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STATE OF MAINE
PUBLIC UTILITIES COMMISSION

Docket No. 2011-138

April 24, 2012

CENTRAL MAINE POWER COMPANY
Request for Approval of Non-Transmission
Alternative (NTA) Pilot Projects for the
Mid-Coast and Portland Areas

STIPULATION

GridSolar LLC (“GridSolar”), the Office of the Public Advocate (“OPA”),
Conservation Law Foundation (“CLF”), Environment Northeast (“ENE”), the Efficiency
Maine Trust (“EMT”)(collectively “the Parties”), hereby stipulate and agree as follows:

I. Purpose

The Purpose of this Stipulation is to develop a non-transmission alternative (“NTA”) pilot project in the Boothbay region that includes certain transmission improvements in the Mid-Coast area. The Parties stipulate that the NTA pilot project and transmission elements discussed in Part VI below and in Attachment 1 (hereinafter, together as “Hybrid 3”), will maintain and enhance the reliability of the electric grid in the Boothbay region. Although, because of its small size, the Boothbay region may not be the optimal location for a full scale NTA Pilot, it nonetheless does provide a timely and reasonable opportunity to initiate the process of demonstrating and evaluating, on a limited basis, NTA solutions that can meet reliability needs and improve the overall efficiency of the electric system and reduce costs, waste and emissions consistent with the state’s smart grid policies in 35-A M.R.S.A § 3143(3). Results from the stipulated NTA pilot will provide important information to guide the Public Utilities Commission (“Commission”) in its decisions regarding potential future smart grid solutions to

reliability and NTA resources (including energy efficiency) on the Maine electric grid, including pending decisions for the Rockland-Camden and Portland areas.

The Parties further agree that decisions regarding additional NTA and/or transmission solutions to reliability needs in the Rockland-Camden and Portland regions should be deferred until the FERC Order 743 Bulk Electric System (BES) bright line definition and Commission investigation into transmission planning standards (Docket No. 2011-494) are resolved or until the Commission is prepared to act on those elements of the project.

This Stipulation will benefit Maine ratepayers and is in the public interest because Hybrid 3 is designed to meet reliability needs in the Boothbay region at less cost than a transmission-only solution and because it enables immediate implementation of a smart grid pilot project consistent with the Commission's Order in the Maine Power Reliability Project ("MPRP"), Docket 2008-255. Additionally, because the transmission improvements included in this Stipulation are common to all potential NTA and/or Transmission solutions for the remainder of the Mid-Coast area, this Stipulation will not foreclose options available to the Commission with regard to the long-term reliability needs for the electric grid in the Mid-Coast area or for the Portland region, or implementation of a larger smart grid pilot project. Central Maine Power Company ("CMP") has stated that it does not oppose the stipulation.

The provisions agreed to herein have been reached as the result of information provided in this proceeding and gathered through discovery and discussion among the Parties and the Commission Staff in this proceeding.

II. Procedural History and Background

Under the MPRP Stipulation approved by the Commission on June 10, 2010, in Docket 2008-255, CMP and GridSolar were to file for Commission consideration a Pilot Plan which would address, among other things, the design, installation, ownership, and operation of a Smart Grid Platform, as well as the design, ownership, resources and schedule for two Non-Transmission Alternative Pilot Projects to be developed to address reliability needs in the Mid-Coast area and in the Portland area. These projects were to utilize distributed renewable and non-renewable generation, demand response, coordination with the EMT as to energy efficiency resources, and Smart Grid management of the distribution system in the Pilot region to provide system reliability and offset the need for electric transmission. The Pilot Plan was to be filed within six months of the date of the Commissioner's Order approving the Stipulation in Docket No. 2008-255, or on December 10, 2010.

CMP and GridSolar were not able to complete the Pilot Plan by that date. As outlined in an update filing by CMP on February 25, 2011, CMP undertook entirely new grid reliability needs analyses for each of the Mid-Coast and Portland areas. CMP completed the Mid-Coast analysis in February 2011 and CMP and GridSolar filed with the Commission a *Non-Transmission Alternative Pilot Plan and Smart Grid Platform Proposal for the Mid-Coast Area* on March 25, 2011.

On April 12, 2011, the Commission issued a Notice of Proceeding establishing this docket to review the proposal. As set forth in the Notice, the results of CMP's needs analysis showed that the Transmission alternative to meet grid reliability standards in the Mid-Coast area over the next 10 years cost \$100 million and that in

order to avoid the transmission reinforcement, 39 to 45 MW of load reduction or distributed generation must be put in place to keep substation loads below critical levels.

Six parties sought and were granted intervenor status. During the course of the subsequent proceedings, CMP and GridSolar responded to written and oral data requests and, together with the intervenors, engaged in technical and informal settlement conferences and responded to formal requests for information from the Hearing Examiner. At the collaborative/settlement conference held on July 28, 2011, the Hearing Examiner requested that CMP and GridSolar analyze an additional NTA solution, Hybrid 3, premised on slightly different transmission system improvements than the Hybrid 2 recommended by CMP and GridSolar in the March 25, 2011 filing, and to evaluate Hybrid 3 using different system conditions than those analyzed in the initial filing. In addition, CMP determined that any transmission, non-transmission or hybrid option under consideration should undergo supplemental testing based on new BES standards expected to be implemented as a result of FERC Order No. 743.

CMP filed its *Supplemental FERC Analysis and Staff Requested NTA Analysis* ("*Supplemental Analysis*") on Nov. 22, 2011. The Supplemental Analysis concluded that meeting revised FERC BES standards would raise the cost of the Transmission solution for the Mid-Coast spur to between \$124 million and \$170 million. Using current FERC BES standards, the study concluded that Hybrid 3 would require \$17 million in Transmission upgrades and a 28 MW NTA solution, including 26 MW of new generation or load reduction in the Rockland-Camden region and 2 MW in the Boothbay region.

The study further found that the Boothbay region would not be affected by pending revisions to FERC's BES standards.

CMP and GridSolar once again responded to discovery requests regarding the Supplemental Analysis and, together with the intervenors, engaged in technical and informal settlement conferences and responded to formal requests for information from the Hearing Examiner. This Stipulation is the result of those conferences and discussions.

III. Relationship with Docket No. 2010-267 and Selection of a Smart Grid Coordinator for the Pilot Projects.

During the proceeding, questions were raised regarding overlap with the Commission's *Investigation into Need for Smart Grid Coordinator and Smart Grid Coordinator Standards*, Docket No. 2010-267. In a May 3, 2011 Procedural Order, the Hearing Examiner concluded that formal consolidation of the two dockets was not appropriate, but that Volume 1 of the Petitioner's filing in Docket 2011-138 could be useful to the Commission's Investigation in Docket 2010-267. Accordingly, Volume 1 of the filing in Docket No. 2011-138 was incorporated into the record and made subject to discovery to the parties in Docket 2010-267.

Subsequently, the Hearing Examiner sought comments from the Parties and interested members of the public regarding (1) whether the proceeding in Docket No. 2011-138 provides the "fair and transparent process" to select a Smart Grid Coordinator for the Mid-Coast and Portland Pilot Projects contemplated by the Commission in its June 10, 2010 Order approving the MPRP Stipulation, (2) whether the Commission should consider entities other than GridSolar for the position of the Pilot Plan

coordinator, and (3) if a separate process is required, what is the most efficient means to provide a fair and open process to select a Pilot Plan coordinator.

After considering responses from the Parties,¹ the Commission concluded that this docket, conducted in accordance with the Commission's rules of practice and the requirements of Title 35-A, provides an open and transparent process and satisfies the requirements of its June 10, 2010 Order approving the MPRP Stipulation. Accordingly, on October 18, 2011, the Commission Ordered that the Hearing Examiner conduct this proceeding to allow for the selection of a Pilot Plan coordinator if the Commission finds based on the evidence that such a selection is in the interests of CMP's ratepayers.

IV. Record.

The Record thus far in this case provides ample evidence upon which the Settling Parties and the Commission may base their conclusions. This material includes:

- Volume 1 – Non-Transmission Alternative Pilot Plan and Smart Grid Platform Proposal, with Attachments 1-7 (March 25, 2011);
- Volume 2 – Maine Power Reliability Program Midcoast Area NTA Analysis, Revision 1 (February 14, 2011);
- Maine Power Reliability Program Portland Area NTA Analysis Final Draft Report (May 6, 2011);
- Supplemental FERC Analysis and Staff Requested NTA Analysis and Appendices (Nov. 22, 2011);
- Transcripts of Technical Conferences;

¹ Aside from the Parties, no other entities or persons provided comments and no entity sought to be considered as Pilot Plan coordinator. Efficiency Maine Trust did request that the Pilot Plan coordinator, if any, coordinate with the Trust consistent with its statutory mandate.

- Comments of the Parties regarding the Hearing Examiner's August 17, 2011 requests for comments regarding the process to select a Pilot Plan smart grid coordinator;
- Data requests from the Hearing Examiner, CLF, ENE and the OPA;
- CMP and GridSolar's responses to the written and oral data requests.

V. Parties and the Settlement Process.

To accept a stipulation, the Commission must find that:

- a. The parties joining the stipulation represent a sufficiently broad spectrum of interests that the Commission can be assured that there is no appearance or reality of disenfranchisement;
- b. The process that led to the stipulation was fair to all parties;
- c. The stipulated result is reasonable and is not contrary to legislative mandates; and
- d. The overall stipulated result is in the public interest.²

The undersigned Parties believe that each of these factors is satisfied here. The Parties joining this Stipulation represent a broad spectrum of interests, including all active Parties to this docket except CMP. No Parties oppose the Stipulation.

The process that led to the stipulation was fair and open to all Parties. Every settlement conference was noticed; the Commission's telebridge was made available for the convenience of the Parties; supporting documentation for settlement discussions was made available to all Parties; all Parties were allowed full participation at each discussion; and questions that could not be answered at settlement discussions were entered as oral data requests for subsequent response by the Petitioners.

² *Central Maine Power Company and Public Service Of New Hampshire, Request for Certificate of Public Convenience and Necessity for the Maine Power Reliability Program*, Docket No. 2008-255, Order Approving Stipulation at 18 (June 10, 2010). See also *Central Maine Power Company, Request for Approval of Alternative Rate Plan*, Docket No. 99-666 (Nov. 16, 2000); *Central Maine Power Company, Proposed Increase in Rates*, Docket No. 92-345(II) (Jan. 10, 1995).

Finally, as discussed above, the stipulated result is reasonable, supported by the record, consistent with Maine's legislative mandates, and is in the public interest.

VI. Recommended Approvals and Findings.

A. Transmission Improvements in the Mid-Coast Area.

Based on the record in this case, the Parties agree and stipulate that the Commission issue an order which approves, accepts and adopts this Stipulation and authorizes CMP to implement the transmission elements of the Hybrid 3 solution for the Mid-Coast area of the MPRP ("the Hybrid 3 Approval") in accordance with the following terms:

1. The elements of the Hybrid 3 Approval in the Boothbay region recommended in this Stipulation consist of the following transmission facilities at a total estimated cost of \$3,650,000:

- Rebuild 115 kV Newcastle Substation to a 4-breaker ring bus (\$2,800,000 with expected load-share ratio for Maine being approximately \$224,000);
- Install a second 2.7 MVAR capacitor bank at Boothbay Harbor 34.5 kV bus (\$500,000);
- Install 2.4 MVAR of power factor correction at Boothbay Harbor 12 kV level (\$300,000); and
- Modify relay settings on Section 25 at Mason (\$50,000).

The configuration design for the Newcastle Substation rebuild will be such that it could be expanded to accommodate a construction of a new 115 kV line connecting with the Mason substation if it is determined that this is required to comply with the pending FERC BES Definition Order, or if the outcome of Planning Standards Docket

2011-494 or this docket concludes that additional transmission improvements are required.

2. The improvements in the Rockland-Camden region that are common to all transmission and Hybrid NTA solutions proposed in this case and which are therefore recommended as part of this Stipulation include the following transmission facilities at a total estimated cost of \$1,300,000:

- Install a second 9 MVAR capacitor bank at Park Street 34.5 kV bus (\$500,000); and
- Install two 5.4 MVAR capacitor banks on Meadow Road 34.5 kV bus (\$800,000).

3. The Parties understand that the Newcastle substation rebuild listed above is expected to receive Transmission Cost Allocation approval from ISO-NE and the costs are included in pool-supported PTF costs in accordance with Schedules 12 and 12C of the ISO-NE OATT and ISO-NE's Planning Procedure 4. In the event that this substation rebuild does not receive Transmission Cost Allocation approval from ISO-NE, CMP shall resubmit the Hybrid 3 transmission improvements for reconsideration by the Commission. In addition, in the event of a material change in the costs of the Substation rebuild or any other change that would require re-examination by ISO-NE of PTF pool funding eligibility, CMP shall notify the Commission as soon as reasonably possible.

4. The Parties agree that the recommended Hybrid 3 transmission improvements will improve the reliability of the power system in the Mid-Coast area. The parties further agree that approval is appropriate at this stage since these transmission improvements were part of all of the proposed Transmission and Hybrid Transmission-

NTA solutions considered in this case as solutions to the reliability needs identified in the revised MPRP NTA analysis for the Mid-Coast area.

5. The Parties further agree that resolving any remaining reliability needs in the Boothbay and Camden-Rockland regions through Transmission and/or NTA solutions will be the subject of further proceedings in this Docket

B. NTA Pilot Project

Based on the record in this case, the Parties agree and stipulate that the Commission issue an order which approves, accepts and adopts this Stipulation and authorizes CMP to contract with GridSolar to implement the NTA elements of the Hybrid 3 solution for the Boothbay region of the MPRP in accordance with the following terms:

1. The Parties stipulate that GridSolar should serve as coordinator for the NTA Smart Grid Pilot Project described herein and that it is in the public interest for CMP to contract with GridSolar to perform the role of coordinator for the Hybrid 3 NTA Pilot.

2. The Hybrid 3 NTA Pilot must be capable of reliably reducing load by 2 MW in the Boothbay sub-region of the Mid-Coast area (Section 23) at a CMP system-wide load level of 2000 MW. The *Supplemental FERC Analysis and Staff Requested NTA Analysis* concluded that this 2 MW net load reduction in the Boothbay region would avoid the need for an \$18 million rebuild of the 34.5 kV line from Newcastle to Boothbay Harbor (lines 16 and 23). The parties estimate that the avoided costs to CMP ratepayers in transmission revenue requirements of not constructing this line are approximately \$3 million per year. The Parties stipulate that they expect, based on information provided in this docket, that the Hybrid 3 NTA solution in the Boothbay

region will meet reliability criteria for less than \$3 million per year, and that this NTA Pilot Project will result in reduced costs to CMP ratepayers and is, therefore, in the public interest. As described above, the Parties believe that this region is an appropriate location to test potential NTA alternatives to meet reliability needs on the electric grid.

3. The Parties also understand that a NTA solution has never been attempted in Maine, and that a primary purpose of this Pilot Project is to test the viability of NTA solutions to grid reliability needs. Accordingly, the Pilot Project shall be designed to determine:

- a. Whether and what type of NTAs can be acquired at reasonable cost to meet grid reliability requirements;
- b. Whether and the best means by which the new Advanced Metering systems being deployed by CMP can provide the information and communications requirements to support NTA solutions to grid reliability issues
- c. Whether NTAs are capable of responding in the manner necessary to provide grid reliability service to CMP;
- d. Whether the results of this Pilot Project can be scaled to meet the grid reliability requirements of other regions of the CMP and BHE networks in Maine.

4. CMP and GridSolar shall implement the Hybrid 3 NTA Pilot Project in a manner consistent with the *NTA Pilot Project for Boothbay Sub-Region of Mid-Coast Region, Operating Plan, Budget and Schedule* (“NTA Pilot Plan”) included as Attachment 1 to this Stipulation. Pursuant to Task 1 in the NTA Pilot Plan, CMP and GridSolar shall develop and submit for review and comment by the Parties and Commission Staff a proposed competitive process to solicit NTA resources to supply grid reliability services within the Boothbay sub-region for an initial contract term of no more than three years. Consistent with the purpose of this Pilot Project and 35-A

M.R.S.A § 3143(4), this process shall be designed to evaluate the availability, suitability, cost-effectiveness, reliability, and efficiency of a broad variety of potential NTA solutions, including both dispatchable and passive resources, and energy efficiency, distributed renewable and non-renewable generation, and demand response. The proposal submitted for review shall include drafts of Request For Proposals (“RFP”), NTA contract and terms, RFP review process and selection criteria and a schedule.

5. Consistent with the Pilot project purposes of testing a variety of NTA resources and 35-A M.R.S.A § 3143(4), GridSolar will conduct outreach to solicit participants representing as many different resources as feasible and will coordinate those efforts with EMT. Based on the results of the RFP, with input from CMP, and using the criteria and selection process below, by December 31, 2012, GridSolar shall submit recommended contracts to the Commission staff and the parties, except EMT, and subject to the appropriate protective order, for review and comment. The recommended contracts and comments will then be submitted for Commission review, approval and a determination to go forward with the Pilot Program.

Criteria: The contracts recommended by GridSolar shall be based upon a balancing of the cost, reliability and diversity of the NTA resources, and shall further the Pilot project purposes and the legislature’s smart grid goals and policies established in 35-A M.R.S.A § 3143.

Selection Process: In order to further the purposes of this Pilot and achieve a representative selection of resources, GridSolar shall, to the extent feasible considering the above criteria, include a minimum of 250 kW of NTA resources in each of the following categories: energy efficiency, demand

response, renewable distributed generation (at least half of which shall be photovoltaic solar energy), and non-renewable distributed generation (with preference given to resources with no net emissions of greenhouse gases), as long as the per kw cost of each resource does not exceed the cost per kW of transmission less the operating cost of the Pilot.

Approval: The parties recognize that the Commission will exercise its discretion in approving the recommended contracts.

6. The 2 MW target of this Pilot Project is a net load reduction amount, and the installed capability of NTA resources must take into account the reliability of NTA resources consistent with the “MPRP Non-Transmission Alternative (NTA) Performance Specifications” in Attachment 1 (Exhibit 4). CMP and GridSolar shall file with the Commission updated specifications per current ISO New England requirements as soon as reasonably possible.

7. Pursuant to Task 2 in the attached operation plan, once the RFP process is reviewed and subject to comment as described above, and subsequently issued, CMP and GridSolar shall develop a NTA operations plan, including establishment of a NTA operations center, communications and dispatch protocols, field testing protocols and field testing, cyber security plan, and a measurement and verification plan. By March 31, 2013, CMP and GridSolar shall submit to the Commission an operating plan and interim progress report regarding the establishment of communications and dispatch protocols and a plan for field testing of NTA responsiveness to grid conditions. This plan shall also include an explanation of how CMP and GridSolar will meet FERC

Standards of Conduct regarding sharing of information about grid operations with each other and with participants in the NTA Pilot Project.

8. As part of the report due by March 31, 2013, CMP and GridSolar shall propose a Measurement and Verification Plan (“M&V Plan”) to track and report on the successes and failures of the Pilot Project. The M&V Plan for energy efficiency resources shall be developed with the Efficiency Maine Trust and shall not be inconsistent with M&V standards and protocols in use by efficiency resources located in Maine and participating in the ISO-NE Forward Capacity Market. The M&V Plan shall document each aspect of the NTA Pilot Project and shall include progress reports and a final report, as detailed in Attachment 1. Consistent with the purposes of this Pilot Project, the final report shall include recommendation(s) regarding whether the results of this Pilot Project can be scaled to meet the grid reliability requirements of other regions of the CMP and BHE networks.

9. The operating costs for the NTA Pilot Project shall not exceed the Phase 1 Budget included in the NTA Pilot Plan in Attachment 1 (exhibit 2) to this Stipulation.³ In the event of a material change in the costs of this Pilot, CMP and GridSolar shall notify the Commission as soon as reasonably possible and recovery of such additional costs shall be subject to Commission review and approval. The Parties agree that because the Smart Grid Platform and Pilot Project are intended to further the development of transmission alternatives and to reduce the need for transmission, the associated costs should be deferred by CMP and recovered in transmission rates with carrying costs equal to CMP’s most recently approved Maine jurisdictional weighted average cost of

³ The Phase 2 Budget (Attachment 1- Exhibit 3) is included in the NTA Pilot Operating Plan for illustrative purposes only and is not part of this stipulation.

capital. The Parties agree to support and/or seek such ratemaking treatment for Smart Grid Platform investments and NTA Pilot Project costs in transmission revenue requirement rate proceedings, including before FERC. In addition, CMP shall make a reasonable effort to have the costs associated with the Pilot Project, including all costs associated with preparing the Pilot Plan and implementation of the Pilot Project, included in Local Network Service (“LNS”) rates to the extent permitted under rules and tariffs. In the event that costs are not fully recoverable through transmission rates, the Parties agree that such prudently incurred costs shall be recovered in distribution rates in a manner that matches allocation and rate design for transmission rates.

10. As part of the necessary tasks to implement the Hybrid 3 NTA Pilot Project in accordance with the NTA Pilot Plan, CMP and GridSolar shall develop the contracts and/or contract amendments for execution between CMP and GridSolar that are necessary to accomplish the various tasks in the NTA Pilot Plan, as well as developing standard form agreements between GridSolar and the NTA providers. These contracts and amendments will be submitted to the Commission for review and approval.

11. As soon as practical after the approval of this agreement, but not less than 90 days prior to the due date of the first RFP for resources, CMP shall make available to the Efficiency Maine Trust information concerning individual customer load data for purposes of program design and marketing to the extent such disclosure is consistent with applicable law and Commission rules concerning customer data. The individual customer information provided to the Trust shall be “Designated Confidential Information” that is treated consistent with Protective Order 1 issued by the Commission in Docket No. 2011-213 (Jan. 11, 2012), which information shall be and remain

confidential and limited to the Trust and its employees and contractors, in accordance with the Trust's Confidential Information Management System, for the purposes of advancing cost-effective NTA solutions in the pilot area.

VII. Procedural Stipulations.

A. Staff Presentation of Stipulation

The Parties to this Stipulation hereby waive any rights that they have under 5 M.R.S.A § 9062(4) and Section 742 of the Commission Rules of Practice and Procedure to the extent necessary to permit the Advisory Staff to discuss this Stipulation and the resolution of issues addressed in this Stipulation with the Commissioners, either before or at the Commission's scheduled deliberations.

B. Stay

In the event that the Commission or a court of competent jurisdiction stays the effectiveness of any provision of this Stipulation pending an appeal or otherwise, then the obligations of all Parties under the terms of this Stipulation are suspended until such stay order is vacated or rescinded.

C. Non-Opposition

All Parties to this Stipulation agree not to oppose directly or indirectly the Settlement Hybrid 3 NTA Pilot Project before any regulatory agency, permitting authority, municipality, court or other entity with approval authority concerning any aspect of the Project.

D. Record

The record on which the Parties enter into this Stipulation and on which the Commission may base its determination whether to accept and approve this Stipulation shall consist of this Stipulation, the items identified in Part IV above, and any other material furnished by the Advisory Staff or the Parties to the Commission, either orally or in writing, to assist the Commission in deciding whether to accept and approve this Stipulation.

E. Non-Precedential Effect

This Stipulation shall not be considered legal precedent, nor shall it preclude a Party from making any contention or exercising any rights, including the right of appeal, in any future Commission investigation or proceeding or any other trial or action.

F. Stipulation as Integrated Document.

This Stipulation represents the full agreement between the Parties to the Stipulation and rejection of any part of this Stipulation constitutes a rejection of the whole.

G. Incorporation of Attachments

All attachments referenced to in this Stipulation are incorporated herein by reference and are intended to be considered as part of this Stipulation as if their terms were fully set forth in the body of this Stipulation.

H. Void if Rejected

If not accepted by the Commission in accordance with the provisions hereof, this Stipulation shall be void and of no further effect and shall not prejudice any position

taken by any Party before the Commission in this proceeding and shall not be admissible evidence therein or in any other proceeding before this Commission.

Respectfully submitted this 23rd day of April, 2012.

Office of Public Advocate

By:_____

GridSolar, LLC

By:_____

Conservation Law Foundation

By:_____

ENE(Environment Northeast)

By:_____

Efficiency Maine Trust

By:_____

Attachment 1

Docket No. 2011-138

**NTA Pilot Project for Boothbay Sub-Region
of Mid-Coast Region
Operating Plan, Budget and Schedule
Phase 1**

Prepared By

**GridSolar, LLC
&
Central Maine Power Company**

April 20, 2012

Docket No. 2011-138
NTA Pilot Project for Boothbay Sub-Region of Mid-Coast Region
Operating Plan, Budget and Schedule – Phase 1

Pursuant to settlement discussions, the parties to this docket agree on the following *Operating Plan, Budget and Schedule* for a small scale Non-Transmission Alternative (“NTA”) Smart Grid Pilot Project to maintain and improve the reliability of the Boothbay region of the Mid-Coast electric grid. The parties believe that the identified reliability needs in this region present a timely and viable opportunity to test potential non-transmission alternatives to meet reliability requirements on the electric grid.

This NTA Pilot Project must be capable of reliably reducing load by 2 MW at Boothbay Harbor at a CMP load level of 2000 MW. This is a net load reduction amount, and the installed capability of NTA resources must take into account the reliability of NTA sources. Thus, some larger total amount of NTA resources would need to be under contract, based upon the “MPRP NTA Performance Specifications” in Attachment 5 of the March 25, 2011 filing for Docket 2008-255 (Phase II), also attached here as Exhibit 4. These specifications should be updated per current ISO New England requirements.

The purposes of this Pilot Project will be as follows:

1. To determine whether Non-Transmission Alternatives (NTAs) can be acquired at a reasonable cost to meet grid reliability requirements;
2. To determine whether and the best means by which the new Advanced Metering systems being implemented by CMP can provide the information and communications requirements to support NTA solutions to grid reliability issues;
3. To determine whether NTAs are capable of responding in the manner necessary to provide grid reliability service to CMP;
4. To determine whether the results of this Pilot Project can be scaled to meet the grid reliability requirements in other regions of the CMP and BHE networks in Maine; and,
5. To determine the potential for NTA resources, in their capacity as resources that support the development of a Smart Grid, to increase the efficiency of the electric system, reduce ratepayers' costs in a way that improves the overall efficiency of electric energy resources, reduce and better manage energy consumption, and reduce greenhouse gas emissions.

The Pilot Project has been designed to provide the information and experience necessary to enable the Commission to make informed decisions about the above matters. CMP’s investments in its AMI and its transmission and distribution systems to support Hybrid #3 will benefit the grid regardless of the NTA Pilot outcome, and the proposed GridSolar activities will be accomplished through a continuation of its contract with CMP and promoting NTA resources that cost less than the transmission solution.

The Pilot Project is divided into three tasks related to the above purposes. Task 1 includes the development, support and issuance of the Request for Proposals for NTAs, evaluation of responses to the RFP and contracting with approved NTA resources; Task 2 focuses on communications and dispatch protocols. Task 3 sets out requirements for progress reports, development of a Measurement and Verification Plan, Final Report, and optional third party evaluation and reporting. In addition, a Phase 2 is discussed briefly which examines scaling the Pilot Project to address reliability requirements and efficiency improvements in other regions of the grid for purposes of addressing purpose 4 above.⁴ Exhibit 1 provides a project schedule for the Pilot Project. Exhibit 2 provides proposed budgets for Task 1 and Task 2. The budget for a larger Phase 2, including the entire Mid-Coast region that was included in prior filings in this docket, is also provided as Exhibit 3. The information provide in Exhibit 3 is for informational purposes only and its inclusion does not constitute agreement on such costs nor is the Commission being asked to approve such costs at this time.

Task 1:

Task 1 will commence upon issuance of a Commission Order accepting the Pilot Project. The specific tasks undertaken in this task are the following:

- Modification of GridSolar/CMP contract to accomplish Task 1;
- As soon as practical after the approval of this agreement, but not less than 90 days prior to the due date of the first RFP for resources, CMP will make available to the Efficiency Maine Trust information concerning individual customer load data for purposes of program design and marketing to the extent such disclosure is consistent with applicable law and Commission rules concerning customer data. The individual customer information provided to the Trust shall be “Designated Confidential Information” that is treated consistent with Protective Order 1 issued by the Commission in Docket No. 2011-213 (Jan. 11, 2012), which information shall be and remain confidential and limited to the Trust and its employees and contractors, in accordance with the Trust’s Confidential Information Management System, for the purposes of advancing cost-effective NTA solutions in the pilot area.
- GridSolar to develop and submit for review and comment by the Parties a proposed competitive process to solicit NTA resources to supply grid reliability resources within the Boothbay subregion for an initial contract term of no more than three years. Consistent with the purpose of this Pilot Project and 35-A M.R.S.A § 3143(4), this process shall be designed to solicit proposals to evaluate the cost-effectiveness, reliability, and efficiency of a variety of NTA resource types, both dispatchable and passive,. The proposal submitted for review shall include drafts of:
 - Request For Proposals (“RFP”),
 - NTA contract and terms,

⁴ Phase 2 is not specifically included in the Pilot Project and would be undertaken only upon Commission review of the Pilot Project and approval to move forward.

- Operations and communications requirements for NTA resources,
 - RFP review process and selection criteria, and
 - Implementation schedule.
- Among other information requested, the RFP(s) shall request that bidders to indicate the net present value of the Pilot Program's cost to acquire the resource and as part of the evaluation process GridSolar shall analyze the net present value of the benefits to ratepayers, where benefits include avoided capacity payments and energy payments by customers over the useful life of the resource;
- Consistent with the Pilot project purposes of testing a variety of NTA resources and with 35-A M.R.S.A § 3143(4), GridSolar will conduct outreach to solicit participants representing as many different resources as feasible and will coordinate those efforts with EMT. Based on the results of the RFP, with input from CMP, and using the criteria and selection process below, and GridSolar shall, by December 31, 2012, submit to the recommended contracts to Commission staff and parties, except EMT, and subject to the appropriate protective order, for review and comment. The recommended contracts and comments will then be submitted for Commission review, approval and a determination to go forward with the Pilot Program.
 - Criteria: The contracts recommended by GridSolar shall be based upon a balancing of the cost, reliability and diversity of the NTA resources, and shall further the Pilot project purposes and the legislature's smart grid goals and policies established in 35-A M.R.S.A § 3143.
 - Selection Process: In order to further the purposes of this Pilot and achieve a representative selection of resources, GridSolar shall, to the extent feasible considering the above criteria, include a minimum of 250 kW of NTA resources in each of the following categories: energy efficiency, demand response, renewable distributed generation (at least half of which shall be photovoltaic solar energy), and non-renewable distributed generation (with preference given to resources with no net emissions of greenhouse gases), as long as the per kW cost of each resource does not exceed the cost per kW of transmission less the operating cost of the Pilot.
 - Approval: The parties recognize that the Commission will exercise its discretion in approving the recommended contracts.
- For purposes of procuring energy efficiency resources through this process, the parties agree that the RFP review process and selection criteria, the contract and terms, and operational requirements, will require that an energy efficiency resource provider will be paid the bid price/kW-month only for those resources that the provider has demonstrated are installed and operational consistent with the provider's Measurement and Verification Plan on file with ISO-NE in connection with a qualified resource in the

Forward Capacity Market (FCM) or if not participating in the FCM , consistent with ISO-NE requirements for a Measurement and Verification Plan.

The proposed schedule is to develop the RFP for issuance in September 2012 to (a) enable NTA resources to be selected and under contract by the end of 2012 and (b) have them available for use as NTA resources beginning June 1, 2013.⁵ The budget includes funding for work related to the development of the RFP and for public outreach. The latter is critical, since there is little or no understanding currently among potential NTAs of what an NTA is, the role NTAs can play in addressing grid reliability requirements, the obligations that will be imposed on NTAs, and other related matters. GridSolar anticipates the need to undertake a significant educational effort targeted to businesses (including government and institutional offices and facilities) in the Boothbay region and to vendors of technologies that can support NTAs (e.g., back-up generation, PV solar systems, energy efficient motors and commercial lighting). GridSolar and Efficiency Maine Trust (EMT) will coordinate their activities in this region such that for initial meetings, both parties have an opportunity to address potential resource providers at the same time.

Primary responsibility for Task 1 will rest with Richard Silkman (principal in GridSolar) and with Steve Hinchman, who will coordinate and undertake much of the public outreach efforts. Both will be compensated based on the hourly rate schedule in the CMP-GridSolar Agreement.

Task 2:

Certain components of Task 2 will be undertaken in parallel with Task 1, while other components will be deferred until after completion of Task 1, to ensure that all systems are in place to support the use of NTAs for grid reliability service beginning in June 2013. The specific tasks to be undertaken in Task 2 are:

- Modification of GridSolar/CMP contract to accomplish Task 2;
- Develop/staff GridSolar Operations Center, including
 - Small – no long-term commitments
 - Staffing – contracts rather than employees;
- Develop communications protocols between CMP and GridSolar;
- Establish communication and dispatch protocols for NTA resources;
- CMP/GridSolar - Field Test Communications and Dispatch protocols;
- Submit interim and final reports to the Commission - Proof of NTA responsiveness to grid conditions.

Task 2 will be undertaken jointly by GridSolar and CMP under the direction of Mark Isaacson and Brian Conroy, respectively. As the parties have discussed quite extensively in filings in this

⁵ The NTA resources are expected to be under contract to provide grid reliability service through the end of 2014 at a minimum. The RFP will specify the length of term for each type of NTA resource sought.

case, the Smart Grid Energy Services Operator (SGESO) and CMP's Operations and Control Center must be able to communicate and pass information as well as directives back and forth in real time.⁶ The following is a list of the steps identified and how each will be met:

1. CMP to implement real-time metering, monitoring and supervisory control of key substations and circuits within the pilot area.

The Boothbay region includes 8 substations, three of which (Messina, Bristol and Sheepscot) have no or only partial SCADA capabilities. However, the substations that are in the critical load area – Boothbay Harbor and Edgecomb – have full SCADA capability. CMP will define a two-way communications protocol that enables CMP to send to GridSolar real-time directives and to receive from GridSolar real-time and planned NTA resource status and availability. The communications protocol shall be designed to meet industry standards and to be scalable to accommodate larger smart grid projects in the future. The communications protocol must also meet the cyber security standards required in the utility industry. This component of Task 2 will be undertaken in parallel with Task 1.

2. GridSolar to design programs and parameters for pilot project NTA resources and acquire such resources through an RFP process:
 - a. Distributed generation;
 - b. Demand response;
 - c. Energy efficiency (would not require active resource control); and
 - d. Dynamic pricing (would not require active resource control).

This step will be met through the activities described in Task 1.

3. CMP and GridSolar to implement an NTA resource (customer) interface, including metering, monitoring, and dispatch capability, for all distributed generation and demand response resources.

The second form of communications that needs to occur for the NTA solution to function properly is between GridSolar and the NTA resources. GridSolar needs to be able to communicate with these resources to ensure that they operate in a manner consistent with GridSolar directions, and that GridSolar can confirm in real time that the NTA resources are operating as intended.

CMP's smart meters are capable of performing metering, monitoring, and customer interface functions at every CMP point of service. The smart meter and AMI network installations in the Mid-Coast pilot region will be completed in 2012. AMI metering data will be used in the after-the-fact analysis of the responsiveness and effectiveness of the pilot project. This component of Task 2 will be undertaken in parallel with Task 1.

⁶ See, for example, CMP's response to ODR-02-12.

CMP will develop the dispatch communications protocols to be used between the MLCC and the SGESO. GridSolar will design the RFP and the communications and interconnectivity requirements that will be sought from NTA resources to communicate with the SGESO under that RFP.

4. GridSolar to establish and maintain a database to track distributed resources including location, type, capacity, planned and real-time availability, planned and real-time rate-of-change capability, startup times, minimum run times, maximum run times, actual resource utilization (generation running or load curtailed), operational limitations, and aggregate amount of response available in 5-minute increments in real time. This information will be made available to the MLCC in real time using the protocols referenced above.

GridSolar will perform these tasks based on the results of the RFP process in Task 1. No work will be done on this component of Task 2 until the Commission has approved the results of Task 1. The database will be fully accessible to CMP in real time so that CMP can plan its operations and ensure that grid reliability is maintained.

5. GridSolar to develop resource operational algorithms for equitable and efficient dispatch of distributed resources within contract limitations.

The dispatch algorithms that define the quantity and types of NTA resources called upon to respond to grid reliability events will depend to some extent on the types and amounts of NTA resources acquired through the RFP process. These resources will have various operating characteristics (e.g., ramp time, minimum run time, maximum run time, frequency of call, and recovery time) that may impact their cost and effectiveness for different types of grid reliability events. GridSolar will devote considerable effort to developing dispatch algorithms for the Pilot Project to ensure that each response to a grid reliability event is the most cost-effective possible as well as to ensure that these algorithms can be generalized across other sets of NTA resources and other regions of the grid. As with item 4, work on this component will begin after the Commission has approved the results of Task 1.

6. CMP is to design and implement a cyber security plan for communications between the MLCC and the SGESO, and GridSolar is to conform to this plan. GridSolar is to design and implement a cyber security plan for metering, monitoring, dispatch, and control of distributed resources directly by GridSolar

CMP and GridSolar intend to have the communications protocols in place and tested by early 2013 to ensure that the systems will be place to support field tests of the NTA resources beginning in May/June 2013.

CMP and GridSolar will also schedule field tests of the dispatch algorithms to ensure that all systems are working as intended and NTA resources respond as required. The initial test will be planned for late May or early June 2013. This test will be announced in advance so that all participants will be alert to its occurrence and can pre-posture resources or systems as necessary.

Additional field tests will be performed in late summer, fall, and early and late summer of 2014, depending on how systems and resources respond and whether there are any actual reliability events during this timeframe. Subsequent testing will be unannounced.

The parties will provide progress reports to the Commission to report on the status of the communications protocols and the results of the initial testing. A final report will be provided in early 2014.

The budget for Task 2 is shown on Exhibit 2, broken down into those components that will be undertaken simultaneously with Task 1 and those that will be undertaken upon completion of Task 1. The budget includes \$25,000 for computer systems and software to support the communications and dispatch protocol development and implementation. In addition, staffing and support costs from May 2012 through January 2014 total just over \$180,000. The bulk of this is for IT and computer activities. In addition, GridSolar has included a small amount for office space and supplies. There will be additional costs beyond January 2014. These will involve ongoing operations of GridSolar and the NTA solution, and should be relatively small. These should be on the order of \$5,000 a month, assuming that the scope is to maintain the status quo that emerges from Task 2. They may also involve moving forward with Phase 2, as discussed below.

Task 3:

Measurement and verification is integral to the success and utility of this Pilot Project. By March 31, 2012, GridSolar and CMP shall develop a Measurement and Verification Plan (“M&V Plan”) to track and report on the successes and failures of the Pilot Project. The M&V Plan shall document each aspect of the NTA Pilot Project and shall include progress reports and a final report, as described below.

Periodic SGC Reporting: the Parties agree that the SGC shall, throughout the term of the Pilot, submit quarterly reports containing an update on the status of implementation and operation of the Pilot detailing:

- Outstanding issues and their planned resolutions (if resolved)
- NTA type, capacity and location
- Cumulative capacity of all NTA resources procured to date
- Cost(s) for each type of NTA
- a summary of how each NTA procured was evaluated based upon the selection criteria set forth above
- Cumulative cost(s) for total NTA portfolio for the Pilot area
- Goals for next quarter

The SGC shall also provide an annual report at the end of each operating year, which shall include:

- 1) A detailed description of the Pilot’s use of digital information and control technology and the extent to which it has improved the reliability, security and efficiency

of the electric system within the Pilot Area and beyond including any transmission or energy costs avoided as a result of the Pilot;

2) A detailed description of the Pilot's deployment and integration into the electric system of renewable capacity resources that are interconnected to the electric grid at a voltage level less than 69 kilovolts including an inventory of the specific kinds of resources, their individual and collective capacity and total kWh generated per resource;

3) A detailed description of the Pilot's deployment and integration into the electric system of demand-response technologies, demand-side resources, energy-efficiency resources and distributed generation resources including an inventory of the specific kinds of resources, their individual and collective capacity, total kWh generated per resource, an emissions profile for each non-renewable resource, total annual emissions of regulated pollutants (including CO₂) for each non-renewable resource, any reductions in the emission of regulated pollutants (including CO₂) resulting from the Pilot, any reduction in energy consumption resulting from the Pilot and any reduction in fossil fuel consumption resulting from the Pilot;⁷

4) A description of how the Pilot has resulted in the deployment or enhanced use of smart grid technologies, including real-time, automated, interactive technologies that optimize the physical operation of energy-consuming appliances and devices, for purposes of metering, communications concerning grid operation and status, and distribution system operations;

5) A description of all processes used to solicit NTA resources and an accounting of the number of responses to solicitations for resources, the nature of the resource offered in the response, and the quantity of energy production offered by each respondent.

6) A description of the direct and ancillary economic benefits of the Pilot Project including investment in NTA resources and associated job creation.

7) A description of areas of additional potential savings or economic benefit that are not currently utilized under the Pilot and an estimate of the potential savings (e.g., participation in the Forward Capacity Market.)

8) A description of any deployment and integration into the electric system of advanced electric storage and peak reduction technologies through this Pilot;

9) A description of how the Pilot has resulted in the provision to consumers of timely energy consumption information and control options;

⁷ Emission assessments will be based on specific NTA data where available or on industry standards otherwise and will include only direct emissions and not life-cycle emissions.

10) A description of how the Pilot has resulted in the elimination of barriers to adoption of smart grid functions and associated infrastructure, technology, and applications; and

11) To the extent not otherwise provided a description of the SGC's control center, its staffing, equipment and functions, its costs and a description of how the control center operated during those times when Pilot resources were activated, problems encountered with the resolution of those problems and ongoing unresolved problems.

Third-party Evaluation and Reporting: The Parties recommend that within 24 months from the date the Pilot is implemented, the PUC may consider hiring a qualified, independent consultant for the purpose of evaluating the costs and benefits of the Pilot using data provided by the SGC, EMT, CMP, along with surveys and direct data collection as necessary and providing a final written report to the PUC with detailed findings. Interested parties shall have an opportunity to comment upon the report, its findings and their implications for the Pilot.

Phase 2:

The specific tasks to be undertaken in a possible Phase 2 are the following:

- Modification of GridSolar/CMP contract to accomplish Phase 2;
- CMP and GridSolar – enhancement of communications protocols;
- GridSolar – Develop improved dispatch algorithms; and
- Development of proposals to expand NTA solutions to other sub-regions of the CMP grid.

Phase 2 will be contingent on successful implementation of Tasks 1 and 2 of Phase 1 of the Pilot Project and upon approval from the Commission. Exhibit 3 provides a proposed budget for GridSolar's activities beyond a small-scale Pilot Project. This was prepared to respond to the Mid-Coast Needs Assessment in its entirety, and specifically including the Camden-Rockland area, where the NTA need is much greater. The information contained in Exhibit 3 is included for informational and illustrative purposes only and the parties are not asking that the Commission include Phase 2 at this time or make any determination as to the appropriateness of the scope of activities or the proposed budget set forth under Phase 2.

Exhibit 1 – Project Schedule

	2012												2013												2014											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Develop Workplan Overview																																				
Approve Workplan / Stipulation				*																																
Phase 1 - Task 1																																				
Develop NTA Resource RFP																																				
Issuance of RFP								*																												
Contract with NTA Resources											*																									
NTA Resource Availability																																				
Submit Interim Report to PUC													*																							
Phase 1 - Task 2 and Task 3																																				
Dev. / Staff Operations Center																																				
Dev. CMP - GS Communications Protocols																																				
Dev. NTA Dispatch Communications Protocols																																				
Dev. NTA Dispatch Algorithms																																				
Field Test Protocols																																				
Submit Interim Reports to PUC															*			*		*		*		*											*	
Submit Final Report on Pilot Implementation																							*													
Phase 2																																				
Subject to PUC Review and Approval																																				
Evaluate Expansion to Other Regions																																				
Refine Communications Protocols - Scale																																				
Enhance Dispatch Algorithms																																				
Expand Operations Center																																				

Exhibit 2:

Proposed Operating Budgets - Phase 1				
	Task 1	Tasks 2 and 3		TOTAL
Start Date	May-12	May-12	Jan-13	May-12
End Date	Dec-12	Dec-12	Jan-14	Jan-14
Months	8	8	12	20
Start-Up Capital Costs				
Operations Center				
Computer Systems			\$15,000	\$15,000
Computer Software			\$10,000	\$10,000
Office Start-up				\$0
TOTAL CAPITAL	\$0	\$0	\$25,000	\$25,000
Operating Costs				
Personnel - 1099 Contract				
Executive Office				
CEO	\$20,000	\$20,000	\$40,000	\$80,000
Public Outreach	\$20,000		\$5,000	\$25,000
Administrative	\$0	\$0	\$0	\$0
Subtotal - Executive	\$40,000	\$20,000	\$45,000	\$105,000
Information Technology				
CIO	\$0	\$0	\$0	\$0
Subtotal IT				\$0
Operations				
Computer Programmer /IT	\$0	\$25,000	\$25,000	\$50,000
Operators	\$0	\$0	\$25,000	\$25,000
Subtotal - Operations	\$0	\$25,000	\$50,000	\$75,000
Subtotal Personnel	\$40,000	\$45,000	\$95,000	\$180,000
Facility Costs				
Rent - Operations Center	\$0		\$10,000	\$10,000
Utilities - Not Field	\$0	\$0	\$0	\$0
Office Supplies	\$2,400	\$3,000	\$3,000	\$8,400
O&M - Equipment	\$0	\$0	\$0	\$0
Office Equipment				
Leases	\$0	\$0	\$0	\$0
Public Outreach Support	\$2,000	\$0	\$1,000	\$3,000
Subtotal - Other Operating	\$4,400	\$3,000	\$14,000	\$21,400
TOTAL OPERATING	\$44,400	\$48,000	\$109,000	\$201,400
TOTAL COSTS	\$44,400	\$48,000	\$134,000	\$226,400

Exhibit 3

Proposed Operating Budget - Phase 2				
Start-Up Capital Costs	No.	Cost/Unit	Overhead	Total
Central Office				
Computer Systems	1	\$100,000	40%	\$140,000
Computer Software	1	\$150,000	40%	\$210,000
Office Start-up	7.5	\$5,000	25%	\$46,875
Subtotal				\$396,875
TOTAL CAPITAL				\$396,875
Operating Costs				
Personnel	No.	Salary	Overhead	Total
Executive Office				
CEO	1	\$200,000	25%	\$250,000
Public Outreach	0.5	\$100,000	30%	\$65,000
Administrative	1	\$50,000	35%	\$67,500
Subtotal - Executive	2.5			\$382,500
Information Technology				
CIO	1	\$100,000	30%	\$130,000
Subtotal IT	1			\$130,000
Operations				
Computer Programmer	1	\$75,000	35%	\$101,250
Operators	3	\$50,000	35%	\$202,500
Subtotal - Operations	4			\$303,750
Subtotal Personnel	7.5			\$816,250
Facility Costs				
Rent - Central Office	5,000	sq.ft. @	\$10.00	\$50,000
Utilities - Not Field	\$2,000	per mo.		\$24,000
Office Supplies	\$500	per mo.		\$6,000
O&M - Equipment	5%	of Capital		\$19,844
Office Equipment				
Leases	\$1,000	per mo.		\$12,000
Public Outreach Support	\$4,000	per mo		\$48,000
Subtotal - Other Operating				\$159,844
TOTAL OPERATING				\$976,094

Exhibit 4

MPRP Non-Transmission Alternative (NTA) Performance Specifications

Background:

CMP must propose a Non-Transmission Alternative (NTA) Pilot Project for two components of MPRP, the ‘Mid-Coast Spur’ and the ‘Portland Loop,’ per the Maine Public Utilities Commission MPRP Certificate of Public Convenience and Necessity Order Approving Stipulation Docket No. 2008-255. According to the stipulation, “the Pilot Plan will address the design, installation, ownership, control, cost and cost recovery of a Smart Grid Platform; the procurement, quantities and costs of the generation and demand resources for the Pilot Plan, access to the Smart Grid Platform by others; and a more detailed description of the two pilot projects to be developed (the Mid-Coast Pilot to address reliability associated with CMP’s proposed Mid-Coast Spur and the Portland Pilot to address reliability needs in the Portland area).”

NTA Pilot Plan Performance Specifications for Resources:

The intent of these performance specifications is to ensure that the requirements for NTA resources will be consistent with applicable reliability standards such that the NTA will be accounted for in the FERC-mandated regional planning process.

1. The Pilot program may consist of three (or more) types of Non Transmission Alternatives: Photovoltaic (PV), Demand Response (DR), and Distributed Generation (DG)
2. Photovoltaic (PV) performance – additional information is needed to determine installed capacity requirements for PV:
 - PV capability is de-rated with higher summer peak operating temperature – based on a February 16 ISO-NE PAC presentation⁸, the temperature degradation factor is 89% for the Thompson Island site.
Does PV capability also reduce with age?
 - What is the variability of output with clouds going by?
 - It would be useful to correlate hourly seasonal solar insolation and PV output with system or local load. For instance, the same ISO-NE PAC presentation showed significantly reduced insolation within hours of noon, and reduced insolation for summer months other than July.
 - Are PV converters capable of providing reactive power and voltage control?

Generation must conform to CMP’s Transmission and Distribution interconnection requirements for Generation, and must meet NPCC Directory 12 underfrequency trip requirements.

⁸ “Preliminary Results for 2010 Economic Study Request,” Wayne Coste

3. Local backup generation (DG) performance – Installed capacity requirements for local backup generation shall be based on an availability factor of the lesser of 80% available, or all but one backup generation unit available. For local backup generation, this unavailability assumption is used, rather than the standard 2-units-offline assumption that is used in regional analysis to establish stressed system conditions. Generation must conform to CMP’s Transmission and Distribution interconnection requirements for Generation, and must meet NPCC Directory 12 underfrequency trip requirements.
4. Demand Response (DR) performance – Installed capacity requirements for local demand response shall be based on the recent value used by ISO New England for the New England average DR availability of 76%. However, note that availability assumptions change by the Commitment Period under study. Before considering DR for a customer with a contractual capacity, that customer must agree to the reduction in delivery capacity at times when DR is called upon. Note that ISO New England Seasonal Peak Demand Resources must reduce load during Non-Holiday Week Days when the Real-time System hourly Load is equal to or greater than 90% of the most recent “50/50” System Peak Load Forecast for the applicable Summer or Winter Season, per ISO-NE Demand Resources FCM.
5. Harmonics – For both PV and DG, there is a need to specify harmonic & flicker requirements to avoid customer power quality or utility protection, control, or communication problems; at a minimum per IEEE 519 (wind converter equipment with DVAR had problems and harmonic interactions).
6. Operability – Operating guides need to be developed by the Maine LCC and followed by the NTA operator. These guides will establish the requirements and procedures to call upon the NTA resources when needed to keep local area loads below critical load levels. From an ISO New England perspective, this is a “load reducer”. These NTA resources may be precluded from participation in the ISO markets, subject to a market rule in effect. ISO New England calls all DR within a dispatch zone, by dispatch zone.
7. Pre-Contingency vs. Operation for Maintenance Outages – NTA resources will be called upon to operate on a pre-contingency (possibly day-in, day-out, depending on local area load level) basis if needed for normal or single-contingency reliability. NTA resources may be called upon to operate for a maintenance outage if only needed for reliability with a facility out of service, and the outage is planned. .

Relevant References:

- **IEEE 519 Recommended Practices and Requirements for Harmonic Control in Electric Power Systems:** Table 10.2 in IEEE Std 519 Establishes harmonic limits on voltage as 5% for total harmonic distortion and 3% of the fundamental voltage for and single harmonic.
- **MPUC Order Approving Stipulation Docket No. 2008-255:** “The needs in the Mid-Coast area will be further evaluated as part of a non-transmission alternative (NTA) pilot project which will be filed by GridSolar and CMP within six months of the date of this Order as a component of a Pilot Plan to be developed by the two companies. The Pilot Plan will be submitted to the Commission for approval and processed in accordance with the provisions of the Smart Grid Policy Act. The Pilot Plan will also include a Portland Pilot Project which will be developed to address reliability needs in the Portland area with a non-transmission alternative. In addition to these two NTA pilot projects, the Pilot Plan will also include a Smart Grid Platform (SGP) proposal which will address: (1) the design, installation, ownership, cost, cost recovery and operation of one SGP; (2) the procurement process, ownership, quantities, schedule, control, costs, and cost recovery of the generation and demand resources for the Pilot Plan; (3) access to the SGP by others; and (4) education of ratepayers on the opportunities presented by the Smart Grid. The Pilot Plan will recommend that GridSolar be designated to serve as the Smart Grid Energy Services Operator (SGESO) within CMP’s service territory.”
- CMP Transmission and Distribution interconnection Requirements for Generation: http://www.cmpco.com/MediaLibrary/3/6/Content%20Management/Suppliers%20And%20Partners/PDFs%20and%20Doc/Blue_Book.doc
- ISO New England Market Rules, Operating Procedure #4, Planning Procedure #3, and Planning Procedures #5
- NPCC Regional Reliability Reference Directory 12, Underfrequency Load Shedding Program Requirements