generator Assemblies) as the standard for power systems to comply with IEEE Standard 1547 and 1547.1. Equipment listed to UL1741 or UL2200 by a nationally recognized testing laboratory will be considered in compliance with IEEE Standard 1547 and 1547.1. An Interconnecting Customer should contact the Facility supplier(s) to determine if it has been listed to either of these standards.

Note N2. This screen is to ensure that the proposed generator will not exceed 1/15 of the Interconnecting Customer's load. The Company may require an interval meter be installed in order to determine the Interconnecting Customer minimum load. For a Solar Facility, only load during daylight hours (while the Solar Facility may be generating) should be used to determine the Interconnecting Customer's minimum load.

Note N3. This screen is used only for facilities applying for interconnection on an area network. If the proposed facility is supplied from a Spot Network, this screen should be ignored and the analysis should continue to the system modification check.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Table 1 – Simplified Process Time Frames (Note 1)

	Simplified Process
Eligible Facilities	Listed Small Inverter
Acknowledge Receipt of Application (Note 2)	(3 days)
Review Application for Completeness	10 days
Complete Review of All Screens	15 days (20 Days) (Note 3)
Complete Supplemental Review (if needed)	N/A
Complete Standard Process Initial Review	N/A
Send Follow-on Studies Cost/Agreement	N/A
Complete Impact Study (if needed)	N/A
Complete Detailed Study (if needed)	N/A
Send Executable Agreement (Note 4)	Done
Construction Schedule	By Mutual Agreement
Total Maximum Days (Note 5)	15 days
Notice/ Witness Test	< 1 day with 10 day notice or by mutual agreement

Table 1 – Simplified Process Time Frames – Explanatory Notes

Note 1. All days listed are in Business Days. In addition, in the event information has been requested of the Interconnecting Customer, all application Time Frames shall commence the next Business Day following receipt of information from the Interconnecting Customer. All Time Frames may be extended by mutual agreement. Any delays caused by Interconnecting Customer will interrupt the applicable Time Frame. A Force Majeure Event, affecting either the Company or the Interconnecting Customer, shall suspend the applicable Time Frame(s). The provisions in Section 3.6(b) regarding Interconnection Application and Interconnecting Customer-requested Time Frame Extensions shall also suspend the Time Frames. Pursuant to the above provisions,

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

the Company shall withdraw an Interconnection Application as authorized by the Department. The Time Frames 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. The 3 Business Days the Company has to acknowledge receipt of the Interconnecting Customer's Interconnection Application is included within the 10 Business Day Time Frame for the Company to review the Interconnection Application's completeness.

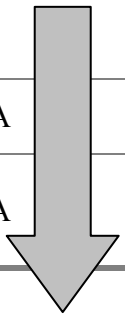
Note 3. In the event that the Interconnection Application fails Screen #5 in Figure 1 of the Interconnection Tariff, it shall not automatically be evaluated under the Standard Process. In the event of a Failure of Screen #5, the Company shall have 5 additional Business Days (20 Business Days in total) to review the Interconnection Application.

Note 4. 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 5. Actual totals laid out in columns exceed the maximum target.

Table 2 - Expedited Time Frames (Note 1)

	Expedited
Eligible Facilities	Listed DG
Acknowledge Receipt of Application (Note 2)	(3 days)
Review Application for Completeness	10 days
Complete Review of All Screens	25 days
Complete Supplemental Review (if needed) (Note 3)	20 days or Standard Process
Complete Standard Process Initial Review	N/A
Send Follow-on Studies Cost/Agreement	N/A



STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Complete Impact Study (if needed)	N/A
Complete Detailed Study (if needed)	N/A
Send Executable Agreement (Note 4)	10 days
Construction Schedule	By Mutual Agreement
Total Maximum Days (Note 5)	40/60 days (Note 6)
Notice/ Witness Test	< 1 day with 10 day notice or by mutual agreement

Table 2 – Expedited Process Time Frames – Explanatory Notes

Note 1. All days listed apply to Company Business Days. In addition, in the event information has been requested of the Interconnecting Customer, all application Time Frames shall commence the next Business Day following receipt of information from the Interconnecting Customer. All Time Frames may be extended by mutual agreement. Any delays caused by Interconnecting Customer will interrupt the applicable Time Frame. A Force Majeure Event, affecting either the Company or the Interconnecting Customer, shall suspend the applicable Time Frame(s). The provisions in Section 3.6(b) regarding Interconnection Application and Interconnecting Customer-requested Time Frame Extensions shall also suspend the Time Frames. Pursuant to the above provisions, the Company shall withdraw an Interconnection Application as authorized by the Department. The Time Frames in Table 2 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 megawatts (MW) and may occur if the Interconnecting Customer's Facility is greater than 1 megawatt (MW).

Note 2. The 3 Business Days the Company has to acknowledge receipt of the Interconnecting Customer's Interconnection Application is included within the 10 business day Time Frame for the Company to review the Interconnection Application's completeness.

Note 3. In the event that an Interconnection Application in the Simplified Process fails the Review Screens in Figure 1 and/or the Supplemental Review, it shall be reviewed under the Standard Process following Standard Process Time Frames.

Note 4. 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 5. Actual totals laid out in columns exceed the maximum target.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Note 6. Shorter time applies to Expedited Process without Supplemental Review, longer time applies to Expedited Process with Supplemental Review.

Table 3 – Standard Process Time Frames (Note 1)

	Standard
Eligible Facilities	Any DG
Acknowledge Receipt of Application (Note 2)	(3 days)
Review Application for Completeness	10 days
Complete Review of All Screens	N/A
Complete Supplemental Review (if needed)	N/A
Complete Standard Process Initial Review	20 days
Send Follow-on Studies Cost/Agreement	5 days
Complete Impact Study (if needed)	55 days
Complete Detailed Study (if needed)	30 days
Send Executable Agreement (Note 3)	15 days
Construction Schedule	By Mutual Agreement
Total Maximum Days (Note 4)	125/150 days (Note 5)
Notice/ Witness Test	10 days or by mutual agreement

Table 3 – Standard Process Time Frames – Explanatory Notes

Note 1. All days listed apply to Company Business Days. In addition, in the event information has been requested of the Interconnecting Customer, all application Time Frames shall commence the next Business Day following receipt of information from the Interconnecting Customer. All Time Frames may be extended by mutual agreement. Any delays caused by Interconnecting Customer will interrupt the applicable Time Frame. A Force Majeure Event,

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

affecting either the Company or the Interconnecting Customer, shall suspend the applicable Time Frame(s). The provisions in Section 3.6(b) regarding Interconnection Application and Interconnecting Customer-requested Time Frame Extensions shall also suspend the Time Frames. Pursuant to the above provisions, the Company shall withdraw an Interconnection Application as authorized by the Department. The Time Frames in Table 3 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. The 3 Business Days the Company has to acknowledge receipt of the Interconnecting Customer's Interconnection Application is included within the 10 Business Day Time Frame for the Company to review the Interconnection Application's completeness.

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.

Note 5. 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 Detailed Studies are needed. If the Detailed Study is not needed, the Time Frames will be shorter.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Table 4 – Standard Process Complex Projects Time Frames (Note 1)

	Standard Process Complex Projects
Eligible Facilities	Any DG (Note 2)
Acknowledge Receipt of Application (Note 3)	(3 days)
Review Application for Completeness	10 days
Complete Review of All Screens	N/A
Complete Supplemental Review (if needed)	N/A
Complete Standard Process Initial Review	20 days
Send Follow-on Studies Cost/Agreement	5 days
Complete Impact Study (if needed)	(Note 4)
Complete Detailed Study (if needed)	(Note 5)
Send Executable Agreement(Note 6)	15 days
Construction Schedule	By Mutual Agreement
Total Maximum Days	Determined by Required System Modifications
Notice/ Witness Test	10 days or by mutual agreement

Table 4 – Standard Process Complex Projects Time Frames – Explanatory Notes

Note 1. All days listed apply to Company Business Days. In addition, in the event information has been requested of the Interconnecting Customer, all application Time Frames shall commence the next Business Day following receipt of information from the Interconnecting Customer. Any delays caused by Interconnecting Customer will interrupt the applicable Time Frame. A Force Majeure Event, affecting either the Company or the Interconnecting Customer, shall suspend the applicable Time Frame(s). The provisions in Section 3.6(b) regarding Interconnection Application and Interconnecting Customer-requested Time Frame Extensions shall also suspend the Time Frames. Pursuant to the above provisions, the Company shall withdraw an Interconnection Application as authorized by the Department. The Time Frames in

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Table 4 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. Interconnection Applications that are evaluated under the Standard Process Complex Projects Time Frames are Facility Interconnection Applications that will require extensive System Modifications.

Note 3. The 3 Business Days the Company has to acknowledge receipt of the Interconnecting Customer's Interconnection Application is included within the 10 Business Day Time Frame for the Company to review the Interconnection Application's completeness.

Note 4. If the Interconnection Application will require any Sub-Station modifications, the Company shall have the following time periods in which to complete the Impact Study for each Interconnection Application: 75 Business Days in 2013; 75 Business Days in 2014; 70 Business Days in 2015; and 60 Business Days in 2016 and thereafter. The applicable Time Frame for the Impact Study is determined by the year the Impact Study commences and remains in effect for the duration of the Impact Study, regardless if the Impact Study concludes in a year with a shorter Time Frame.

Note 5. If the System Modifications identified in the Impact Study are likely to be $200,000 or more in EPS upgrades not including service upgrades for the Interconnecting Customer site, the Company shall have the following time periods in which to complete the Detailed Study for each Interconnection Application: 75 Business Days in 2013; 75 Business Days in 2014; 70 Business Days in 2015; and 60 Business Days in 2016 and thereafter. The applicable Time Frame for the Impact Study is determined by the year the Impact Study commences and remains in effect for the duration of the Impact Study, regardless if the Impact Study concludes in a year with a shorter Time Frame. If System Modifications are estimated to cost $1 million or more, the Time Frames for both the Impact and Detailed Studies will be by mutual agreement. The Company will track adherence to the mutually agreed upon Time Frame. In the event that the Company later determines that the System Modifications will cost less than $1 million, the Interconnection Application will revert to the Time Frames for Sub-Station Modifications or System Modifications costing $200,000 or more but less than $1 million as appropriate. The Company will inform the Interconnecting Customer within 20 days following the commencement of the Impact study whether the Interconnection Application shall be treated as a Complex Project under the Standard Process. If at any time during the Impact Study the Company determines that the System Modifications will cost $1 million or more, the Detailed Study Time Frame shall be by mutual agreement.

Note 6. 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Table 5 – Simplified Spot and Area Network Time Frames (Note 1)

	Simplified Spot and Area Network
Eligible Facilities	Listed Inverter
Acknowledge Receipt of Application (Note 2)	(3 days)
Review Application for Completeness	10 days
Complete Review of All Screens	Site review 30/90 days (Note 3)
Complete Supplemental Review (if needed)	N/A
Complete Standard Process Initial Review	N/A
Send Follow-on Studies Cost/Agreement	N/A
Complete Impact Study (if needed)	N/A
Complete Detailed Study (if needed)	N/A
Send Executable Agreement (Note 4)	Done (Comparable to Simplified for Radial)
Construction Schedule	By Mutual Agreement
Total Maximum Days (Note 5)	40/100 days (Note 6)
Notice/ Witness Test	1 day with 10 day notice or by mutual agreement

Table 5 – Simplified Spot and Area Network Time Frames – Explanatory Notes

Note 1. All days listed apply to Company Business Days. In addition, in the event information has been requested of the Interconnecting Customer, all application Time Frames shall commence the next Business Day following receipt of information from the Interconnecting Customer. Any delays caused by Interconnecting Customer will interrupt the applicable Time Frame. A Force Majeure Event, affecting either the Company or the Interconnecting Customer, shall suspend the applicable Time Frame(s). The provisions in Section 3.6(b) regarding Interconnection Application and Interconnecting Customer-requested Time Frame Extensions

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

shall also suspend the Time Frames. Pursuant to the above provisions, the Company shall withdraw an Interconnection Application as authorized by the Department. The Time Frames in Table 5 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. The 3 Business Days the Company has to acknowledge receipt of the Interconnecting Customer's Interconnection Application is included within the 10 Business Day Time Frame for the Company to review the Interconnection Application's completeness.

Note 3. 30 Business Days if load is known or can be reasonably determined, 90 Business Days if it has to be metered as long as the lowest expected seasonal minimum load is covered.

Note 4. 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 5. Actual totals laid out in columns exceed the maximum target.

Note 6. 40 Business Day s if load was known at time of Interconnection Application or 100 Business Day s if it had to be metered.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Table 6 - Fee Schedules

These fee schedules apply to Interconnecting Customers only from the effective date of the tariff revisions and may not be retroactively applied to Interconnecting Customers with an Interconnection Application on file with the Company prior to the tariff revisions effective date.

	Simplified	Expedited	Standard (Note 1)	Simplified Spot and Area Network
	Listed Small Inverter	Listed DG	Any DG	Listed Inverter
Application Fee (covers Screens)	0 (Note 2)	$4.50/kW, minimum $300, maximum $7,500	$4.50/kW, minimum $300, maximum $7,500	≤$3/kW $100, >3kW $300
Supplemental Review or Additional Review (if applicable)	N/A	Up to 30 engineering hours at $150/hr ($4,500 maximum) (Note3)	N/A	N/A
Standard Interconnection Initial Review	N/A	N/A	Included in application fee (if applicable)	N/A
Impact and Detailed Study (if required)	N/A	N/A	Actual cost (Note 4)	N/A
Facility Upgrades	N/A (Note 5)	Actual cost	Actual cost	N/A
O&M (Note 6)	N/A	TBD	TBD	N/A
Witness Test	0	Actual cost, up to $300 + travel time (Note 7)	Actual Cost	0 (Note 8)

Table 6- Fee Schedules Explanatory Notes

Note 1. Costs associated with the Impact and Detailed Studies and any necessary System Modifications identified through a group study shall be allocated on a pro rata Facility kW basis. If one or more of the Interconnection Applications are withdrawn by the Interconnecting Customer or by the Company, the remaining Interconnecting Customers shall pay their pro rata share of costs of any additional restudies required by the Company pursuant to the Facility MW.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Note 2. 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 3. Supplemental Review and additional review are defined in Section 3.3.

Note 4. This is the actual cost only attributable to the Interconnecting Customer. Any costs not expended from the application fee previously collected will go toward the costs of these studies.

Note 5. 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 6. O & M is defined as the Company's operations and maintenance carrying charges on the incremental costs associated with serving the Interconnecting Customer.

Note 7. 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 8. 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 and Company-specific technical standards for interconnection of distributed generation. 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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. The most current version of IEEE Standard 1547 provides these levels at the PCC. In requiring adherence to the most current version of IEEE Standard 1547, 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 ±2/10 cycle (±0.33%), except on infrequent occasions when the deviation may reach ±1/10 cycle (±0.17%). The usual normal deviation is approximately ±1/20 cycle (±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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Interconnecting 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 most current version of the following documents and standards and requirements in this Section.

i) IEEE Standard 1547, "IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems."

ii) UL Standard 1741, "Inverters, Converters and Charge Controllers for Use in Independent Power Systems."

iii) Company-specific technical standards.

In the event that the IEEE or UL Standards referenced above conflict with the Company-specific technical specifications, the Company-specific technical specifications control and shall be followed. The specific differences shall be communicated to the Technical Standards Review Group.

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 any Company-specific published technical specifications and 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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, in particular the attachments specific to Under Voltage Ride Through, Under Frequency Ride Through and VAr control. Additionally, all Facilities must meet the Company-specific technical requirements.

4.2.3.1 Group 1 Facilities

a) The inverter-based Facility shall be considered Listed if it meets requirements set forth in Section 3.1 “Simplified Process”.

b) External Disconnect Switch: For Listed inverters, the Company may require an external disconnect switch (or comparable device by mutual agreement of the Parties) at 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 if the Company-specific technical standards require.

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 the most current version of Section 4.1.8.3 of IEEE Standard 1547 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 the most current version of 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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") 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 the most current version of IEEE Standard 1547 and the Company- specific technical requirements 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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. At the time that the Company provides an Interconnecting Customer with any Impact Study or Detailed Study, the Company shall also provide, along with that Study, a statement of the Company's policies on collection of tax gross-ups. 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. Any System Modifications identified by the group study shall be allocated pro rata by Facility MW for shared common segments of additional lines and other equipment, while unique segments of line or equipment shall be covered solely by the Facility necessitating the System Modification. In the event that a new Facility interconnects to the circuit that was the subject of the group study within 5 years, that Interconnecting Customer shall be assessed System Modification costs consistent with the Company's line extension policy; however, new Interconnecting Customers in the Simplified Process shall be exempt from this required cost allocation. The 5 year period shall be calculated from the date of execution of the Interconnection Service Agreement of the first Interconnecting Customer within the group study.

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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, including a payment and construction schedule with milestones for both parties. 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 what is stated in the most current version of IEEE Standard 1547, 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

Massachusetts Electric Company
Nantucket Electric Company

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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. The 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 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:

- 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.

- For Facilities larger than 60 kW, the Facilities will be equipped with 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 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 (or other Company approved communication means) 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.

- 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).

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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[2] 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 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

---

[2] A "reverse strike out process" involves each party eliminating the least desirable mediator until one is left standing.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Companies' service quality plans. The docket number for the Company's service quality plan is D.T.E 01-71A. 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, i.e. Interconnecting Customers, 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

a) 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:

   i) 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;

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

ii) 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;

iii) 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;

iv) 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, except as provided below in subsection 11.1(b).

b) 11.1(b) Pursuant to 220 C.M.R. § 18.03(2), no insurance is required for Interconnecting Customers with facilities eligible for Class 1 Net Metering (facilities less than or equal to sixty (60) kW). However, the Company recommends that the Interconnecting Customer obtain adequate insurance to cover potential liabilities.

c) Any combination of General Liability and Umbrella/Excess Liability policy limits can be used to satisfy the limit requirements stated above.

d) The general liability insurance required to be purchased in this Section 11 may be purchased for the direct benefit of the Company and shall respond to third party claims asserted against the Company (hereinafter known as "Owners Protective Liability"). Should this option be chosen, the requirement of Section 11.2(a) will not apply but the Owners Protective Liability policy will be purchased for the direct benefit of the Company and the Company will be designated as the primary and "Named Insured" under the policy.

e) The insurance hereunder is intended to provide coverage for the Company solely with respect to claims made by third parties against the Company.

f) In the event the Commonwealth of Massachusetts, or any other governmental subdivision thereof subject to the claims limits of the Massachusetts Tort Claims Act, G.L. c. 258 (hereinafter referred to as the "Governmental Entity") is the Interconnecting Customer, any insurance maintained by the Governmental Entity shall contain an endorsement that strictly prohibits the applicable insurance company from interposing the claims limits of G.L. c. 258 as a defense in either the adjustment of any claim, or in the defense of any lawsuit directly asserted against the insurer by the Company. Nothing herein is intended to constitute a

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

waiver or indication of an intent to waive the protections of G.L. c. 258 by the Governmental Entity.

g) Notwithstanding the requirements of section 11.1(a) through (f), insurance for certain Governmental Entity facilities may be provided as set forth in section 11.1(g)(i) and (ii) below. Nothing herein changes the provision in subsection 11.1(a)(iv) that exempts Class I Net Metering facilities (less than or equal to 60 kW) from the requirement to obtain insurance. In addition, nothing shall prevent the Governmental Entity from obtaining insurance consistent with the provisions of subsection 11.1(a) through (f), if it is able and chooses to do so.

i) For solar photovoltaic (PV) facilities with a Gross Nameplate Rating in excess of 60 kW up to 500 kW, the Governmental Entity is not required to obtain liability insurance. Any liability costs borne by the Company associated with a third-party claim for damages in excess of the claims limit of the Massachusetts Tort Claims Act, M.G.L. c. 258, and market-based premium-related costs, if any, borne by the Company associated with insurance for such third-party claims shall be recovered annually on a reconciling basis in Company rates in a manner that shall be reviewed and approved by the Department.

ii) For (a) PV facilities with a Gross Nameplate Rating in excess of 500 kW up to 5 MW, (b) wind facilities with a Gross Nameplate Rating in excess of 60 kW up to 5 MW, and (c) highly efficient combined heat and power facilities with a Gross Nameplate Rating of in excess of 60 kW up to 5 MW, the Governmental Entity is not required to obtain liability insurance, subject to the requirements of the following paragraph.

The Company shall either self-insure for any risk associated with possible third-party claims for damages in excess of the Massachusetts Tort Claims Act limit, or obtain liability insurance for such third-party claims, and the Company is authorized to charge and collect from the Governmental Entity its pro-rata allocable share of the cost of so doing, plus all reasonable administrative costs. The coverage and cost may vary with the size and type of facility, and may change (increase or decrease) over time, based on insurance market conditions, and such cost shall be added to, and paid for as part of the Governmental Entity's electric bill.

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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, and annually thereafter, 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 Interconnecting Customer will maintain extended reporting coverage for three years on all policies written on a "claims-made" basis.

In the event that an Owners Protective Liability policy is provided, the original policy shall be provided to the Company.

11.4 Self Insurance

If Interconnecting Customer has 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 the 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

This section shall not allow any Governmental Entity to self-insure where the existence of a limitation on damages payable by a Government Entity imposed by the Massachusetts Tort Claims Act, G.L. c. 258, or similar law, could effectively limit recovery (by virtue of a cap on recovery) to an amount lower than that required in Section 11.1(a).

12.0 ASSIGNMENT

Except as provided herein, Interconnecting Customer shall not voluntarily assign its rights or obligations, in whole or in part, of this tariff without the Company's written consent. Any assignment purportedly made by Interconnecting Customer without the Company's written consent shall not be valid. The Company shall not unreasonably withhold or delay its consent to Interconnecting Customer's assignment of this Agreement. Notwithstanding the above, the 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 tariff unless, and until the assignee assumes in writing all obligations of this Agreement and notifies the Company of such assumption.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit A - Simplified Process Interconnection Application

Instructions (please do not submit this page)

General Information

If you, the Interconnecting Customer, wish to submit an application to interconnect your generating Facility using the Simplified Process (reference Section 3.1 of the Interconnection Tariff for eligibility) please fill out the attached application form completely (not including this page of instructions), including your signature in the space provided. Interconnections that may be eligible for this Simplified Process include UL 1741-Listed inverter-based Facilities that are either (1) connecting to radial electric power systems with power ratings of ≤ 15 kW single-phase or ≤ 25 kW three-phase, or (2) connecting to spot network electric power systems with power ratings of ≤ 15 kW single-phase. Please attach any documentation provided by the inverter manufacturer concerning the UL 1741 listing provided by the manufacturer.

Mail all material to:

National Grid
Attn: Distributed Generation
40 Sylvan Rd
Waltham, MA 02451

Or email to Distributed.Generation@nationalgrid.com

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. In the event that the Facility fails Screen #5 in Figure 1, that is located in Section 3.0 of the Standards for Interconnection of Distributed Generation Tariff ("Interconnection Tariff"), as approved by the Department of Public Utilities (see Company's website for complete tariff), the Company shall have 5 additional Business Days to review the Interconnection Application to determine if the Facility 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

Generating Facility Information: Please consult an actual electric bill from the Electric Service Company and enter the correct Account Number and Meter Number on this application. If the facility is to be installed in a new location, a temporary number may be assigned by the Electric Company.

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, i.e. Interconnecting Customers, and periodically reviewed by a DG Working Group of industry participants that has been organized by the Massachusetts Department of Public Utilities (DPU). 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 Working Group by answering "Yes" to the Confidentiality

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

UL1741 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 term "Listed" is then marked on the equipment and supporting documentation.

Nameplate Rating: The AC Nameplate rating of the individual inverter?

System Design Capacity: The system total of the inverter AC ratings. If there are multiple inverters installed in the system, this is the sum of the AC nameplate ratings of all inverters

DC-STC rating: _____ (kW) The DC STC of all of the inverters of the Facility, regardless of the number of DC PV panels that are installed.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Simplified Process Interconnection Application and Service Agreement

ATTACHMENT 1

Contact Information: Date Prepared: _____

Legal Name and address of Interconnecting Customer

Interconnecting Customer (print): _____Contact Person: _____

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 Working Group that is exploring ways to further expedite future interconnections." Yes _____ No _____

Facility Information:

Customer name (if Customer is not Interconnecting Customer) _____

Customer email: _____ Customer telephone: _____

Address of Facility: _____

City: _____ State: _____ Zip Code: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Electric Service Company: _____

Account Number: _____

Meter Number: _____

Inverter Manufacturer: _____
Model Name and Number: _____ Quantity: _____

Nameplate Rating: _____ (kW) _____ (kVA) _____ (AC Volts) Single __ or Three __ Phase

System Design Capacity: _____ (kW) _____ (kVA)
For Solar PV provide the DC-STC rating: _____ (kW)

Prime Mover: Photovoltaic ☐ Reciprocating Engine ☐ Fuel Cell ☐ Turbine ☐
Other _____

Energy Source: Solar ☐ Wind ☐ Hydro ☐ Diesel ☐ Natural Gas ☐ Fuel Oil ☐
Other _____

IEEE 1547.1 (UL 1741) Listed? Yes _____ No _____

Estimated Install Date: _____ Estimated. In-Service Date: _____

Interconnecting 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 ____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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:

   a) 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.

   b) Certificate of Completion. The Interconnecting Customer returns the Certificate of Completion appearing as Attachment 2 to the Agreement to the Company at address noted.

   c) 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:

   a) 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

b) 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. Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Massachusetts Constitution from pledging their credit without prior legislative authority, 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:

a) By Mutual Agreement. The Parties agree in writing to terminate the Agreement.

b) By Interconnecting Customer. The Interconnecting Customer may terminate this Agreement by providing written notice to Company.

c) 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

12) Interconnection Tariff. These Terms and Conditions are pursuant to the Company's Standard for Interconnection of Distributed Generation Tariff ("Interconnection Tariff"), as approved by the Department of Public Utilities and as the same may be amended from time to time. All defined terms set forth in these Terms and Conditions are as defined in the Interconnection Tariff (see Company's website for complete tariff).

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

ATTACHMENT 2

Certificate of Completion for Simplified Process Interconnections

Installation Information: ☐ Check if owner-installed

Interconnecting Customer Name (print): _____

Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Address of Facility (if different from above):

_____

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: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

License # _____

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.: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit B - Generating Facility Expedited/Standard Pre-Application Report Form

Interconnecting Customer Name (print): _____

Contact Person: _____

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 (print): _____

Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Facility Information:

1) Proposed Facility Location (street address with cross streets, including town, and a Google Map still picture and GPS coordinates): _____

2) Generation Type: _____

3) Size (AC kW): _____

4) Single or Three Phase Generator Configuration: _____

5) Stand-alone (no on-site load, not including parasitic load)?
Yes _____ No _____

6) If there is existing service at the Proposed Facility site, provide:

   a) Interconnecting Customer Account Number _____

   b) site minimum and maximum (if available) current or proposed electric loads

      i) Minimum kW: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

ii) Maximum kW: _____

7) Is new service or service upgrade needed?

DISCLAIMER: Be aware that this Pre-Application Report is simply a snapshot in time and is non-binding. System conditions can and do change frequently.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit C - Expedited/Standard Process Interconnection Application

Instructions (please do not submit this page)

General Information

Prior to submitting an Interconnection Application through either the Expedited or Standard Process, all Interconnecting Customers with Facilities that are 500kW or greater must request and receive a Pre-Application Report from the Company (Exhibit B). If the Pre-Application Report is not received within the applicable Time Frame, the Interconnecting Customer can file its application. The Pre-Application Report is optional for those Facilities that are less than 500 kW. Complete information regarding the Pre-Application Report is found in Section 3.2 of the Standards for Interconnection of Distributed Generation Tariff ("Interconnection Tariff) which is located on the Company's website.

If you wish to submit an application to interconnect your generating facility using the Expedited or Standard Process following receipt of the Pre-Application Report as applicable, please fill out all pages of the attached application form (not including this page of instructions). Once complete, please sign, attach the supporting documentation requested and enclose an application fee of $4.50/kW (minimum of $300 and maximum of $7,500).

Contact Information: You must provide as a minimum the contact information of the legal applicant, i.e. Interconnecting Customer. If another party is responsible for interfacing with the Company (utility), you must 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, i.e. Interconnecting Customers, and periodically reviewed by a DG Working Group of industry participants that has been organized by the Massachusetts Department of Public Utilities (DPU). 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 Working Group 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Account and Meter Numbers: Please consult an actual electric bill from the Electric Service Company and enter the correct Account Number and Meter Number on this application. If the facility is to be installed in a new location, a temporary number may be assigned by the Electric Company.

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: Date Prepared: _____

Legal Name and address of Interconnecting Customer

Interconnecting Customer (print): _____Contact Person: _____

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: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Ownership (include % ownership by any electric utility): _____

Site Control? (Y/N) _____

Will Facility be constructed on a single parcel of land? (Y/N) _____

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 Working Group that is exploring ways to further expedite future interconnections." Yes ____ No ____

Group Study Agreement: "I agree to allow my contact information to be shared with other parties interested in a potential group study in the same geographic area." Yes ____ No ____

Generating Facility Information

Please provide all Pre-Application Reports (either mandatory or optional).

Customer name (if Customer is not Interconnecting Customer) _____

Customer email: _____ Customer telephone: _____

Address of Facility: _____

City: _____ State: _____ Zip Code: _____

Electric Service Company: _____

Account Number: _____

Meter Number: _____

Type of Generating Unit: Synchronous _____ Induction _____ Inverter _____

Manufacturer: _____ Model: _____

Nameplate Rating: _____ (kW) _____ (kVAr) _____ (AC Volts) Single ___ or Three ___ Phase

Prime Mover: Fuel Cell ☐ Reciprocating Engine ☐ Gas Turbine ☐ Steam Turbine ☐
Microturbine ☐ Photovoltaic ☐ Other _____

Energy Source: Solar ☐ Wind ☐ Hydro ☐ Diesel ☐ Natural Gas ☐ Fuel Oil ☐
Other _____ (Please Specify)

For Solar PV provide the DC-STC rating: _____ (kW)

IEEE 1547.1 (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: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Export Form? Simultaneous Purchase/Sale ____ Net Purchase/Sale ____ Net Metering ____
Other (Specify) _____

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

Information on components of the generating facility that are currently Listed

	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, Xd: _____ (PU) Transient Reactance, X'd: _____ (PU)

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Subtransient Reactance, X"d: _____ (PU) Neg Sequence Reactance, X2: _____ (PU)

Zero Sequence Reactance, Xo: _____ (PU) kVA Base: _____

Field Voltage: _____ (Volts) Field Current: _____ (Amps)

Additional information for Induction Generating Units

Rotor Resistance, Rr: _____ Stator Resistance, Rs: _____

Rotor Reactance, Xr: _____ Stator Reactance, Xs: _____

Magnetizing Reactance, Xm: _____ Short Circuit Reactance, Xd": _____

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 Date: _____

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 ____ WyeGrounded ____ Other
Transformer Secondary: ____ (Volts) ____ Delta ____ Wye ____ WyeGrounded ____ 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: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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:

	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: ____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Potential Transformer Data (if applicable):

Manufacturer: _____ Type: _____ Accuracy Class: _____ Proposed Ratio Connection: ____

Manufacturer: _____ Type: _____ Accuracy Class: _____ Proposed Ratio Connection: ____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

General Technical Detail Date: _____

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. The Company will accept an electronic version of this information, in which case only 1 paper copy needs to be submitted to the Company.

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). The Company will accept an electronic version of this information, in which case only 1 paper copy needs to be submitted to the Company.

Proposed Location of Protective Interface Equipment on Property:
(Include Address if Different from Application Address)

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 Facility.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

ATTACHMENT 2

Certificate of Completion for Expedited/Standard Process Interconnections

Installation Information: ☐ Check if owner-installed

Interconnecting Customer Name (print): _____

Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Address of Facility (if different from above):

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): _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Date: _____

License # _____

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.: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit D - 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 and a construction schedule 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 $4,500. 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

_____
Company

_____
Date

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit E - 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 ±25%) and a Detailed Study Agreement and its estimated cost.

5) In the Standard process, where there are multiple interdependent Interconnection Applications on the same feeder, any subsequent Interconnecting Customer behind another Interconnection Application on a feeder can request that an Impact Study be conducted with mutually agreed upon Time Frames, or request that their Impact Study be suspended until the initial Interconnection Application's Impact Study and any other preceding Interconnection Application's Impact Study are completed. These provisions shall serve as an interim measure until the DG Working Group develops and implements a more permanent method of addressing multiple Interconnection Applications on a

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

single feeder through group studies or other means and suspension of Time Frames for such studies.

6) 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.

7) The Impact Study fee of $____ (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, including a payment and construction schedule with milestones for both parties. 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.

8) 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. Interconnecting Customers who elect to execute an Interconnection Services Agreement following the completion of the Impact Study but prior to the commencement of any Design Studies, pursuant to Section 3.4(e) of the Interconnection Tariff, shall be responsible for any System Modifications costs, ±25%, as identified by the Company in the Impact Study. 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.

9) 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)

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Business 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) Business Days of the provision of such final accounting report.

10) 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 13 below.

11) Nothing in this Agreement shall be interpreted to give the Interconnecting Customer immediate rights to wheel over or interconnect with the Company's EPS.

12) 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.

13) Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Massachusetts Constitution from pledging their credit without prior legislative authority, 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

14) 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.

15) This agreement shall be construed and governed in accordance with the laws of the Commonwealth of Massachusetts.

16) All amendments to this Agreement shall be in written form executed by both Parties.

17) The terms and conditions of this Agreement shall be binding on the successors and assigns of either Party.

18) This Agreement will remain in effect for a period of up to two years from its effective date.

19) 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, specifically Section 3.6(b).

Interconnecting Customer:		Company:	
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit F - 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 a 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 and a construction schedule if Interconnecting Customer agreed to sign an Interconnection Service Agreement before 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 $_____ (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, including a payment and construction schedule with milestones for both parties. At the request of the

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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. Interconnecting Customers who will elect to execute an Interconnection Services Agreement following the completion of the Impact Study but prior to the commencement of any Design Studies, pursuant to Section 3.4(e) of the Interconnection Tariff, shall be responsible for any System Modifications costs, ±25%, as identified by the Company in the Impact Study. 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.

8) 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 Business 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) Business Days of the provision of such final accounting report.

9) 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 11 below.

10) Nothing in this Agreement shall be interpreted to give the Interconnecting Customer immediate rights to wheel over or interconnect with the Company's EPS.

11) Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Constitution from pledging their credit without prior legislative authority, 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.

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, specifically Section 3.6(b).

Interconnecting Customer: Company:

Name: _____ Name: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Title:		Title:	
Date:		Date:	

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit G - 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 Section 1.2 of the Interconnection Tariff which is hereby incorporated by reference.

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, an Agreement between the Company and the Company's Retail Customer, attached as Exhibit G to the Interconnection Tariff, must be signed and included as an Attachment to this Agreement.

   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.

   11.1(a) The Parties agree in writing to terminate the Agreement.

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

   11.1(c) 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.

   11.1(d) 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

consecutive 12 month period after the Authorization Date shall constitute permanent abandonment unless otherwise agreed to in writing between the Parties.

11.1(e) 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. The System Modifications construction schedule from the Detailed Study shall be deemed a part of the signed Interconnection Service Agreement. If the Interconnection Service Agreement is signed prior to a Detailed Study, the Interconnection Service Agreement shall apply the construction schedule once it is signed.

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. If the system modifications exceed $25,000, Attachment 4 will include a payment and construction schedule for both parties.

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. Interconnecting Customers who elected to execute an Interconnection Services Agreement following the completion of the Impact Study but prior to the commencement of any Design Studies, pursuant to Section 3.4(e) of the Interconnection Tariff, shall be responsible for any System Modifications costs, ±25%, as identified by the Company in the Impact Study. 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) Business 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Business 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) Business 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

11.1(a) 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.

11.1(b) Company Right to Access Company-Owned Facilities and Equipment.

If necessary for the purposes of the 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 the 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.

11.1(c) 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 the Interconnection Tariff.

7. Disconnection

7.1. Temporary Disconnection

11.1(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.

11.1(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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

11.1(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.

11.1(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.

11.1(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.

11.1(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.

11.1(a) 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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.

    11.1(a) 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:

        i) 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.

        ii) 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;

        iii) 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;

        iv) 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, except for as provide below in subsection 11.1(b).

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

11.1(b) Pursuant to 220 CMR §18.03(2), no insurance is required for Interconnecting Customers with facilities eligible for Class 1 Net Metering (facilities less than or equal to sixty (6o) kW. However, the Company recommends that the Interconnecting Customer obtain adequate insurance to cover potential liabilities.

11.1(c) Any combination of General Liability and Umbrella/Excess Liability policy limits can be used to satisfy the limit requirements stated above.

11.1(d) The general liability insurance required to be purchased in this Section 11 may be purchased for the direct benefit of the Company and shall respond to third party claims asserted against the Company (hereinafter known as "Owners Protective Liability"). Should this option be chosen, the requirement of Section 11.2(a) will not apply but the Owners Protective Liability policy will be purchased for the direct benefit of the Company and the Company will be designated as the primary and "Named Insured" under the policy.

11.1(e) The insurance hereunder is intended to provide coverage for the Company solely with respect to claims made by third parties against the Company.

11.1(f) In the event the Commonwealth of Massachusetts, or any other governmental subdivision thereof subject to the claims limits of the Massachusetts Tort Claims Act, G.L. c. 258 (hereinafter referred to as the "Governmental Entity") is the Interconnecting Customer, any insurance maintained by the Governmental Entity shall contain an endorsement that strictly prohibits the applicable insurance company from interposing the claims limits of G.L. c. 258 as a defense in either the adjustment of any claim, or in the defense of any lawsuit directly asserted against the insurer by the Company. Nothing herein is intended to constitute a waiver or indication of an intent to waive the protections of G.L. c. 258 by the Governmental Entity.

11.1(g) Notwithstanding the requirements of section 11.1(a) through (f), insurance for certain Governmental Entity facilities may be provided as set forth in section 11.1(g)(i) and (ii) below. Nothing herein changes the provision in subsection 11.1(a)(iv) that exempts Class I Net Metering facilities (less than or equal to 60 kW) from the requirement to obtain insurance. In addition, nothing shall prevent the Governmental Entity from obtaining insurance consistent with the provisions of subsection 11.1(a) through (f), if it is able and chooses to do so.

i) For solar photovoltaic (PV) facilities with a Gross Nameplate Rating in excess of 60 kW up to 500 kW, the Governmental Entity is not required to obtain liability insurance. Any liability costs borne by the Company associated with a third-party claim for damages in excess of the claims limit of the Massachusetts Tort Claims Act, M.G.L. c. 258, and market-based premium-related costs, if any, borne by the Company associated

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

with insurance for such third-party claims shall be recovered annually on a reconciling basis in Company rates in a manner that shall be reviewed and approved by the Department.

ii) For (a) PV facilities with a Gross Nameplate Rating in excess of 500 kW up to 5 MW, (b) wind facilities with a Gross Nameplate Rating in excess of 60 kW up to 5 MW, and (c) highly efficient combined heat and power facilities with a Gross Nameplate Rating of in excess of 60 kW up to 5 MW, the Governmental Entity is not required to obtain liability insurance, subject to the requirements of the following paragraph.

The Company shall either self-insure for any risk associated with possible third-party claims for damages in excess of the Massachusetts Tort Claims Act limit, or obtain liability insurance for such third-party claims, and the Company is authorized to charge and collect from the Governmental Entity its pro-rata allocable share of the cost of so doing, plus all reasonable administrative costs. The coverage and cost may vary with the size and type of facility, and may change (increase or decrease) over time, based on insurance market conditions, and such cost shall be added to, and paid for as part of the Governmental Entity's electric bill.

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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 the Interconnection Tariff on an annual basis.

Prior to the Company commencing work on System Modifications, and annually thereafter, 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 Interconnecting Customer will maintain extended reporting coverage for three years on all policies written on a "claims-made" basis.

In the event that an Owners Protective Liability policy is provided, the original policy shall be provided to the Company

11.4. Self Insurance.

If Interconnecting Customer has 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.

This section shall not allow any Governmental Entity to self-insure where the existence of a limitation on damages payable by a Government Entity imposed by the Massachusetts Tort Claims Act, G.L. c. 258, or similar law, could effectively limit recovery (by virtue of a cap on recovery) to an amount lower than that required in Section 11.1(a).

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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. Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Massachusetts Constitution from pledging their credit without prior legislative authority, 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.

13. Limitation of Liability. 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.

14. Amendments and Modifications. No amendment or modification of this Agreement shall be binding unless in writing and duly executed by both Parties.

15. Permits and Approvals. Interconnecting Customer shall obtain all environmental and other permits lawfully required by governmental authorities for the construction and operation of the Facility. Prior to the construction of System Modifications the Interconnecting Customer will notify the Company that it has initiated the permitting process. Prior to the commercial operation of the Facility the Interconnecting Customer will notify the Company that it has obtained all permits necessary. Upon request the Interconnecting Customer shall provide copies of one or more of the necessary permits to the Company.

16. Force Majeure. For purposes of this Agreement, "Force Majeure Event" means any event:

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

a) that is beyond the reasonable control of the affected Party; and

b) that the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: acts of war or terrorism, public disorder, insurrection, or rebellion; floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; explosions or fire; strikes, work stoppages, or labor disputes; embargoes; and sabotage. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party will 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 will be entitled to suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but 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. In no event will the unavailability or inability to obtain funds constitute a Force Majeure Event.

17. Notices.

17.1. 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:

Name _____
Attention: _____
_____
_____
_____
Phone: _____
Email: _____
FAX: _____

If to Interconnecting Customer:

Name _____
Address: _____
_____
_____
City: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Phone: _____
Email: _____
FAX: _____

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, email 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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Company's Interconnection Tariff.

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.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Interconnecting Customer	Company
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

The following attachments will be included as appropriate for each specific Interconnection Service Agreement:

Attachment 1: Description of Facilities, including demarcation of Point of Common Coupling

Attachment 2: Description of System Modifications

Attachment 3: Costs of System Modifications and Payment Terms

Attachment 4: Special Operating Requirements, if any

Attachment 5: Agreement between the Company and the Company's retail Customer (to be signed by the Company's retail Customer where DG installation and interconnection will be placed, when retail Customer is not the owner and/or operator of the distributed generation facility --see Exhibit H of the Interconnection Tariff)

Attachment 6: System Modifications construction schedule. Please note, in the event an Interconnecting Customer has opted to sign an Interconnection Service Agreement following the completion of the Impact Study, but prior to the completion of the Detailed Study, a System Modifications construction schedule will be developed following the completion of the Detailed Study.

Massachusetts Electric Company
Nantucket Electric Company

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Exhibit H - Agreement Between the Company and the Company's Retail Customer

(Note: this Agreement is to be signed by the Company's retail Customer where the distributed generation installation and interconnection will be placed, when the retail Customer is not the owner and/or operator of the distributed generation facility.)

Parties. This Agreement between the Company and the Company's Retail Customer ("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 _____ ("Customer"). (The Company and Customer are collectively referred to as the "Parties"). Terms used herein without definition shall have the meanings set forth in Section 1.2 of the Interconnection Tariff, which is hereby incorporated by reference.

1. SCOPE, PURPOSE, AND RELATED AGREEMENTS

   This Agreement, in conjunction with the Interconnection Service Agreement identified in Section 2.2, 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:

Name: _____

Attention: _____

Address: _____

City: _____

Phone: _____

FAX: _____

Company Account Number: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

2.2. The Facility shall be Interconnected with the Company's EPS pursuant to an Interconnection Services Agreement between Company and Interconnecting Customer, its successors or assigns ("Interconnecting Customer") dated _____ ("Interconnection Service Agreement").

2.3 Interconnecting Customer's contact information:

Name: _____

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 31st day following the date the Interconnection Service Agreement is terminated.

d) At 12:01 A.M. on the 61st 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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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:

Name _____
Attention: _____
Address: _____
_____
_____
Phone: _____
FAX: _____

If to Interconnecting Customer:

Name _____
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, Customer shall not voluntarily assign its rights or obligations, in whole or in part, under this Agreement without Company's written consent. Any assignment Customer purports to make without Company's written consent shall not be valid. Company shall not unreasonably withhold or delay its consent to Customer's assignment of this Agreement. Notwithstanding the above, Company's consent will not be required for any assignment made by Customer to an Affiliate or as collateral security in connection with a financing transaction. In all events, the Customer will not be relieved of its obligations under this

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

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 Company's Interconnection Tariff.

13. INDEMNIFICATION

Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Massachusetts Constitution from pledging their credit without prior legislative authority, 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 (2) originals of this Agreement to be executed under seal by their duly authorized representatives.

Interconnecting Customer		Company	
By:	_____	By:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Schedule Z – Additional Information Required for Net Metering Service

Please fill out the form completely.

Host Customer Name: _____ Telephone: _____

Address of Facility: _____

Billing Account Number: _____

Meter Number: _____ Application ID Number: _____

Is the Host Customer a: _____ Municipality _____ Other Governmental Entity

If so, submit certification provided by the DPU when obtained.

A) Is the Host Customer applying for net metering service an electric company, generation company, aggregator, supplier, energy marketer, or energy broker, as those terms are used in M.G.L. c. 164, §§ 1 and 1F and 220 C.M.R. §11.00?
____ No
____ Yes (you are not eligible for net metering service)

NOTE: Definitions are:

"Electric company" means a corporation organized under the laws of the commonwealth for the purpose of making by means of water power, steam power or otherwise and for selling, transmitting, distributing, transmitting and selling, or distributing and selling, electricity within the commonwealth, or authorized by special act so to do, even though subsequently authorized to make or sell gas; provided, however, that electric company shall not mean an alternative energy producer; provided further, that a distribution company shall not include an entity which owns or operates a plant or equipment used to produce electricity, steam and chilled water, or an affiliate engaged solely in the provision of such electricity, steam and chilled water, where the electricity produced by such entity or its affiliate is primarily for the benefit of hospitals and nonprofit educational institutions, and where such plant or equipment was in operation before January 1, 1986; and provided further, that electric company shall not mean a corporation only transmitting and selling, or only transmitting, electricity unless such corporation is affiliated with an electric company organized under the laws of the commonwealth for the purpose of distributing and selling, or distributing only, electricity within the commonwealth. G.L. c. 164, § 1.

"Generation company" means a company engaged in the business of producing, manufacturing or generating electricity or related services or products, including but not limited to, renewable energy generation attributes for retail sale to the public. G.L. c. 164, § 1.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

"Aggregator" means an entity which groups together electricity Customers for retail sale purposes, except for public entities, quasi-public entities or authorities, or subsidiary organizations thereof, established under the laws of the commonwealth. G.L. c. 164, § 1.

"Supplier" means any supplier of generation service to retail Customers, including power marketers, brokers and marketing affiliates of distribution companies, except that no electric company shall be considered a supplier. G.L. c. 164, § 1.

For the terms "energy marketer" and "energy broker," please use the definition for "Electricity Broker," which means an entity, including but not limited to an Aggregator, which facilitates or otherwise arranges for the purchase and sale of electricity and related services to Retail Customers, but does not sell electricity. Public Aggregators shall not be considered Electricity Brokers. 220 C.M.R. 11.02.

B) If applying for Net Metering as an Agricultural Net Metering Facility, please answer the following questions:

1) Is the Agricultural Net Metering Facility operated as part of an agricultural business?
____ Yes
____ No (the facility is not eligible for Net Metering as an Agricultural Net Metering Facility)

2) Has the Commissioner of the Department of Agriculture recognized the business as an agricultural business?
____ Yes
____ No

3) Is the Agricultural Net Metering Facility located on land owned or controlled by the agricultural business mentioned in Item B.1 above?
____ Yes
____ No (the facility is not eligible for Net Metering as an Agricultural Net Metering Facility)

4) Is the energy from the Agricultural Net Metering Facility used to provide electricity to metered accounts of the agricultural business mentioned in Item B.1 above?
____ Yes
____ No (the facility is not eligible for Net Metering as an Agricultural Net Metering Facility)

C) If applying for neighborhood net metering, please answer the following questions:

1) Are all participants served by the same distribution company? ____Yes ____No
2) Are all participants served by the same ISO-NE load zone? ____Yes ____No
3) Do all participants reside in the same municipality? ____Yes ____No

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

NOTE: If any of the answers to the questions in Item C are no, then the facility is ineligible for neighborhood net metering unless granted an exception by the Department of Public Utilities under 220 C.M.R. §18.09(6).

D) Please indicate how the Host Customer will report to the Company the amount of electricity generated by the net metering facility. The information is due twice each year: (1) by January 31 for the prior year's generation; (2) by September 30 for the year-to-date generation:
_____ Provide the Company access to their ISO-NE GIS account
_____ Provide the Company access to their metering or inverter data
_____ Provide the Company with a report in writing of the generation by January 31 and again on September 30 each year

E) For any Billing Period in which the Host Customer earns Net Metering Credits, please indicate how the Distribution Company will apply them:
_____ Apply all of the Net Metering Credits to the account of the Host Customer (Skip Items F and G)
_____ Allocate all the Net Metering Credits to the accounts of eligible Customers (Class I and II Net Metering Facilities skip Item F)
_____ Both apply a portion of the Net Metering Credits to the Host Customer's account and allocate a portion to the accounts of eligible Customers (Class I and II Net Metering Facilities skip Item F)

F) If the Host Customer has a Class III Net Metering Facility, please indicate below the range that best represents the number of eligible Customer accounts to which Net Metering Credits would be allocated. Alternatively, please complete Item G. This information will allow the Company to exercise its option to purchase Net Metering Credits from the Host Customer rather than allocating such credits.

The Company will notify the Host Customer within 30 days of the filing of Schedule Z whether it will allocate or purchase Net Metering Credits. If the Company elects to purchase Net Metering Credits, the Company will render payment by issuing a check to the Host Customer each Billing Period, unless otherwise agreed in writing by the Host Customer and Company. If the Company elects to allocate Net Metering Credits, the Host Customer must complete Item G and submit the revised Schedule Z to the Company.

_____ Allocate Net Metering Credits to fewer than 50 eligible Customer accounts (Skip Item G)
_____ Allocate Net Metering Credits to 100 or fewer eligible Customer accounts (Skip Item G)
_____ Allocate Net Metering Credits to more than 100 eligible Customer accounts (Skip Item G)

G) Please state the total percentage of Net Metering Credits to be allocated.

____% Amount of the Net Metering Credit being allocated. The total amount of Net Metering Credits being allocated shall not exceed 100 %. Any remaining percentage will be applied to the Host Customer's account.

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Please identify each eligible Customer account to which the Host Customer is allocating Net Metering Credits by providing the following information (attach additional pages as needed):

NOTE: If a designated Customer account closes, the allocated percentage will revert to the Host Customer's account, unless otherwise mutually agreed in writing by the Host Customer and the Company.

Customer Name: _____
Service Address: _____
Billing Account Number: _____
If public entity, DPU Public Classification ID: _____
Amount of Net Metering Credit Allocated: _____ %

Customer Name: _____
Service Address: _____
Billing Account Number: _____
If public entity, DPU Public Classification ID: _____
Amount of Net Metering Credit Allocated: _____ %

Customer Name: _____
Service Address: _____
Billing Account Number: _____
If public entity, DPU Public Classification ID: _____
Amount of Net Metering Credit Allocated: _____ %

Customer Name: _____
Service Address: _____
Billing Account Number: _____
If public entity, DPU Public Classification ID: _____
Amount of Net Metering Credit Allocated: _____ %

Customer Name: _____
Service Address: _____
Billing Account Number: _____
If public entity, DPU Public Classification ID: _____

STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION

Amount of Net Metering Credit Allocated: _____ %

Customer Name: _____

Service Address: _____

Billing Account Number: _____

If public entity, DPU Public Classification ID: _____

Amount of Net Metering Credit Allocated: _____ %

H) The Company may elect to seek to obtain capacity payments from ISO-NE for the electricity generated by Class II and III Net Metering Facilities. The Company will notify the Host Customer within 30 days of the filing of Schedule Z whether it will assert title to the right to seek those capacity payments. If the Company elects to assert title to those capacity payments, the Company will include any capacity payments received from ISO-NE in the Company's annual Net Metering Recovery Surcharge reconciliation.

I) The terms of this Schedule Z shall remain in effect unless and until the Host Customer executes a revised Schedule Z and submits it to the Company. Unless otherwise required herein or mutually agreed to in writing by the Host Customer and the Company, a revised Schedule Z shall not be submitted more than twice in any given calendar year.

J) A signature on the application shall constitute certification that (1) the Host Customer has read the application and knows its contents; (2) the contents are true as stated, to the best knowledge and belief of the Host Customer; and (3) the Host Customer possesses full power and authority to sign the application.

_____
Host Customer (Signature)

_____
Host Customer (Print)

_____
Date

Information Request AG 1-33

Request:

Refer to Exh. FED-1 (Corrected), p. 23. Mr. Dagher discusses the cost estimate. Does the cost estimate, that has been prepared, include battery storage? If no, why not?

Response:

The Company's Solar Phase II cost estimates do not include provisions for energy storage. During the bidders conferences, however, some developers expressed interest in adding energy storage as an option to their bids. The Company will review the feasibility of this option. The Company focused on developing the solar facilities without energy storage due to the short (one year) timeframe during which to build the facilities and was concerned that including battery storage could delay the installations' construction schedule.

Information Request AG 1-34

Request:

Refer to Exh. FED-1 (Corrected), pp. 23-24. Provide a detailed breakdown of the cost estimate for each of the three (3) categories outlined on page 24 of Mr. Dagher's testimony. This cost breakdown should delineate the cost for each major component including, but not limited to:

a. Land cost

b. Design

c. Material component cost, including the individual cost for the panels and inverter and other equipment, wiring cost and labor construction cost along with project management and other components of the total project cost.

d. Also include the cost as delineated for development cost, project management cost, commissioning cost, and capital overhead allocation.

Response:

a. Please refer to the Company's response to Information Request AG 1-16.

b. Please refer to the Company's response to Information Request AG 1-16.

c. Please refer to the Company's response to Information Request AG 1-16.

d. For estimated development cost, please refer to the Company's response to Information Request AG 1-16, and for estimated capital overhead allocations, please refer to the Company's response to Information Request AG 1-35.

Project management cost is the Company's cost to provide oversight of the projects during development, general guidance to developers as it relates to the construction of the projects during the all phases of the project, and liaise among the Company, customers, towns and cities officials, and other stakeholders. The project management cost of the Solar Phase II program is estimated at 1.5% of the solar development cost.

Commissioning cost is the Company's cost to provide professional technical services on behalf of the Company, review submittals, conduct operational tests to verify proper operation of the systems, verify construction adheres to codes, verify equipment is installed as it was specified, and to demonstrate the Company's requirements are met.

The Commissioning cost of the Solar Phase II program is estimated at 1.25% of the solar development cost.

Information Request AG 1-35

Request:

Refer to Exh. FED-1 (Corrected), p. 24. Please describe in detail how the capital overhead allocation will be determined and what the cost estimate for this component represents in the total cost.

Response:

Capital overhead allocation charges primarily include any labor and associated labor benefits costs related to capital work where an employee's activities supports the capital activities of the Company. These employees typically support multiple capital projects at one time; however, they will charge a single work order for the appropriate company. Charges to this work order can also include contractor expenses. At the end of each month, National Grid's Plant Accounting department clears these work orders by allocating the costs that have accumulated during the month to all capital work orders in that company. The monthly percentage is determined by Plant Accounting and will likely fluctuate each month. Once the percentage has been determined, each capital work order will get allocated costs based upon the capital project's monthly direct charges. Direct charges primarily include labor and associated labor benefits (e.g., payroll) and contractor expense. This capital overhead allocation process occurs every month. A capital work order will only receive capital overhead allocation charges if there are direct costs in that particular month. For the Solar Phase II program, the Company estimated the capital overhead allocation at an average of 15% of the development cost based upon the capital overhead allocation that had been charged to its existing solar facilities.

Information Request AG 1-36

Request:

Refer to Exh. FED-1 (Corrected), p. 25. Mr. Dagher discusses that cost estimates and assistance in preparing the cost estimates for the project were prepared by outside firms, and that historical cost information was relied upon, including the Massachusetts DOER data. Please provide a copy of the historical information and Massachusetts DOER data utilized, and describe, in detail, how the historical cost information has been adjusted to reflect the rapid decline in cost for the installation of solar PV projects over the past five (5) years.

Response:

To reflect the rapid decline in the cost of installing solar PV projects over the past five years, the Company reviewed and incorporated cost data for systems constructed within the last two years. For information regarding the historical cost information, please refer to the Company's response to Information Request DPU 1-17.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-37

Request:

Refer to Exh. FED-1 (Corrected), p. 27. Mr. Dagher indicates that the operation and maintenance annual expense was developed from the NREL study. Please provide a copy of that study, with specific reference to which portion of that study was utilized to develop the $ 20.00 per kW operation and maintenance cost estimate.

Response:

Please refer to Attachment DPU 1-2-1, section 3.2.4 Operation and Maintenance.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-38

Request:

Refer to Exh. FED-1 (Corrected), p. 28. Mr. Dagher states that National Grid's oversight cost will be $12.50 per kW and that the cost will escalate at 2.5% per year. Provide a detailed explanation of how the $12.50 per kW was developed and the basis for the annual escalation of 2.5% per year.

Response:

The Company estimates that the proposed Solar Phase II program will be composed of approximately seventy individual systems that range between 60 kW and 1,000 kW. The Company further estimates three hours per month per site may be needed to oversee the sites' performance, conduct performance analysis, and generate reports. Therefore, the total number of hours per year for the Company's oversight, reporting, and analysis of the 20 MW proposed Solar Phase II program is estimated to be 2,520 hours (rounded off to 2,500 hours) at an average base labor cost of $100 per hour for a total of $250,000 per year (or $12.5 per kW).

The escalation of 2.5% is an estimate to annually adjust for increases in the labor cost.

Information Request AG 1-39

Request:

Refer to Exh. FED-1 (Corrected), p. 30. Mr. Dagher states that lease payments are not included in the O&M. Provide a range for the anticipated lease payments, with a minimum and maximum, for each of the three (3) cost categories.

Response:

The Company does not have an estimated range of the anticipated lease payments because of the many variables that are associated with determining the lease payment that are unknown, partially due to the fact that particular locations have not yet been selected.

Please also refer to the Company's response to Information Request DPU 1-19.

Information Request AG 1-40

Request:

Refer to Exh. FED-1 (Corrected), p. 30. Mr. Dagher states that no lease payment costs were included in the total O&M costs for Solar. Please provide a range, on a per watt basis, that the Company has estimated for lease costs.

Response:

Please see the Company's response to Information Request AG 1-39.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-41

Request:

Refer to Exh. FED-1 (Corrected), p. 31. Mr. Dagher stated that the Company would pay property tax, but the amount is not yet known. Does Solar DG and related equipment receive any type of tax abatement or reduction? If so, how would that impact Exh. FED-4?

Response:

The Company's proposed solar facilities do not receive any property tax abatement. Property taxes will be levied based on the town's rate and the value of the solar investment. The Company's proposed solar facilities and related equipment might be eligible for income tax abatement in the form of accelerated depreciation, bonus depreciation, and Investment Tax Credits. The eligibility of the solar investments for income tax abatement will depend on when the Company makes these investments and the applicable tax rules in effect at that point in time.

Exhibit FED-4 (Corrected) shows an illustration of how property taxes are calculated using as an example the 2012 property tax rate of the town of Weymouth, MA. The Company's proposed solar facilities are not eligible for any property tax abatement or reduction; therefore, there will be no impact on Exhibit FED-4 (Corrected).

Information Request AG 1-42

Request:

Refer to Exhs. FED-1 (Corrected), p. 34 and FED-6.

a. Is it still anticipated that the responses from the vendors will be received by the middle of May 2014?

b. Is it still anticipated that there will be a selection made on or before mid-June 2014?

c. Does it appear that construction can commence in July 2014?

d. Will the final design of the proposed facilities be completed as of the receipt of bids? If not, please explain, what, if any, potential impact an ongoing design process could have on the construction commencement and completion dates.

Response:

a. Yes. The Company's RFP requested interested developers to submit their bids by May 6, 2014.

b. Yes. The Company anticipates selecting potential developers for its proposed Solar Phase II program by June 16, 2014.

c. Yes. The Company expects to execute contracts with the selected developers by mid-July 2014.

d. No. It is not anticipated that the final design of the proposed facilities will be completed as of the receipt of bids. The Company will work with the selected developers to ensure that final design submittals and reviews are conducted in a timely manner so construction commencement and completion dates remain on target.

Prepared by or under the supervision of: Fouad E. Dagher

Information Request AG 1-43

Request:

Refer to Exh. MMJ-1, pp. 3-5. Please describe in detail if it is the Company's opinion that, upon the completion of the analysis of the new 20 megawatts to be installed and operated with advanced technology inverters, focusing more on meeting the capacity needs as opposed to energy production, such a change in the focus and application of PV solar generation projects on the distribution system will result in the need for further revisions to the companies SCAP and BSAP once the 20 megawatts of new projects have been installed and evaluated.

Response:

Regardless of the focus and application of the solar facilities proposed in the Company's Solar Phase II program, until such time as the Company submits its next general rate case, at which time the Company's investment in all solar facilities will be reflected in the rate base and, consequently, base distribution rates, the Company believes that the operation of the SCAP and the BSAP would continue without revision. The proposed revisions to the Solar Cost Adjustment Provision ("SCAP"), in conjunction with the proposed Solar Phase II program, provide for the recovery of the Company's investment and ongoing O&M costs of the solar facilities and would continue to be applicable regardless of the focus of the facilities. The proposed revision to the Basic Service Adjustment Provision ("BSAP") provides for the use of the Renewable Energy Certificates ("RECs") proposed to be purchased under the proposed Solar Phase II program to contribute towards meeting the Company's Renewable Portfolio Standards requirements, which would continue as the solar facilities would continue to generate electricity and therefore also produce RECs.

Prepared by or under the supervision of: Margaret M. Janzen

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

Massachusetts Electric Company and Nantucket Electric Company, Each d/b/a National Grid	)	D.P.U. 14-01

CERTIFICATE OF SERVICE

I certify that I have this day served the foregoing upon the Department of Public Utilities and the Service List in the above-docketed proceeding in accordance with the requirements of 220 C.M.R 1.05 (Department's rules of Practice and Procedure) by hand delivery and electronic mail.

Respectfully submitted,

Camal O. Robinson
National Grid
40 Sylvan Road
Waltham, MA 02451
(781) 907-5701
Camal.Robinson@nationalgrid.com

Date: March 27, 2014