July 6, 2009

VIA HAND DELIVERY

The Honorable Kimberly D. Bose, Secretary
The Honorable Nathaniel J. Davis, Sr., Deputy Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: *ISO New England Inc.*, Docket No. ER09-___-000, Filing of Installed Capacity Requirement, Hydro-Quebec Interconnection Capability Credits and Related Values for the 2012/2013 Capability Year

Dear Secretary Bose:

Pursuant to Section 205 of the Federal Power Act ("FPA"),[1] ISO New England Inc. (the "ISO") hereby submits an original and six (6) copies of this transmittal letter and related materials, which identify the Installed Capacity Requirement,[2] Hydro-Quebec Interconnection Capability Credits ("HQICCs") and related values for the 2012/2013 Capability Year.[3] These values will be used as part of the third primary auction under New England's Forward Capacity Market, which will be held on October 5, 2009.[4] As detailed below, the ISO proposes an Installed Capacity Requirement value of 32,879 MW. This value accounts for tie benefits (emergency energy assistance) assumed obtainable from Quebec, New Brunswick (Maritimes) and New York of 1665 MW, but it does not reflect a reduction in capacity requirements relating to HQICCs. The HQICC value of 914 MW per month is applied to reduce the portion of the

[1] 16 U.S.C. § 824(d) (2006).

[2] Capitalized terms used but not defined in this filing are intended to have the meaning given to such terms in the ISO New England Inc. Transmission, Markets and Services Tariff, FERC Electric Tariff No. 3 ("ISO Tariff"), the Second Restated New England Power Pool Agreement, and the Participants Agreement. Market Rule 1 is Section III of the ISO Tariff.

[3] The 2012/2013Capability Year runs from June 1, 2012 to May 31, 2013. Pursuant to Section III.12.3 of Market Rule 1, the Installed Capacity Requirement must be filed 90 days prior to the applicable Forward Capacity Auction.

[4] This is the primary Forward Capacity Auction for the 2012/2013 Capability Year. The auction will satisfy the capacity-related reliability obligations of all New England market participants within the six-state footprint of the ISO for the 2012/2013 Capability Year.

Installed Capacity Requirement that is allocated to the Interconnection Rights Holders. Thus, the net amount of capacity to be purchased in the Forward Capacity Auction to meet the Installed Capacity Requirement, after deducting the HQICC value of 914 MW/month,[5] is 31,965 MW.[6]

The Installed Capacity Requirement value for the 2012/2013 Capability Year is lower than the value for the 2011-2012 Capability Year. The Commission approved an Installed Capacity Requirement value of 33,439 MW for the 2011/2012 Capability Year.[7] After accounting for 911 MW of HQICCs, this resulted in a net purchase requirement in the second Forward Capacity Auction of 32,528. A total tie benefits value of 1,800 MW was assumed for the 2011/2012 Capability Year.

The decreases in the Installed Capacity Requirement and tie benefits values for the 2012/2013 Capability Year are due to a number of factors.[8] In particular, the projected 50/50 peak load for 2012/2013 is about 385 MW lower than the projected 50/50 peak for 2011/2012 due to regional economic downturn. In addition, the generating resource forced outage rate has decreased from an average of 5.1% for the 2011/2012 Capability Year to 4.93% for the 2012/2013 Capability Year as a result of better resource performance, and the assumed load relief obtainable from implementing 5% voltage reduction has increased by 62 MW based on the results of the latest voltage reduction tests. The net effect of these changes was to lower the 2012/2013 Installed Capacity Requirement by approximately 560 MW when compared with the values for 2011/2012. The decrease in total tie benefits for the 2012/2013 Capability Year is primarily due to assumed system conditions in New York.[9]

The Forward Capacity Auction process requires the modeling of certain constraints, including Local Sourcing Requirements and Maximum Capacity Limits for Load Zones that may be import- or export-constrained. Local Sourcing Requirements for the Connecticut and Northeast Massachusetts/Boston ("NEMA/Boston") Load Zones are 6,640 MW and 2,019 MW, respectively. While final zonal determinations for the third Forward Capacity Auction will be

---

[5] HQICCs are monthly values.

[6] Prepared Testimony of Mr. Peter K. Wong on Behalf of ISO New England Inc. ("PKW Testimony") (Attachment 1) at pp 8-10.

[7] *ISO New England Inc.*, 125 FERC ¶ 61,154 (2008) ("2011/2012 ICR Order").

[8] PKW Testimony at pp. 10-11.

[9] Specifically, the New York Control Area has increased their estimate of the amount of load relief assumed obtainable from implementing their emergency operating procedures. For tie benefits calculations, it is assumed that less capacity resources are required by the New York Control Area to meet its 1 day in 10 years loss of load expectation criterion. As such, New York would need to rely more often on tie benefits to meet its load and would compete with New England for emergency assistance, thereby decreasing the emergency assistance available to New England. PKW Testimony at p. 9.

submitted in a separate filing, neither the Connecticut nor NEMA/Boston Load Zones are expected to be modeled as separate Capacity Zones in the third Forward Capacity Auction.[10] The Maximum Capacity Limit for the Maine export-constrained Load Zone is 3,257 MW.[11] The ISO requests that the Federal Energy Regulatory Commission ("Commission") accept the values reflected herein for filing to become effective 60 days after the date of submission.

The proposed HQICC values have the support of the New England Power Pool ("NEPOOL") Participants Committee. The proposed 2012/2013 Installed Capacity Requirement, Local Sourcing Requirements and Maximum Capacity Limit values did not receive the support of the Participants Committee. The ISO expects that NEPOOL will submit separate comments on this filing and will discuss the views of various NEPOOL participants regarding the 2012/2013 Installed Capacity Requirement, Local Sourcing Requirements and Maximum Capacity Limit.

I. COMMUNICATIONS

The ISO is the private, non-profit entity that serves as the regional transmission organization ("RTO") for New England. The ISO operates the New England bulk power system and administers New England's competitive wholesale electricity markets pursuant to the ISO Tariff and the Transmission Operating Agreement with the New England transmission owners. In its capacity as an RTO, the ISO has the responsibility to protect the short-term reliability of the control area and to operate the bulk power system according to reliability standards established by the Northeast Power Coordinating Council ("NPCC") and the North American Electric Reliability Corporation ("NERC").

All correspondence and communications in this proceeding should be addressed to the undersigned for the ISO as follows:

---

[10] As part of the December 1, 2008 Market Rule 1 revisions for the Forward Capacity Market Phase II (Reconfiguration Auctions and Bilateral Contracts), the ISO has committed to begin a stakeholder process in the first quarter of 2009 to address the interrelated issues of: application of the transmission security analysis ("TSA") and its parameters; how Capacity Zones and Local Sourcing Requirements are established; and alignment of standards to be used in establishing Capacity Zones and performing reliability reviews. *See ISO New England Inc. and New England Power Pool*, Docket No. ER09-356-000, Various Revisions to FCM Rules Related to Bilateral Contracts and Reconfiguration Auctions, at pp. 4-6; 126 FERC ¶ 61,115 (2009). The NEPOOL Reliability Committee has begun deliberations regarding these issues.

[11] The Local Sourcing Requirement and Maximum Capacity Limit values are used to determine whether separate zones must be modeled in the third Forward Capacity Auction. The ultimate determinations regarding separate zones are being submitted in a contemporaneous filing regarding numerous inputs into the Forward Capacity Auction as required by Section III.13.8.1 of the ISO Tariff.

James H. Douglass, Esq.*
Christopher J. Hamlen, Esq.
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040-2841
Tel: (413) 540-4559
Fax: (413) 535-4379
E-mail: jdouglass@iso-ne.com
chamlen@iso-ne.com

*Persons designated for service

II. BACKGROUND AND OVERVIEW

As part of the Forward Capacity Market, the ISO is preparing to conduct the Forward Capacity Auction for the 2012/2013 Capability Year. The auction, which will be conducted on October 5, 2009, is intended to result in capacity commitments of sufficient megawatts to meet the projected Installed Capacity Requirement for 2012/2013.[12] In this filing, the ISO is submitting for approval the 2012/2013 Capability Year values for the Installed Capacity Requirement, Local Sourcing Requirements and Maximum Capacity Limit – all of which are key inputs in the Forward Capacity Auction – and HQICCs, which are a key input into the calculation of the Installed Capacity Requirement values.

A. Installed Capacity Requirement

The Installed Capacity Requirement is a measure of the installed resources that are projected to be necessary to meet reliability standards in light of total forecasted load requirements for the New England Control Area and to maintain sufficient reserve capacity to meet reliability standards. More specifically, the Installed Capacity Requirement is the amount of resources needed to meet the reliability requirements defined for the New England Control Area of disconnecting non-interruptible customers (a loss of load expectation or "LOLE") no more than once every ten years (an LOLE of 0.1 days per year). The methodology for calculating the Installed Capacity Requirement is set forth in Section III.12 of Market Rule 1. The Installed Capacity Requirement for the 2012/2013 Capability Year is the amount of installed

[12] The October 5, 2009 Forward Capacity Auction, like future Forward Capacity Auctions, is conducted in advance of the Capability Year in which the capacity will actually be supplied. The October 2009 Forward Capacity Auction applies to a supply commitment period that corresponds to the 2012/2013 Capability Year (*i.e.*, June 1, 2012 to May 31, 2013). Resources that clear in the Forward Capacity Auction will be obligated to supply capacity to the New England Control Area during the 2012/2013 Capability Year and load-serving entities will be obligated to pay for the capacity procured.

capacity to be procured in the Forward Capacity Auction that will be held in October 2009.[13] The values for this year's filing, as in previous years, are based on three essential components: the load forecast, resource availability, and tie benefits. The methodologies for determining projected load and resource outage rates are the same as those used in previous filings, albeit adjusted due to the need under the Forward Capacity Market to project the Installed Capacity Requirement three years in advance.[14]

The methodology for determining tie benefits is the same as that used for the 2011/2012 Installed Capacity Requirement calculation. The ISO is utilizing for this filing the tie benefits methodology approved by the Commission in Docket No. ER08-41-002 (the "Revised Tie Benefits Methodology"),[15] which was first utilized by the ISO in filing the 2011/2012 Installed Capacity Requirement values. The Revised Tie Benefits Methodology was filed pursuant to the Commission's directives in its December 10, 2007 order in Docket No. ER08-41-000 (the "2010/2011 ICR Order"),[16] as clarified in the May 6, 2008 order denying rehearing (the "May 6 Order"),[17] that the ISO submit a filing in July of 2008 to summarize the results of stakeholder discussions and address any proposed changes to the methodology for calculating and allocating tie benefits for the December 2008 Forward Capacity Auction.[18]

As in past years, the ISO developed the initial Installed Capacity Requirement recommendation with stakeholder input, which was provided in part through the NEPOOL committee processes through review by NEPOOL's Power Supply Planning Committee ("PSPC") during the course of six meetings, by the NEPOOL Reliability Committee at its May 19, 2009 meeting and by the NEPOOL Participants Committee at its June 5, 2009 meeting. Although, as noted above, NEPOOL did not support the proposed values for the Installed Capacity Requirement, the Local Sourcing Requirements and the Maximum Capacity Limit,

---

[13] Pursuant to Section III.13 of Market Rule 1, the ISO administers the Forward Capacity Auction in order "to procure the amount of capacity needed in the New England Control Area."

[14] *See, e.g.*, *ISO New England Inc.*, 111 FERC ¶ 61,185, *reh'g denied,* 112 FERC ¶ 61,254 (2005), *appealed on jurisdictional grounds, Conn. Dept. of Pub. Util. Control v. FERC,* 484 F.3d 558 (D.C. Cir. 2007), *reh'g denied*, 2007 U.S. App. LEXIS 17020 (July 13, 2007), *mandate issued* (July 27, 2007), *on remand to*, 122 FERC P 61, 144 (2008), *reh'g denied*, 122 FERC ¶ 61, 036 (2008) (2005/2006 Capability Year Installed Capacity Requirements); and *ISO New England Inc.*, 119 FERC ¶ 61,161 (2007), *reh'g denied*, 121 FERC ¶ 61, 125 (2007) (2007/2008 Capability Year Installed Capacity Requirements). *See also* 2010/2011 ICR Order; *order on reh'g,* 123 FERC ¶ 61,129 (2008).

[15] *ISO New England Inc. and New England Power Pool*, 124 FERC ¶ 61,298 (2008) (the "September 29, 2008 Tie Benefits Order").

[16] 121 FERC ¶ 61,250 (2007); *order on reh'g,* 123 FERC ¶ 61,129 (2008).

[17] 123 FERC ¶ 61,129 (2007).

[18] *Id.*

NEPOOL participants were actively involved in reviewing and providing input on the development of those values.[19] In addition, in 2007 the New England States Committee on Electricity ("NESCOE") was formed.[20] Among other responsibilities, NESCOE is responsible for providing feedback on the annual proposed Installed Capacity Requirement value at the relevant NEPOOL Reliability Committee meeting and presenting NESCOE's position on Installed Capacity Requirement matters at the NEPOOL Participants Committee meeting at which the values are voted upon.[21]

B. Local Sourcing Requirement and Maximum Capacity Limit

Under the Forward Capacity Market, the ISO also must calculate Local Sourcing Requirements and Maximum Capacity Limits to be used, if necessary, in each Forward Capacity Auction. A Local Sourcing Requirement is "the minimum amount of capacity that must be electrically located within an import-constrained Load Zone."[22] A Maximum Capacity Limit is "the maximum amount of capacity that can be procured in an export-constrained Load Zone [to meet the Installed Capacity Requirement]."[23] The general purpose of Local Sourcing Requirements and Maximum Capacity Limits is to ensure that capacity resources, when considered in combination with the transfer capability of the transmission system, are electrically distributed within the New England Control Area in a manner that ensures that the minimum amount of resources purchased in the Forward Capacity Auction will meet the Northeast Power Coordinating Council's and Market Rule 1, Section 12's 1 day in 10 years (0.1 days per year) disconnection of firm load resource adequacy planning criterion.

For the 2012/2013 Capability Year, the ISO calculated the Local Sourcing Requirements for Connecticut and NEMA/Boston Load Zones and the Maximum Capacity Limit for the Maine Load Zone. The Local Sourcing Requirements and Maximum Capacity Limit were calculated using the same assumptions of forecasted load and resources as those used in the calculation of the Installed Capacity Requirement for the 2012/2013 Capability Year.

---

[19] For example, all of the load and resource assumptions needed for the Westinghouse/ABB Capacity Model Program ("Capacity Model") were reviewed by the PSPC, a subcommittee of the NEPOOL Reliability Committee.

[20] *ISO New England Inc.*, Docket No. ER07-1324-000, Formation of the New England States Committee on Electricity (filed August 31, 2007) (proposing to add a new rate schedule to the ISO Tariff for the purpose of recovering funding for NESCOE's operation) (the "NESCOE Funding Filing"); *ISO New England Inc.*, 121 FERC ¶ 61,105 (2007) (order accepting the ISO's proposed rate schedule for funding of NESCOE's operations).

[21] *See* the NESCOE Funding Filing at 14.

[22] Section III.1.3 of the ISO Tariff.

[23] *Id.*

C. HQICCs

HQICCs are capacity credits that are allocated to the Interconnection Rights Holders, which are entities that hold certain rights over the Hydro-Quebec Interconnection ("HQ Interconnection"). Pursuant to Sections III.12.9.1 and III.12.9.2 of Market Rule 1, the tie benefit value for the HQ Interconnection was established using the results of the probabilistic calculation of tie benefits with Quebec. Moreover, as described further below, tie benefits from individual Control Areas were determined herein using an allocation approach based on the results of individual probabilistic calculations performed for each of the three neighboring Control Areas, obviating the need to reduce tie benefit values for the New Brunswick and New York Control Areas to account for deterministically calculated HQICCs (reflecting the tie benefit value of the HQ Interconnection) as had been done prior to the calculation of the 2011/2012 HQICCs and Installed Capacity Requirement. The ISO calculates HQICCs, which are allocated to Interconnection Rights Holders in proportion to their individual rights over the HQ Interconnection, and must file the HQICC values established for each Capability Year. The HQICC values for the 2012/2013 Capability Year are 914 MW per month. At its June 5, 2009 meeting, the NEPOOL Participants Committee voted to support these values, with three votes in opposition and four abstentions noted.

D. Process for Developing Installed Capacity Requirement and Related Values

The ISO, in consultation with NEPOOL and other interested parties, developed the proposed Installed Capacity Requirement and related values for the 2012/2013 Capability Year through an extensive stakeholder process during the course of six monthly meetings. The ISO used the methodologies and assumptions for determining the Installed Capacity Requirement and related values that are set out in Section III.12 of Market Rule 1. The methodology and assumptions used to calculate the proposed Installed Capacity Requirement also are consistent with the approach reflected in the recent capacity requirement values submitted (and accepted) for previous Capability Years.[24]

The specific Installed Capacity Requirement and related values proposed in this submittal, and the derivation of those values, is discussed further in Sections IV-VII of this filing letter and in the Testimony of Peter K. Wong. As explained in Sections IV-VII and the Testimony, the proposed Installed Capacity Requirement and related values were calculated based on a Commission-approved methodology and a reasonable set of assumptions. Accordingly, the Commission should accept the proposed values for filing without change to become effective 60 days after the date of submission.

---

[24] *See, e.g.*, 125 FERC ¶ 61,154; 119 FERC ¶ 61,161; 111 FERC ¶ 61,185

E. Proposed Values

The ISO is proposing that 32,879 MW be the Installed Capacity Requirement for the 2012/2013 Capability Year. The 32,879 MW Installed Capacity Requirement value for the 2012/2013 Capability Year reflects tie benefits (emergency energy assistance) assumed obtainable from New Brunswick (Maritimes), New York and Quebec in the aggregate amount of 1665 MW. However, the 32,879 MW Installed Capacity Requirement value does not reflect a reduction in capacity requirements relating to HQICCs. The HQICC value of 914 MW per month is applied to reduce the portion of the Installed Capacity Requirement that is allocated to the Interconnection Rights Holders. Thus, the net amount of capacity to be purchased in the Forward Capacity Auction to meet the Installed Capacity Requirement, after deducting the HQICC value, is 31,965 MW.

The 2012/2013 Capability Year Local Sourcing Requirements for the Connecticut and NEMA/Boston Load Zones are 6,640 MW and 2,019 MW, respectively. The Maximum Capacity Limit for the Maine export-constrained Load Zone is 3,257 MW.

III. STANDARD OF REVIEW

The ISO submits the proposed Installed Capacity Requirement and related values pursuant to Section 205, which "gives a utility the right to file rates and terms for services rendered with its assets."[25] Under Section 205, the Commission "plays 'an essentially passive and reactive' role"[26] whereby it "can reject [a filing] only if it finds that the changes proposed by the public utility are not 'just and reasonable.'"[27] The Commission limits this inquiry "into whether the rates proposed by a utility are reasonable -- and [this inquiry does not] extend to determining whether a proposed rate schedule is more or less reasonable than alternative rate designs."[28] The Installed Capacity Requirement and related values herein "need not be the only reasonable methodology, or even the most accurate."[29] As a result, even if an intervenor or the

[25] *Atlantic City Elec. Co. v. FERC*, 295 F.3d 1, 9 (D.C. Cir. 2002).

[26] *Id.* at 10 (*quoting City of Winnfield v. FERC*, 744 F.2d 871, 876 (D.C. Cir. 1984)).

[27] *Id.* at 9.

[28] *Cities of Bethany, et al. v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 917 (1984).

[29] *OXY USA, Inc. v. FERC*, 64 F.3d 679, 692 (D.C. Cir. 1995).

Commission develops an alternative proposal, the Commission must accept the ISO's Section 205 filing if it is just and reasonable.[30]

IV. GENERAL PROCESS FOR ESTABLISHING INSTALLED CAPACITY REQUIREMENTS

The Installed Capacity Requirement is a projected measure of the capacity (*e.g.*, generation, imports and demand resources) that is necessary to satisfy the New England Control Area's total forecasted load requirements and to maintain sufficient reserve capacity to meet reliability standards. More specifically, the Installed Capacity Requirement is the amount of capacity needed to meet the reliability requirements defined for the New England Control Area of disconnecting non-interruptible customers no more than once in every ten years (an LOLE of 0.1 days/year).

To develop the Installed Capacity Requirement for the 2012/2013 Capability Year, the ISO, in consultation with the PSPC, determined the assumptions to use to simulate the expected New England bulk power system reliability using the Capacity Model.[31] Many of these assumptions are specified in Section III.12 of Market Rule 1. All assumptions are developed with stakeholder review and input. The Capacity Model is a reliability modeling program that calculates system LOLE using probabilistic mathematics based on expected load and capacity conditions. Inputs to the Capacity Model are various assumptions regarding load and capacity resources. The Capacity Model has been used to establish Installed Capacity Requirements for at least the past 25 years in New England.

V. DEVELOPMENT OF THE INSTALLED CAPACITY REQUIREMENT FOR THE 2012/2013 CAPABILITY YEAR

The proposed Installed Capacity Requirement for the 2012/2013 Capability Year was determined using well established modeling methods and system modeling assumptions regarding a variety of factors, including forecast load, resource availability and tie reliability benefits. During the development of last year's Installed Capacity Requirement (for the 2011/2012 Capability Year), the ISO implemented the Revised Tie Benefits Methodology that was approved by the Commission in Docket No. ER08-41-002.[32] The Revised Tie Benefits Methodology, reflected in Section III.12 of Market Rule 1, was also utilized for calculating and allocating tie benefits (and HQICCs) for the 2012/2013 Capability Year. The general approach

---

[30] *Cf. Southern California Edison Co., et al.*, 73 FERC ¶ 61,219 at 61,608 n.73 (1995) ("Having found the plan to be just and reasonable, there is no need to consider in any detail the alternative plans proposed by the Joint Protesters." (*citing Cities of Bethany*, 727 F.2d at 1136)).

[31] PKW Testimony at pp. 4-6.

[32] September 29, 2008 Tie Benefits Order.

to calculating the proposed Installed Capacity Requirement, HQICCs and related values, including the tie benefit calculation methodology, are discussed below.

A. Load Forecast

The forecasted peak loads of the entire New England Control Area for the 2012/2013 Capability Year are one major input into the calculation of the annual Installed Capacity Requirement detailed in this filing, and the forecasted peak loads for the individual Load Zones are used to develop the associated Local Sourcing Requirements and Maximum Capacity Limit.[33] The ISO's 10-year load forecast, covering the years 2009 through 2018, was published in April 2009 in the ISO New England "2009 – 2018 Forecast Report of Capacity, Energy, Loads, And Transmission" ("2009 CELT Forecast").[34] The 2009 CELT Forecast was developed by the ISO using the same methodology used previously to develop the peak load assumptions reflected in the Commission-approved Installed Capacity Requirements for the first two primary Forward Capacity Auctions,[35] reflecting economic and demographic assumptions as reviewed and supported by the NEPOOL Load Forecast Committee.

---

[33] The forecasted peak loads for the 2012/2013 Capability Year were calculated in accordance with Section III.12.8 of Market Rule 1 using the same methods and procedures employed for calculating forecasted peak loads reflected in the Commission-approved Installed Capacity Requirement for the first two primary Forward Capacity Auctions. *See ISO New England Inc.*, Docket No. ER08-1512-000, Filing of Installed Capacity Requirement, Hydro-Quebec Interconnection Capability Credits and Related Values for the 2011/2012 Capability Year (filed Sept. 9, 2008) ("2011/2012 ICR Filing"); *ISO New England Inc.*, 125 FERC ¶ 61,154 (2008) (accepting proposed Installed Capacity Requirement for the 2011/2012 Capability Year) (the "2011/2012 ICR Order"); *ISO New England Inc. and New England Power Pool*, Docket No. ER08-41-000, Filing of Installed Capacity Requirement, Hydro-Quebec Interconnection Capability Credits and Related Values for the 2010/2011 Capability Year (filed Oct. 11, 2007) ("2010/2011 ICR Filing"); *ISO New England Inc. and New England Power Pool Participants Committee*, 121 FERC ¶ 61,250 (2007) (accepting proposed Installed Capacity Requirement for the 2010/2011 Capability Year) (the "2010/2011 ICR Order"). The forecasted peak loads for the 2009/2010 Capability Year that were used in the Commission-approved Installed Capacity Requirement filing submitted on March 18, 2009 are from the same 10-year load forecast, which is updated annually and published in April, that contained the peak loads used for the development of the Installed Capacity Requirement for the 2012/2013 Capability Year. 2009/2010 Power Year Installed Capacity Requirements, *ISO New England Inc.*, Docket No. ER09-864-000 (filed Mar. 18, 2009). *See also ISO New England Inc. and New England Power Pool*, 127 FERC ¶ 61,142 (2009) (accepting 2009/2010 Capability Year Installed Capacity Requirements).

[34] The ISO website contains more detailed information on the load forecast assumptions, methodologies and models. *See* "CELT Forecasting Details 2009," http://www.iso-ne.com/trans/celt/fsct_detail/index.html and "CELT Report 2009," http://www.iso-ne.com/trans/celt/report/index.html. (CELT stands for "capacity, energy, loads, and transmission.").

[35] *See* 2011/2012 ICR Order; 2010/2011 ICR Order.

The projected New England Control Area 50/50 peak load (summer)[36] for the 2012/2013 Capability Year is 29,020 MW. This represents a compound annual growth rate of 1.35% from the forecasted 50/50 peak load of 27,875 MW for the summer of 2009. The corresponding 90/10 peak load for the 2012/2013 Capability Year is 31,075 MW.[37] This represents a compound annual growth rate of 1.42% from the forecasted 90/10 peak load of 29,780 MW for the summer of 2009. The forecast net annual energy for 2009 and 2012 is 131,315,000 MWh and 134,015,000 MWh, respectively. The corresponding energy growth for the calendar years 2009 through 2012 is forecast to be at a compound annual growth rate of 0.7%. The 2009 CELT Forecast shows that the New England Control Area would experience a decline in the annual load factor from 53.8% in 2009 to 52.7% in 2012. This is generally attributed to an increase in the air conditioning penetration, which has led to an increase in summer peak use relative to average use.

B. Resource Capacity Ratings

The 2012/2013 Installed Capacity Requirement is based on ratings[38] of Qualified Existing Capacity Resources that have cleared the Forward Capacity Auction for the 2011/2012 Commitment Period.[39] Resource additions and attritions are not assumed in the calculation of the Installed Capacity Requirement for the 2012/2013 Capability Year because there is no certainty that new resource additions or existing resource attritions will clear the Forward Capacity Auction. Not modeling undetermined resource additions and attritions will not have a significant effect on the calculated Installed Capacity Requirement since the availability characteristics and sizes of these resources are expected to be similar to those of Existing

---

[36] The New England Control Area is a summer-peaking system, meaning that the highest load occurs during the summer. The 50/50 peak refers to the peak load having a 50% chance of being exceeded, and is expected to occur at a weighted New England-wide temperature of 90.4 ºF.

[37] The 90/10 peak refers to the peak load having a 10% chance of being exceeded, and is expected to occur at a weighted New England-wide temperature of 94.2 ºF.

[38] The resource capacity ratings for the 2012/2013 Capability Year were calculated in accordance with Section III.12.7.2 of Market Rule 1 using the methods and procedures that were employed for calculating resource capacity ratings reflected in the Commission-approved Installed Capacity Requirements for the first two primary Forward Capacity Auctions. *See* the 2011/2012 ICR Filing at p. 11 and the 2011/2012 ICR Order; the 2010/2011 ICR Filing at pp. 11-12 and the 2010/2011 ICR Order.

[39] In the Forward Capacity Market, capacity resources can be generation (Generating Capacity or Intermittent Power Capacity) or demand resources (On-Peak, Seasonal Peak, Critical Peak, Real-Time Demand Response and Real-Time Emergency Generation).

Resources. The additional load carrying capability ("ALCC") adjustments, discussed in Mr. Wong's testimony, are designed to compensate for these uncertainties.[40]

Under a special transition rule that became effective on April 1, 2009, the Installed Capacity Requirement, Local Sourcing Requirements and Maximum Capacity Limits for any Forward Capacity Auction or reconfiguration auction is adjusted to reflect any over-rating of capacity associated with the application of a reserve margin adjustment factor to the Qualified Capacity of Demand Resources or to any Existing Import Capacity Resource.[41] This adjustment is only necessary if and to the extent there is an over-rating of capacity resulting from applying a reserve margin adjustment. Commencing with the 2012/2013 Forward Capacity Auction, the application of a reserve margin gross-up to Demand Resources and Existing Import Capacity Resources is being eliminated,[42] and therefore an adjustment to the Installed Capacity Requirement, Local Sourcing Requirements and Maximum Capacity Limit under the special transition rule is not necessary.

C. Resource Availability

The proposed 2012/2013 Installed Capacity Requirement reflects resource availability assumptions based on historical scheduled maintenance and forced outages of the capacity

---

[40] PKW Testimony at pp. 5-6, 18.

[41] Market Rule 1, Section III.12.7.2.1.

[42] The elimination of the reserve margin gross-up for Demand Resources is being implemented pursuant to the Commission's December 23, 2009 order in Docket No. ER09-209, which accepted revisions to the Forward Capacity Market rules to eliminate the reserve margin gross-up for Demand Resources commencing with the 2012/2013 Capability Year. *See ISO New England Inc. and New England Power Pool*, 125 FERC ¶ 61,355 (2008). The ISO informed New England stakeholders in November 2008 that it would cease the practice, reflected in the ISO New England Manual for Installed Capacity, of applying a reserve margin gross-up to certain New York Power Authority import contracts commencing with the 2012/2013 Capability Year. *See* the meeting agenda and materials for agenda item 11 of the NEPOOL Markets Committee meeting for November 13, 2008, *available at* http://www.iso-ne.com/committees/comm_wkgrps/mrkts_comm/mrkts/mtrls/2008/nov12132008/index.html. Certain municipal Market Participants have filed a complaint with the Commission seeking to require the ISO to continue applying the preferential reserve margin gross-up to the New York Power Authority import contracts. *See Connecticut Municipal Electric Energy Cooperative, et al. v. ISO New England Inc.*, Docket No. EL09-60-000, Complaint of Connecticut Municipal Electric Energy Cooperative, et al. Requesting (1) Continued "Gross-Up" Treatment or Resumed Load-Reduction Treatment of NYPA Firm Capacity Imports; and (2) Fast Track Processing (filed June 11, 2009); *Connecticut Municipal Electric Energy Cooperative, et al.*, Docket No. EL09-60-000, Answer of ISO New England Inc. (filed July 1, 2009).

resources.[43] For generating resources, individual unit scheduled maintenance assumptions are based on each unit's most recent historical five-year average of scheduled maintenance. If the individual resource has not been operational for five years, then NERC class average data is used to substitute for the missing annual data. The individual generating resource's forced outage assumptions are based on the generator's five-year historical equivalent forced outage rate data submitted to the ISO database. The NERC class average data for the same class of generators is used to substitute for the missing annual data if the resource has been in commercial operation less than five years.

The Qualified Capacity of an Intermittent Power Resource is the resource's median output during the Reliability Hours averaged over a period of five years. Based on the Intermittent Power Resources rating methodology, these resources are assumed 100% available.

While the Passive Demand Response Resources are assumed 100% available in the Installed Capacity Requirement calculations, the performance assumptions for the Active Demand Resources in the Real-Time Demand Response and Real-Time Emergency Generator categories are based on actual responses during all historical OP 4 events and ISO performance audits.

D. Tie Benefits

New England's Commission-approved method for establishing the Installed Capacity Requirement requires that assumptions be made regarding the tie benefits value to be used as an input in the formula. Tie benefits from neighboring Control Areas reduce the Installed Capacity Requirement and the need to buy capacity to meet the New England resource adequacy criterion. The tie benefits from neighboring Control Areas reflect the amount of emergency assistance that New England could rely on, without jeopardizing reliability in New England or its neighboring Control Areas, in the event of a capacity shortage in New England.

The Installed Capacity Requirement for the 2012/2013 Capability Year proposed by the ISO reflects total tie benefits calculated in accordance with the Revised Tie Benefits Methodology approved by the Commission in the September 29, 2008 Tie Benefits Order.[44] Under the revised methodology, HQICC values are established using the results of a probabilistic calculation of tie benefits rather than using a deterministic calculation methodology. The ISO

---

[43] The resource availability assumptions for the 2012/2013 Capability Year were developed in accordance with Section III.12.7.3 of Market Rule 1 using the methods and procedures employed for developing resource availability assumptions reflected in the Commission-approved Installed Capacity Requirements for the first two primary Forward Capacity Auctions. *See* the 2011/2012 ICR Filing at pp. 11-12 and the 2011/2012 ICR Order; the 2010/2011 ICR Filing at pp. 12 and the 2010/2011 ICR Order.

[44] This methodology is reflected in Section III.12.9 of Market Rule 1.

continues using the existing methodology for calculating total tie benefits from the Quebec, New Brunswick and New York Control Areas using a probabilistic multi-area reliability model. In addition, as explained further below, these neighboring Control Areas continue to be modeled using "At Criteria" modeling assumptions. However, under the revised methodology, tie benefits from individual Control Areas are determined based on the results of individual probabilistic calculations performed for each of the three neighboring Control Areas, obviating the need for a deterministic calculation of HQICCs that arbitrarily reduces the tie benefit values from the New Brunswick and New York Control Areas.

Under the Revised Tie Benefits Methodology, tie benefits from each Control Area are calculated using the same GE MARS program with "At Criteria" modeling assumptions. Using the "At Criteria" modeling assumption is consistent with applicable Commission-approved tariff provisions (namely, section III.12.9 of Market Rule 1) and with Commission precedent.[45]

Under the revised methodology, the allocation methodology for calculating Individually-Calculated Capacity Equivalents for New Brunswick and New York is applied for determining the tie benefits from Quebec as well.[46] If the sum of the Individually-Calculated Capacity Equivalents from each of the three neighboring Control Areas does not equal the total tie benefits calculated using the multi-area reliability model, tie benefits from each Control Area are adjusted in a pro rata manner based on a ratio of the tie benefits from each individual Control Area to the sum of the tie benefits from all Control Areas. Thus, the revised approach does away with the use of the deterministic method for calculating HQICCs and employs the same method for calculating tie benefits from all three directly connected Control Areas.

Based on the methodology described above, a total of 1,665 MW of tie benefits are assumed in the Installed Capacity Requirement calculations for the 2012/2013 Capability Year, which includes: 920 MW from Quebec, 609 MW from New Brunswick (Maritimes) and 136 MW from New York.

---

[45] In the 2010/2011 ICR Order, the Commission determined:

> The Filing Parties' "at criteria" assumption reflecting a Loss of Load Expectation included in the instant filing is just and reasonable because it models potential transmission constraints on neighboring control areas. The Filing Parties' approach recognizes that the exact system conditions of neighboring control areas are unknown three years in advance and therefore builds a conservative margin of safety into its calculation of tie benefits available. We find this to be a reasonable approach.

2010/2011 ICR Order at P 73.

[46] Market Rule 1, Section III.12.9.2.

E. Allocation of Tie Benefits

For purposes of modeling the Local Sourcing Requirement and Maximum Capacity Limit, and to calculate the amount of capacity that may be purchased over each tie in the Forward Capacity Auction, it is necessary to allocate the contribution of the total tie benefits value among each of the interconnections between the New England Control Area and other control areas. The total tie benefits value is calculated and allocated in accordance with Market Rule 1.[47] The Local Sourcing Requirement and Maximum Capacity Limit proposed in this filing reflect the Revised Tie Benefits Methodology accepted by the Commission in the September 29, 2008 Tie Benefits Order. As noted above, the allocation methodology used herein for calculating individual tie benefits from New Brunswick and New York is applied for determining the tie benefits from Quebec as well.

F. Proposed HQICC Values

The ISO proposes HQICC values of 914 MW for each month of the 2012/2013 Capability Year, which were calculated using the allocation methodology accepted by the Commission in the September 29, 2008 Tie Benefits Order and reflected in Section III.12.9.2 of Market Rule 1. These values were developed in consultation with NEPOOL through the Power Supply Planning Committee process. At its May 19, 2009 meeting, the NEPOOL Reliability Committee voted to recommend that the Participants Committee support these HQICC values. At its June 5, 2009 meeting, the NEPOOL Participants Committee voted to support these values, with three votes in opposition and four abstentions noted.

VI. DEVELOPMENT OF THE LOCAL SOURCING REQUIREMENTS AND MAXIMUM CAPACITY LIMIT

Under the Forward Capacity Market, the ISO also must calculate Local Sourcing Requirements and Maximum Capacity Limits to be used in each Forward Capacity Auction, if necessary. A Local Sourcing Requirement is the minimum amount of capacity that must be electrically located within an import-constrained Load Zone, and a Maximum Capacity Limit is the maximum amount of capacity that can be procured in an export-constrained Load Zone to meet the Installed Capacity Requirement.[48] Local Sourcing Requirements and Maximum

---

[47] In prior orders, the Commission has directed that the Interconnection Rights Holders be granted capacity credits in connection with their transmission rights over the HQ Interconnection regardless of whether the Interconnection Rights Holders have actually entered into any agreements to import capacity or energy over the HQ Interconnection. *See, e.g., New England Power Pool and ISO New England Inc.*, Order Accepting Compliance Filing, 111 FERC ¶ 61,132 (2005). In the ISO Tariff, the capacity credits granted to the Interconnection Rights Holders are known as Hydro-Quebec Interconnection Capability Credits ("HQICCs").

[48] Market Rule 1, Section III.12.2.

Capacity Limits are calculated using the same load and resource assumptions as those used in calculating the Installed Capacity Requirement.[49]

These values will determine the amount of capacity that is needed in each Load Zone. Local Sourcing Requirements and Maximum Capacity Limits help to ensure that capacity resources are distributed geographically within the New England Control Area in a manner that ensures compliance with reliability criteria. The amount of Existing Resources in each Load Zone, which are used in the calculation of the Installed Capacity Requirement, Local Sourcing Requirement and Maximum Capacity Limit, are presented in the attached Testimony Peter K. Wong (Attachment 1).[50] The calculation of the Local Sourcing Requirements and the Maximum Capacity Limits used the same load and resource assumptions that were used to calculate the Installed Capacity Requirement for 2012/2013, except that they are distributed to the Load Zones according to their electrical connection.

The 2012/2013 Capability Year Local Sourcing Requirements for the Connecticut and NEMA/Boston Load Zones are 6,640 MW and 2,019 MW, respectively. The Maximum Capacity Limit for the Maine export-constrained Load Zone is 3,257 MW. This is the amount of capacity resources that the third Forward Capacity Auction can procure from the Maine Capacity Zone, including capacity resource imports over the New Brunswick ties. This number also reflects the tie benefits assumed available over the New Brunswick ties. That is, the Maximum Capacity Limit is reduced to reflect the flows required to receive the assumed tie benefits from New Brunswick to assist the New England Control Area at times of capacity shortage. Allowing more purchases of capacity from resources located in Maine could preclude the energy flows required to realize these tie benefits.

VII. POTENTIAL SEPARATE PRORATION OF CAPACITY REGARDING MAXIMUM CAPACITY LIMIT IN MAINE

Pursuant to Section III.12.4(a) of Market Rule 1, as an export-constrained Load Zone, Maine will be modeled as a separate Capacity Zone. Thus, the Maximum Capacity Limit for the Maine Capacity Zone of 3,257 MW is the maximum amount of capacity resources that the third Forward Capacity Auction can procure from the Maine Capacity Zone. There is a possibility that, if the price floor is reached in the third Forward Capacity Auction, there could be more capacity resources proportionately located in Maine than proportionately located in the Rest of

[49] The Local Sourcing Requirements and Maximum Capacity Limit for the 2012/2013 Capability Year were calculated in accordance with Section III.12.2 of Market Rule 1 using the methods and procedures employed for calculating the Local Sourcing Requirements and Maximum Capacity Limit for the first two primary Forward Capacity Auctions. *See* the 2011/2012 ICR Filing at pp. 21-22 and the 2011/2012 ICR Order; the 2010/2011 ICR Filing at pp. 12 and the 2010/2011 ICR Order.

[50] PKW Testimony at 16-17, Table Nos. 1-3.

Pool Capacity Zone. If such a condition occurs, it would require "separate pro ration" of capacity resources electrically located in the Maine Capacity Zone. Further, if the Rest of Pool Capacity Zone also has excess capacity, there will be pro rationing there as well. Thus, resources located in Maine could be subject to separate pro rationing, which would make the effective capacity price for the Maine Capacity Zone lower than the effective capacity price for the Rest of Pool.

VIII. STAKEHOLDER PROCESS

A. 2012/2013 HQICCs

The HQICCs were developed through the tie benefits study. The ISO worked with the stakeholders to develop the total tie benefits and the tie benefits from the three directly interconnected neighboring control areas. Several meetings with the PSPC and the Reliability Committee were held to review the assumptions for the tie benefits study and its results including the resulting HQICC values. At its May 19, 2009 meeting, the NEPOOL Reliability Committee voted to recommend that the Participants Committee support these HQICC values. At its June 5, 2009 meeting, the NEPOOL Participants Committee voted to support these values, with three votes in opposition and four abstentions noted.

B. 2012/2013 Installed Capacity Requirement and Related Values

The Reliability Committee at its May 19, 2009 meeting reviewed and considered the outcome of the PSPC's efforts with respect to the development of the 2012/2013 Installed Capacity Requirement and Related Values. A motion to recommend that the Reliability Committee recommend that the Participants Committee support the ISO's proposed Installed Capacity Requirements and related values that are the subject of this filing failed to pass (28.42% vote in favor). At its June 5, 2009 meeting, a motion that the NEPOOL Participants Committee support these proposed Installed Capacity Requirement and related values also failed to pass (31.86% vote in favor). At the June 5, 2009 Participants Committee meeting, two amendments to the main motion on the 2012/2013 Installed Capacity Requirement and Related Values were also proposed and voted upon, one to reflect a higher reserve margin and one to reflect an alternative treatment of existing import capacity resources in the calculation of the Installed Capacity Requirement. The former motion failed by a show of hands and the latter failed with 42.38% in favor. As a general matter, during the stakeholder process there were some stakeholders that supported a higher Installed Capacity Requirement and some that supported a lower requirement.

IX. REQUESTED EFFECTIVE DATE

The ISO requests that the Commission accept the proposed Installed Capacity Requirement and related values to be effective 60 days after the date of submission. The

proposed values will be used as part of the Forward Capacity Auction to be conducted on October 5, 2009.

X. ADDITIONAL SUPPORTING INFORMATION

This filing identifies Installed Capacity Requirement and related values for the 2012/2013 Capability Year, and is made pursuant to Section 205 of the FPA. Section 35.13 of the Commission's regulations generally requires public utilities to file certain cost and other information related to an examination of cost-of-service rates.[51] However, the proposed Installed Capacity Requirements and related values are not traditional "rates" and the ISO is not a traditional investor-owned utility. Therefore, to the extent necessary, the ISO requests waiver of Section 35.13 of the Commission's regulations. Notwithstanding its request for waiver, the ISO submits the following additional information in compliance with the identified filing regulations of the Commission applicable to Section 205 filings.

35.13(b)(1) - Materials included herewith are as follows:

- This transmittal letter;
- Attachment 1: Testimony of Peter K. Wong;
- Attachment 2: List of governors and utility regulatory agencies in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont to which a copy of this filing has been sent.

35.13(b)(2) – the ISO respectfully requests that the Commission accept this filing to become effective 60 days after the date of submission.

35.13(b)(3) – Pursuant to Section 17.11(e) of the Participants Agreement, Governance Participants are being served electronically rather than by paper copy. The names and addresses of the Governance Participants are posted on the ISO's website at http://www/iso-ne.com/regulatory/ferc/nepool/gov_prtcpnts_eserved.pdf. A paper copy of this transmittal letter and the accompanying materials have also been sent to the governors and electric utility regulatory agencies for the six New England states which comprise the New England Control Area, and to the New England Conference of Public Utility Commissioners, Inc. The names and addresses of these governors and regulatory agencies are shown in Attachment 2. In accordance with Commission rules and practice, there is no need for the entities identified on Attachment 2 to be included on the Commission's official service list in the captioned proceedings unless such entities become intervenors in this proceeding.

[51] 18 C.F.R § 35.13 (2008).

35.13(b)(4) - A description of the materials submitted pursuant to this filing is contained in this transmittal letter.

35.13(b)(5) - The reasons for this filing are discussed in the background section to this transmittal letter.

35.13(b)(6) - As explained above, the ISO has sought the advisory input from Governance Participants pursuant to Section 11.4 of the Participants Agreement.

35.13(b)(7) - The ISO has no knowledge of any relevant expenses or costs of service that have been alleged or judged in any administrative or judicial proceeding to be illegal, duplicative, or unnecessary costs that are demonstrably the product of discriminatory employment practices.

35.13(c)(2) - The ISO does not provide services under other rate schedules that are similar to the sale for resale and transmission services it provides under the ISO Tariff.

35.13(c)(3) - No specifically assignable facilities have been or will be installed or modified in order to supply service with respect to the proposed Installed Capacity Requirement and related values.

XI. CONCLUSION

The ISO requests that the Commission accept the Installed Capacity Requirement and related values reflected in this submission for filing without change to become effective 60 days after the date of submission.

Please acknowledge receipt of the foregoing by date-stamping the enclosed extra copy of this filing and returning it in the enclosed self-addressed and stamped envelope.

Respectfully submitted,

ISO NEW ENGLAND INC.

By: _____

James H. Douglass, Esq.
Christopher J. Hamlen, Esq.
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040-2841
Tel: (413) 540-4559
Fax: (413) 535-4379
E-mail: jdouglass@iso-ne.com
chamlen@iso-ne.com

Attachments

cc : Entities listed in Attachment 2

ATTACHMENT 1

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

ISO New England Inc. **)** **Docket No. ER09-___-000**

PREPARED TESTIMONY OF

PETER K. WONG

ON BEHALF OF ISO NEW ENGLAND INC.

DOCKET NO. ER09- ____ -000

Q: PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A: My name is Peter K. Wong. I am the Manager of Resource Adequacy with the ISO. My business address is One Sullivan Road, Holyoke, Massachusetts 01040-2841.

Q: PLEASE DESCRIBE BRIEFLY YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.

A: I hold a Bachelor of Science degree in Electrical Engineering from the University of Connecticut and a Master of Business Administration degree from Western New England College.

I have been the Manager of Resource Adequacy for the ISO since 1999. Before 1999, I served for about seven years as the Manager of Operations Planning &

Analysis for the staff of the New England Power Exchange ("NEPEX"), the operating arm of the New England Power Pool ("NEPOOL"), and for the ISO after the staff of NEPOOL was transferred to the ISO.

I have worked with NEPOOL and the ISO for more than 34 years. During this time, in addition to my most recent duties described above, I have also held various positions in the Power Supply Planning department of New England Power Planning ("NEPLAN"), the planning arm of NEPOOL. My last position at NEPLAN was Manager of Power Supply Planning. During my 15 years with NEPLAN Power Supply Planning, I was involved in all matters related to NEPOOL Objective Capability (Installed Capacity Requirement) and resource adequacy. I currently serve as the Chair of the NEPOOL Power Supply Planning Committee, which is the NEPOOL technical committee charged with the review and/or development of all assumptions used for the calculation and development of Installed Capacity Requirements, Local Sourcing Requirements and Maximum Capacity Limits for the ISO markets.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A: My testimony discusses the derivation of the Installed Capacity Requirement and related values (Local Sourcing Requirements, Maximum Capacity Limit and Hydro-Quebec Interconnection Capability Credits ("HQICCs")) for the 2012/2013 Capability Year. The 2012/2013 Capability Year starts on June 1, 2012 and ends on May 31, 2013.

INSTALLED CAPACITY REQUIREMENT

Q: WHAT IS THE "INSTALLED CAPACITY REQUIREMENT"?

A: The Installed Capacity Requirement is the level of capacity required to meet the reliability requirements defined for the New England Control Area. This requirement is documented in Section 2 of ISO New England Planning Procedure No. 3, Reliability Standards for the New England Area Bulk Power Supply System,[1] which states:

> "**Resources** will be planned and installed in such a manner that, after due allowance for the factors enumerated below, the probability of disconnecting noninterruptible customers due to **resource** deficiency, on the average, will be no more than once in ten years. Compliance with this criteria shall be evaluated probabilistically, such that the loss of load expectation [LOLE] of disconnecting noninterruptible customers due to resource deficiencies shall be, on average, no more than 0.1 day per year.
>
> a. The possibility that load forecasts may be exceeded as a result of weather variations.
>
> b. Immature and mature **equivalent forced outage rates** appropriate for generating units of various sizes and types, recognizing partial and full outages.
>
> c. Due allowance for scheduled outages and deratings.
>
> d. Seasonal adjustment of **resource** capability.
>
> e. Proper maintenance requirements.
>
> f. Available operating procedures.
>
> g. The reliability benefits of interconnections with systems that are not Governance Participants.

[1] Copy available at http://www.iso-ne.com/rules_proceds/isone_plan/PP3_R3.doc (emphasis in original).

h. Such other factors as may from time-to-time be appropriate."

The Installed Capacity Requirement reflects estimated tie benefits, and has associated Local Sourcing Requirements and Maximum Capacity Limits that ensure the required capacity is appropriately located.

Q: PLEASE EXPLAIN THE GENERAL PROCESS FOR ESTABLISHING THE INSTALLED CAPACITY REQUIREMENT.

A: The Installed Capacity Requirement for the 2012/2013 Capability Year was established by the ISO in consultation with stakeholders and in accordance with the calculation methodology as prescribed in Section III.12 of Market Rule 1. The stakeholder process began with the NEPOOL Power Supply Planning Committee's ("PSPC") review of and comment on the ISO's development of load and resource assumptions, and the ISO's calculation of the Installed Capacity Requirement and associated values for the 2012/2013 Capability Year. The PSPC is a technical committee under the NEPOOL Reliability Committee charged with reviewing the Installed Capacity Requirement, Local Sourcing Requirements and Maximum Capacity Limits, including appropriate load and resource assumptions for modeling the expected system conditions. The PSPC consists of representatives of NEPOOL participants and the committee is chaired by a representative of the ISO. Staffs of the six New England States' public utilities regulatory commissions also participate in the PSPC meetings. After the PSPC's review and comment, the ISO developed a recommendation regarding the Installed Capacity Requirement and associated values for the 2012/2013

Capability Year and presented this recommendation, along with the associated load and resource assumptions, to the NEPOOL Reliability Committee for its review, comment and action. The Reliability Committee did not support the ISO's recommendation. The ISO then presented its Installed Capacity Requirement recommendation and the results of the Reliability Committee action to the NEPOOL Participants Committee for its review and action. The Participants Committee did not support the ISO's recommendation. After considering NEPOOL's comments and actions, the ISO is filing the Installed Capacity Requirement and related values for the 2012/2013 Capability Year with the Commission.

Q: PLEASE EXPLAIN THE METHODOLOGY FOR ESTABLISHING THE INSTALLED CAPACITY REQUIREMENT.

A: The Installed Capacity Requirement was established using the Westinghouse/ABB Capacity Model Program ("Capacity Model") developed by Westinghouse Electric Corporation. The Capacity Model is a computer program that uses probabilistic mathematics to simulate the random behavior of load and resources of a power system and calculates the expected days per year that the electric system would not have adequate resources to meet the daily peak loads. Inputs to the Capacity Model are various assumptions regarding load and capacity resources. The Capacity Model is a one-bus model and the New England transmission system is assumed to have no constraints in this simulation. In other words, all the modeled resources are assumed to be deliverable to meet forecasted load anywhere in the New England Control Area. This one bus methodology is a

part of the Forward Capacity Market (FCM) design. The FCM determines the resource needs in transmission import constrained Load Zones through the application of Local Sourcing Requirements and Maximum Capacity Limits, thereby eliminating the effect of transmission constraints. The program compares, on a weekly basis, the available capacity resources with the range of expected daily peak loads to determine the weekly Loss of Load Probability ("LOLP"). Summation of the weekly LOLP over the Capability Year (June 2012 – May 2013) gives the Loss of Load Expectation ("LOLE"). The calculation process starts with the determination of the system LOLE with existing and known resource additions to meet the expected load. If the system is more reliable than the resource-adequacy criterion (*i.e.*, the system LOLE is less than or equal to 0.1 days per year), additional resources are not required. However, if the system is less reliable than the resource-adequacy criterion, additional resources are needed to meet the criterion. Once resources are at least adequate to meet the reliability criterion, the Installed Capacity Requirement is determined by increasing loads (additional load carrying capability or "ALCC") so that New England's LOLE is exactly at 0.1 days per year. This is how the single number termed Installed Capacity Requirement is established. The modeled New England system must meet the reliability criterion. Under the condition in which New England is forecasted to be less reliable than the resource-adequacy criterion, proxy resources are used within the model to meet this additional need.

Proxy resources reflect the New England system's average availability characteristics and are determined based on the average availability and size of all New England resources.[2] Specifically, each proxy resource has size and availability characteristics such that when proxy resources are used in place of all the resources assumed to be available to the system, the resulting LOLE is unchanged. The use of proxy resources for calculating the Installed Capacity Requirement is a methodology that avoids discontinuities associated with the addition of specific resources; this approach has been supported by New England stakeholders since the establishment of a regional installed capacity/reserve requirement in the 1970's and has been used in the Commission-approved Installed Capacity Requirement calculations. It is documented in Section III.12 of Market Rule 1 of the ISO's Tariff.

Once the annual system LOLE is calculated to be equal to or less than the criterion, the Installed Capacity Requirement is determined based on the amount of capacity resources needed to exactly meet the criterion using ALCC, as discussed previously.

Q: IS THIS THE SAME STAKEHOLDER PROCESS AND CALCULATION METHODOLOGY PREVIOUSLY USED TO DETERMINE THE INSTALLED CAPACITY REQUIREMENT IN NEW ENGLAND?

A: Yes, the same stakeholder review process and calculation methodology (except

[2] A presentation made to the Installed Capacity Working Group on this topic can be found at: http://www.iso-ne.com/committees/comm_wkgrps/othr/icsp/mtrls/2006/apr132006/expansion_units.pdf

for the allocation of tie benefit contributions from the neighboring Control Areas) for establishing the Installed Capacity Requirement for the first two Forward Capacity Auctions (for the 2010/2011 and 2011/2012 Capability Years) have been used to develop the New England Installed Capacity Requirement for 2012/2013. With respect to the allocation of tie benefit contributions from neighboring Control Areas, a new allocation methodology was accepted by the Commission and implemented for the Installed Capacity Requirement calculation for the 2011/2012 Capability Year. This new methodology is reflected in Section III.12 of Market Rule 1 and has been used for determining tie benefit contributions for the 2012/2013 Capability Year.

Q: WHAT ARE THE MAIN ASSUMPTIONS UPON WHICH THE INSTALLED CAPACITY REQUIREMENT VALUE FOR THE 2012/2013 CAPABILITY YEAR IS BASED?

A: One of the first steps of the process in determining the Installed Capacity Requirement was for the ISO to identify and review with stakeholders reasonable assumptions relating to forecasted load, resources, and certain transmission limits for the 2012/2013 Capability Year. These assumptions include a weekly distribution of expected daily peak loads; the available capacity resources; the expected performance of these capacity resources (such as forced and scheduled outage rates); changes in system resource capacity due to expected additions and attritions; and the amount of load and/or capacity relief obtainable from certain actions of Operating Procedure No. 4, Action During a Capacity Deficiency ("OP

4"), including the amount of possible emergency assistance obtainable from New England's interconnections with neighboring Control Areas.

Q: PLEASE IDENTIFY THE INSTALLED CAPACITY REQUIREMENT VALUE ESTABLISHED BY THE ISO FOR THE 2012/2013 CAPABILITY YEAR.

A: The Installed Capacity Requirement value established by the ISO for the 2012/2013 Capability Year is 32,879 MW.

Q: HAS THE AMOUNT OF TIE BENEFITS ASSUMED FOR ICR CALCULATIONS CHANGED FROM YEAR TO YEAR?

A: The amount of total tie benefits assumed for the 2011/2012 Capability Year was 1,800 MW as compared to the 1,665 MW assumed for the 2012/2013 Capability Year. The decrease in total tie benefits for the 2012/2013 Capability Year is due to an increase in the assumed load relief obtainable by the New York Control Area from implementing operating procedures during a capacity deficiency to meet its load. An increase in the amount of load relief that New York will utilize means that New York will have less generating capacity to rely on meeting its load. In that case, New York would need to rely more often on tie benefits to meet its load and would therefore compete with New England for emergency assistance. This would decrease the amount of emergency assistance available to New England. The revised assumptions relating to tie benefits are detailed later in this testimony.

Q: WILL THE ISO PURCHASE 32,879 MW OF INSTALLED CAPACITY FOR THE 2012/2013 CAPABILITY YEAR?

A: No, since the 32,879 MW does not reflect the treatment relating to HQICCs. After counting the 914 MW of interconnection capability credit associated with HQICCs, which directly reduce on a MW-for-MW basis the installed capacity requirement, the net amount of installed capacity to be purchased for the 2012/2013 Capability Year would be 31,965 MW.

Q: THE INSTALLED CAPACITY REQUIREMENT HAS DECREASED COMPARED WITH THE INSTALLED CAPACITY REQUIREMENT FOR THE 2011/2012 CAPABILITY YEAR. PLEASE EXPLAIN.

A: The Installed Capacity Requirement and the net Installed Capacity Requirement for the 2011/2012 Capability Year were 33,439 MW and 32,528 MW, respectively. The decrease in the 2012/2013 Installed Capacity Requirement from the 2011/2012 Installed Capacity Requirement is mainly due to the decrease in the projected peak loads, the decrease in assumed generating resource forced outages, and the increase in the load relief assumed obtainable from implementing a 5% voltage reduction during system capacity shortage conditions. The projected 50/50 peak load for 2012/2013 is about 385 MW lower than the projected 50/50 peak for 2011/2012 due to the regional economic downturn. In addition, the generating resource forced outage rate has decreased from an average of 5.1% to 4.93% as a result of better resource performance, and the assumed load relief

obtainable from implementing a 5% voltage reduction has increased by 62 MW based on the results of the latest voltage reduction tests. The net effect of these changes was to lower the 2012/2013 Installed Capacity Requirement by approximately 560 MW when compared with the values for 2011/2012.

Q: PLEASE DESCRIBE THE PROCESS THAT THE ISO UTILIZES FOR DEVELOPING THE LOAD FORECAST.

A: The ISO develops, for each state, a forecasted distribution of typical daily peak loads for each week of the year based on each week's historical weather distribution and based on an econometrically estimated monthly (for summer) or seasonal (for winter) model of typical daily peak loads. Each weekly distribution of typical daily peak loads includes the full range of daily peaks that could occur over the full range of weather experienced in that week and their associated probabilities.

The models, for each of the six New England states, were estimated using up to 15 years of weekday daily peaks, the weather conditions at the time of the daily peak, a seasonal relationship that captures the change in peak load response to weather over time, and a seasonal relationship that captures the change in peak load response to base load energy (and therefore economic and demographic factors) over time. The weather response relationships are forecasted to grow at their historical rates but are adjusted for expected changes in appliance saturations. The base load relationships are forecasted to grow at the same rate as

the energy forecast. The weather is represented by over 35 years of historically-based weekly weather.

The energy forecast, for each state, is econometrically estimated using current forecasts of the real price of electricity and either real income or real gross state product. The forecast of the real price of electricity is based on a publication of the Energy Information Administration of the United States Department of Energy. The forecasts of real income or real gross state product are supplied by Economy.com, an industry leading provider of economic forecast data and analyses.

The New England Control Area's load is the sum of the six states' load. It is important to know, however, that the Installed Capacity Requirement itself is not a summation of single state Installed Capacity Requirements; rather, the calculation is based on an analysis of the entire region. Further, as noted earlier, the Installed Capacity Requirement is not a summation of state values but, rather, a regional projection of resource adequacy needs.

Q: PLEASE EXPLAIN HOW THE ISO DERIVED THE LOAD DATA USED IN DEVELOPING THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/2013 CAPABILITY YEAR.

A: The derivation of the load data used in the 2012/2013 ICR calculations began in October 2008 by updating the historical load, price of electricity, weather and economic data, and by acquiring the current economic forecast from

Economy.com. Recognizing the uncertainty in the economic forecasts, as the severity of and the federal government's reactions to the recession were unfolding in "real time," the ISO reviewed various monthly economic forecasts from Economy.com during October through December 2008. After comparing the monthly economic forecasts and consulting with representatives of Economy.com in mid-January 2009, and based on the resulting determination that there would be no substantive changes to the economic forecast for January 2009, ISO used the Moody's December economic forecast to develop the New England Control Area load forecast. The New England Control Area load forecast also incorporated the effects of new Federal Appliance Efficiency Standards, and the increase in the level of Other Demand Resources (350 MW on summer peak for 2008, which is a substantial increase from the 155 MW expected in the 2008 CELT load forecast). This load forecast was presented to and reviewed by the Load Forecast Committee and the Planning Advisory Committee in early 2009. The Load Forecast Committee is a subcommittee of the NEPOOL Reliability Committee charged with advising the ISO on issues relating to load forecast. The Planning Advisory Committee is a stakeholder forum that is open to all parties interested in regional system planning activities in New England.

Q: PLEASE DESCRIBE THE FORECASTED LOAD WITHIN LOAD ZONES FOR THE 2012/2013 CAPABILITY YEAR.

A: There are three Load Zones of interest for the 2012/2013 Capability Year. They are the Connecticut and Northern Massachusetts/Boston ("NEMA/Boston") Load

Zones for Local Sourcing Requirement calculations and the Maine Load Zone for Maximum Capacity Limit calculations. The forecasted loads for the Connecticut and Maine Load Zones are the forecasted loads for the states of Connecticut and Maine. The forecasted load for the NEMA/Boston Load Zone is developed using a load share ratio of the NEMA/Boston load to the forecasted load for the entire state of Massachusetts. The load share ratio is based on detailed bus load data from the network model for NEMA/Boston as compared to all of Massachusetts.

Q: PLEASE DESCRIBE THE PROJECTED PEAK LOADS FOR THE 2012/2013 CAPABILITY YEAR.

A: The projected New England peak loads for the 2012/2013 Capability Year for ICR calculations are represented by a probability distribution of New England's non-holiday weekday daily peak loads for each week of the year. These weekly distributions are represented in the Capacity Model with three parameters: the expected value (mean), the standard deviation, and the skewness[3] from the peak load forecast model. While the mean represents the most likely value of the weekly distributions, the standard deviation represents how widely spread the values in the distribution are and the skewness is a measure of the asymmetry of that distribution.

When applied to the load forecast, these three moments of the distribution are used to model the most likely peak forecast (mean), the effect of weather uncertainty (standard deviation), and the frequency of high loads not present in a

[3] Skewness is represented in the model by the Third Cumulant which is Skewness*Standard Deviation^3.

normal distribution (skewness). Monthly and seasonal peak loads are simply points on these distribution curves. For example, both the 50/50 and the 90/10 summer peak load forecast values are points on the curve. These 50/50 and 90/10 values are referenced for information purposes to facilitate any discussions relating to the projected peak loads. The projected New England Control Area 50/50 peak load[4] (summer) for the 2012/2013 Capability Year is 29,020 MW. The corresponding 90/10 peak load[5] for the 2012/2013 Capability Year is 31,075 MW.

Q: PLEASE DESCRIBE THE TYPE OF RESOURCE DATA USED AS INPUTS TO DEVELOP THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/2013 CAPABILITY YEAR.

A: The Installed Capacity Requirement and related values for the 2012/2013 Capability Year are based on ratings of Qualified Existing Capacity Resources that have cleared the Forward Capacity Auction for the 2011/2012 Commitment Period. In the Forward Capacity Market, capacity resources can be generation (Generating Capacity or Intermittent Power Capacity), import resources or demand resources (On-Peak, Seasonal Peak, Real-Time Demand Response and Real-Time Emergency Generation).[6]

[4] The 50/50 peak refers to the peak load having a 50% chance of being exceeded, and is expected to occur at a weighted New England-wide temperature of 90.4 ºF.

[5] The 90/10 peak refers to the peak load having a 10% chance of being exceeded, and is expected to occur at a weighted New England-wide temperature of 94.2 ºF.

[6] For a detailed definition of these resources, please see Section III.1.3 of Market Rule 1, at: http://www.iso-ne.com/regulatory/tariff/sect_3/index.html.

Q: WHAT ARE THE RESOURCE DATA RESULTS FOR EXISTING CAPACITY RESOURCES?

A: The following tables show the assumed 37,059 MW of resources qualified as Existing Capacity Resources[7] in the Installed Capacity Requirement calculations.

Table 1 – Qualified Existing Generating Capacity by Load Zone (MW)

Load Zone	Generation	
	Summer	Winter
MAINE	2,995.471	3,227.235
NEW HAMPSHIRE	4,011.368	4,166.111
VERMONT	890.191	952.845
CONNECTICUT	7,807.263	8,183.691
RHODE ISLAND	2,612.835	2,949.151
SOUTH EAST MASSACHUSETTS	6,055.325	6,556.991
WEST CENTRAL MASSACHUSETTS	3,866.469	4,147.783
NORTH EAST MASSACHUSETTS & BOSTON	3,204.868	3,672.969
Total New England	**31,443.790**	**33,856.776**

Table 2 – Qualified Existing Intermittent Power Resources by Load Zone (MW)

Load Zone	Intermittent	
	Summer	Winter
MAINE	288.012	368.181
NEW HAMPSHIRE	150.674	189.255
VERMONT	73.754	115.534
CONNECTICUT	413.191	431.891
RHODE ISLAND	5.725	8.436
SOUTH EAST MASSACHUSETTS	79.298	85.659
WEST CENTRAL MASSACHUSETTS	44.810	67.493
NORTH EAST MASSACHUSETTS & BOSTON	67.446	70.809
Total New England	**1,122.910**	**1,337.258**

[7] In a separate filing today, the ISO is submitting its Informational Filing for qualification in the second FCA for the 2012/2013 Capacity Commitment Period. There are some differences in the values that are used in each filing that reflect the amount of Existing Generating Capacity Resources, Existing Import Capacity Resources, and Existing Demand Resources. These differences are caused by the fact that the ISO had to calculate the 2012/2013 Installed Capacity Requirement prior to the conclusion of the qualification process and therefore, assumptions regarding capacity resources were developed based upon information known at that time. Notwithstanding this difference, the Installed Capacity Requirement calculated using either set of numbers would be very similar.

Table 3 – Qualified Existing Demand Resources by Load Zone (MW)

Load Zone	On-Peak	Seasonal Peak	RT Demand Response	RT Emergency Gen	Total
MAINE	22.810		274.559	35.023	332.392
NEW HAMPSHIRE	52.713		37.030	39.135	128.878
VERMONT	59.354		23.443	18.124	100.921
CONNECTICUT	108.543	213.467	269.455	298.901	890.366
RHODE ISLAND	50.036	1.727	47.672	93.078	192.513
SOUTH EAST MASSACHUSETTS	92.954	1.727	131.108	78.961	304.750
WEST CENTRAL MASSACHUSETTS	79.664	15.065	130.667	100.286	325.682
NORTH EAST MASSACHUSETTS & BOSTON	153.294		230.301	149.518	533.113
Total New England	619.368	231.986	1144.235	813.026	2808.615

Table 4 – Qualified Existing Import Resources and Import Capacity Modeled in ICR (MW)

Resource Name	Interface	Existing Qualified Capacity	Import Capacity Modeled in ICR
NYPA - CMR	NY AC Ties	68.800	68.800
NYPA - VT	NY AC Ties	15.300	15.300
VJO - Highgate	HQ Highgate	225.000	200.000
VJO - Phase I/II	Phase I/II	110.000	80.000
Lievre River Project - Import	Phase I/II	240.000	240.000
Erie Boulevard Hydropower - Import	NY AC Ties	697.000	546.439
BEMI Ontario Assets	NY AC Ties	808.000	633.461
Total Imports		**2,164.100**	**1,784.000**

The amount of import capacity modeled in the Installed Capacity Requirement is equal to the value of the Qualified Existing Import Capacity Resources minus 380.100 MW of derating due to assumed Transmission Transfer Capability.

Also modeled in the Installed Capacity Requirement was one known sale of 100 MW to the Long Island Power Authority over the Cross Sound Cable DC interface.

Table 5 –Known Sales (MW)

Export	Summer
LIPA over Cross Sound Cable	100.000

Please note that although capacity resource data are tabulated under the eight Load Zones used for financial settlement purposes, only the Load Zones of Connecticut, NEMA/Boston and Maine were considered for the FCM.

Q: WHAT ARE THE DATA RESULTS FOR RESOURCE ADDITIONS AND ATTRITIONS?

A: Resource additions and attritions are not assumed in the calculation of the Installed Capacity Requirement for the 2012/2013 Capability Year because there is no certainty that new resource additions or existing resource attritions will clear the Forward Capacity Auction. Not modeling undetermined resource additions and attritions will not have a significant effect on the calculated Installed Capacity Requirement since the availability characteristics and sizes of these resources are expected to be similar to those of the Existing Resources. The ALCC adjustments, discussed previously, are designed to stabilize the Installed Capacity Requirement so that it is nearly irrelevant whether these units are included.

Q: PLEASE EXPLAIN THE RESOURCE AVAILABILITY ASSUMPTIONS UNDERLYING THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/2013 CAPABILITY YEAR.

A. Resource availability modeling reflects the projected scheduled maintenance and forced outages of capacity resources. For generating resources, individual unit scheduled maintenance assumptions are based on each unit's most recent

historical five-year average of scheduled maintenance. If the individual resource has not been operational for five years, then North American Electric Reliability Corporation ("NERC") class average data is used to substitute for the missing annual data. An individual generating resource's forced outage assumptions are based on the resource's most recent historical five-year average data from the ISO's database or NERC average data for the same class of units, if the individual resource has not been operational for five years.

The Qualified Capacity of an Intermittent Power Resource is the resource's actual median output during the Reliability Hours averaged over a period of the most recent five years. The Reliability Hours are specific defined hours during the summer and winter as well as hours in which the ISO has declared a system-wide or a Load Zone specific shortage event. Since this method already takes into account the resource's availability, these resources are assumed to be 100% available in the models at their "Qualified Capacity" and not based on "nameplate" ratings. "Qualified Capacity" is the amount of capacity a New Capacity Resource, Existing Capacity Resource, Import Capacity Resource, or Demand Resource may provide in the summer or winter in a Capacity Commitment Period, as determined in the FCM qualification process.

Performance of Demand Resources in the Real-Time Demand Response and Real-Time Emergency Generator categories is measured by actual response during several years of historical OP 4 events and performance audits. To

calculate historical availability, a subset of the currently enrolled Demand Response program resources that qualified to participate in the First Forward Capacity Auction was used in the analysis. The actual load curtailed or generation provided by this subset of resources during historical OP 4 and audit events was divided by the total amount (MW) of their qualified capacity (Demand Reduction Value). This methodology for calculating Demand Resource availability was developed in consultation with stakeholders during the course of five months of meetings of the Power Supply Planning Committee. The average historical performance applied to Real-Time Demand Response and Real-Time Emergency Generator resources modeled in the Installed Capacity Requirements using the methodology described above was 74%. This included capping the overall historical performance results of resources in the Maine Load Zone at a value of 100% and limiting the application of these results to the Maine Demand Resources modeled in the Installed Capacity Requirement. The decision to cap historical performance of resources in the Maine Load Zone and limit their application to Maine Demand Resources was made following discussions with stakeholders, several of whom voiced the view that excess Demand Resource capacity in Maine may not be available to the rest of New England when needed, due to transmission constraints.

Demand Resources in the On-Peak Demand and Seasonal Peak Demand categories are non-dispatchable resources that reduce load across pre-defined

hours, typically by means of energy efficiency. These types of Demand Resources are assumed to be 100% available.

Q: PLEASE EXPLAIN THE ROLE OF EXTERNAL TRANSMISSION IMPORT TRANSFER CAPABILITIES IN DEVELOPING THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/2013 CAPABILITY YEAR.

A: External transmission import transfer capabilities are not an input to the Installed Capacity Requirement calculations. However, they do impact the tie benefit assumptions used in the Installed Capacity Requirement calculations. Tie benefits represent the possible emergency energy assistance from the directly connected neighboring Control Areas when a capacity shortage occurs. The external transmission import transfer capabilities would impact the amount of emergency energy, if available, that could be imported into New England. In modeling the import transfer capabilities for tie benefits calculations, the total interface import limit with each neighboring Control Area is adjusted to reflect the ISO's estimation of capacity imports for the 2012/2013 Capability Year. The other use of the external transmission import transfer capabilities in the FCM is to limit the amount of total capacity that can be imported into New England from the neighboring Control Areas.

Q: PLEASE INDICATE THE EXTERNAL TRANSMISSION IMPORT TRANSFER CAPABILITIES ASSUMED IN THE CALCULATION OF THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/13 CAPABILITY YEAR.

A: The following table shows the import transfer capabilities assumed for calculating tie benefits for 2012/2013.

Table 5 - External Transmission Import Transfer Capability Limits (MW)

Interface	Summer Limit	Winter Limit
Hydro-Quebec to New England (Highgate)	200	200
Hydro-Quebec to New England (Phase II)	1,400	1,400
New Brunswick to New England	1,000	1,000
New York to New England (AC Interface)	1,400	1,875
New York to New England (Cross Sound Cable DC Interface)	330	330

Q: PLEASE DESCRIBE THE ROLE OF INTERNAL TRANSMISSION INTERFACE TRANSFER CAPABILITIES IN DEVELOPING THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/13 CAPABILITY YEAR.

A: Internal transmission interface transfer capabilities were not used to develop the 2012/2013 Capability Year Installed Capacity Requirement since the methodology reflected in the market rule assumes internal transmission constraints in New England are alleviated by Local Sourcing Requirements for import-constrained Load Zones, and by the Maximum Capacity Limit for export-constrained Load Zones. Internal transmission interface import transfer capabilities of 2,500 MW for the Connecticut and 4,900 MW for the NEMA/Boston Load Zones are used to calculate the Local Sourcing

Requirements for these two Load Zones. Internal transmission interface export transfer capabilities of 1,550 MW for the Maine Load Zone are used to calculate its Maximum Capacity Limit.

Q: PLEASE DISCUSS THE ISO'S ASSUMPTIONS REGARDING OP 4 ACTIONS IN DEVELOPING THE INSTALLED CAPACITY REQUIREMENT AND RELATED VALUES FOR THE 2012/2013 CAPABILITY YEAR.

A: The New England resource planning reliability criterion requires that adequate capacity resources be planned and installed such that disconnection of firm load would not occur more often than once in 10 years due to a capacity deficiency after taking into account the load and capacity relief obtainable from implementing actions of OP 4. In other words, load and capacity relief assumed obtainable from implementing OP 4 actions are direct substitutes for capacity resources for meeting the once in 10 years disconnection of firm load criterion. Therefore, OP 4 load and capacity relief assumed obtainable from calling on emergency assistance (tie benefits) from neighboring control areas and implementing voltage reductions are used in developing the Installed Capacity Requirement for the 2012/2013 Capability Year.

TIE BENEFITS

Q: PLEASE EXPLAIN TIE BENEFITS.

A: Requesting emergency energy assistance from neighboring Control Areas (tie benefits) is one of the actions of OP 4. Therefore, the amount of tie benefits assumed obtainable from the interconnected neighboring Control Areas directly displaces that amount of installed capacity resources needed to meet the resource planning reliability criterion. When determining the amount of tie benefits to assume in Installed Capacity Requirement calculations, it is necessary to recognize that while reliance on tie benefits to reduce capacity resource needs can reduce the Installed Capacity Requirement, over-reliance on tie benefits decreases system reliability. System reliability would decrease since each time emergency assistance is requested, there is a possibility that the available assistance will not be sufficient to meet the capacity deficiency. The more tie benefits are used to meet the resource reliability criterion, and the greater the amount of assistance requested, the greater the possibility that it will not be available or sufficient to avoid implementing deeper actions of OP 4, including interrupting firm load. For example, some of the resources that New York has available to provide tie benefits are demand response resources which have limits on the number of times they can be activated.

Q: PLEASE DESCRIBE THE TIE BENEFITS ASSUMPTIONS UNDERLYING THE INSTALLED CAPACITY REQUIREMENT AND ASSOCIATED VALUES FOR THE 2012/2013 CAPABILITY YEAR.

A: A total of 1,665 MW of tie benefits are assumed in the Installed Capacity Requirement calculations for the 2012/2013 Capability Year. The breakdown of this total value is as follows: 914 MW from Quebec over the Phase II interconnection, 6 MW from Quebec over the Highgate interconnection, 609 MW from New Brunswick (Maritimes) and 136 MW from New York. The total tie benefits assumption was obtained from the results of a probabilistic study assuming that New England and the three directly interconnected neighboring Control Areas of Quebec, New Brunswick and New York are at their reliability criterion of one disconnection of firm load in 10 years, enforced as 0.1 days per year.

Q: PLEASE EXPLAIN THE ISO'S METHODOLOGY FOR DETERMINING TOTAL TIE BENEFITS.

A: The tie benefits study for the 2012/2013 Capability Year was conducted using the probabilistic General Electric ("GE") Multi-area Reliability Simulation ("MARS") program to model the expected system conditions of New England and its directly interconnected neighboring Control Areas of Quebec, New Brunswick and New York. All of these Control Areas were assumed to be "At-Criteria," which means that the capacity of all three neighboring Control Areas was adjusted so that they would each have a LOLE of once in ten years (0.1 days

per year LOLE). The "At-Criteria" approach was applied to represent the expected amounts of capacity in each Control Area. While it is possible that a Control Area may have more capacity available than the "At-Criteria" amount, the "At-Criteria" approach provides the proper assumption to prevent an over-estimate of available tie benefits since the exact system conditions of the neighboring Control Areas are not known for the Capability Year 2012/2013. However, it is reasonable to assume each Control Area should have minimum installed capacity to meet the 0.1 days per year disconnection of firm load criterion. Any amount of capacity above this minimum could be contracted to a third party and become inaccessible to New England without any prior notice or warning.

Total tie benefits were calculated using the results of a probabilistic analysis that determines LOLE indices for the New England system and surrounding Control Areas. LOLE calculations were first done on an interconnected basis that included all existing connections between New England's directly connected neighboring Control Areas. This established the minimum amount of capacity that each area needed in order to attain the Northeast Power Coordinating Council ("NPCC") resource adequacy requirements of 0.1 days per year LOLE.

These LOLE calculations were then repeated with New England isolated from all neighboring Control Areas, except for allowing the capability to import capacity based on the ISO's estimation of capacity imports for the 2012/2013 Capability Year. This was done by reducing the transfer capability of the interconnections

into New England to the point that they only allowed capacity imports to flow with no capability for additional imports.

Limiting the import capabilities of the external ties to only capacity imports effectively eliminates the tie benefits, causing the calculated New England LOLE to increase. The tie benefits are quantified by adding firm capacity resources within the isolated New England area until the LOLE is returned back to 0.1 days per year. The resources added to return New England to a 0.1 days per year LOLE are called "firm capacity equivalents" and are New England's total tie benefits.

Q: DOES THIS CALCULATION METHODOLOGY CONFORM WITHINDUSTRY PRACTICE AND COMMISSION FILED MARKET RULES?

A: Yes. This probabilistic calculation methodology is widely used by the electric industry. The NPCC regional reliability council has been using the methodology for many years. The ISO has been using this specific probabilistic calculation methodology based on GE MARS for tie benefits calculations since 2002 and similar methodologies in previous years.

The calculation methodology was previously filed with and approved by the Commission.[8] Specifically, it conforms to the Commission-approved Section III.12.9 of Market Rule 1, which states: "The ISO shall calculate tie benefits,

[8] *ISO New England Inc. and New England Power Pool*, 124 FERC ¶ 61,298 (2008).

using a probabilistic multi-area reliability model. The method of calculating the tie benefits associated with the interconnections between the New England Control Area and adjacent Control Areas shall be based on the LOLE calculated before and after interconnecting the New England Control Area to the surrounding Control Areas."

Q: PLEASE DESCRIBE THE ALLOCATION METHODOLOGY USED TO DETERMINE TIE BENEFITS FROM EACH OF NEW ENGLAND'S NEIGHBORING CONTROL AREAS

A: The allocation process used to calculate tie benefits from each of the New England directly connected neighboring Control Areas was filed with and accepted by the Commission in response to the Commission's directives in its December 10, 2007 order in Docket No. ER08-41-000.[9]

Under the tie benefits allocation methodology, tie benefits from each Control Area would be calculated using the same GE MARS program with "At Criteria" modeling assumptions that are used for calculating the total tie benefits discussed above. Tie benefits for each of the three Control Areas would be determined based on the LOLE calculated before and after removing import capability, for importing emergency assistance, of the direct interconnections between New England and the target Control Area. In other words, only the import capability of the direct interconnections needed to import capacity imports (based on the

[9] *ISO New England Inc. and New England Power Pool Participants Committee*, 121 FERC ¶ 61,250 (2007), *reh'g denied*, 123 FERC ¶ 61,129 (2008).

ISO's estimation of imports for the 2012/2013 Capability Year) would remain. All additional import capability would be removed. The change in New England LOLE value with and without the transfer capability of the interconnections to import emergency assistance from the target Control Area would represent the reliability contribution of the target Control Area's emergency assistance. This reliability contribution would be quantified in terms of equivalent capacity by identifying the amount of firm capacity needed to bring the LOLE (when calculated without connections to the target Control Area) to the same level it was at prior to removal of the interconnections with the target Control Area. In the likely event the sum of the individually-calculated capacity equivalents from each of the three neighboring Control Areas does not exactly equal the total tie benefits calculated using the multi-area reliability model, tie benefits from each Control Area will be adjusted in a pro rata manner based on a ratio of the tie benefits from each individual Control Area to the sum of the tie benefits from all Control Areas.

Q: PLEASE EXPLAIN HYDRO-QUEBEC INTERCONNECTION CAPABILITY CREDIT ("HQICC") VALUES

A: HQICC values are capacity credits that are allocated to the Interconnection Rights Holders, which are the entities that pay for and hold the transmission rights over the Hydro-Quebec Interconnection.

Q: PLEASE INDICATE THE TOTAL TIE BENEFITS FOR THE 2012/2013 CAPABILITY YEAR AND DESCRIBE THE CONTRIBUTION OF TIE BENEFITS FROM QUEBEC, NEW BRUNSWICK AND NEW YORK..

A: The total tie benefits assumed for the 2012/2013 Capability Year is 1,665 MW. The following reflect the contributions from the neighboring control areas: 920 MW from Quebec (914 MW of HQICC and 6 MW from the Highgate interconnection), 609 MW from New Brunswick and 136 MW from New York. These values are annual values meaning that they are applicable for every month of the year.

Q: EARLIER IN YOUR TESTIMONY YOU SHOWED THAT TRANSFER CAPABILITY FROM NEW YORK AC TIES IS 1,400 MW AND FROM NEW BRUNSWICK IS 1,000 MW; WHY ARE THE TIE BENEFITS FROM NEW YORK SO MUCH LOWER THAN FROM NEW BRUNSWICK?

A: The reason the tie benefits from New York are so much lower than tie benefits from New Brunswick is because New York, like New England, is a summer peaking system. When New England experiences high loads, it is likely that New York would also be experiencing high load. Such conditions would mean that New York would meet its own needs first and then send any surplus capacity to assist New England. On the other hand, New Brunswick (like Quebec) is a winter peaking system. During the summer when New England experiences high loads, New Brunswick's loads would be very low and their system would have much

more surplus capacity than New York, which could be sent to assist New England in meeting its load.

LOCAL SOURCING REQUIREMENT FOR IMPORT-CONSTRAINED LOAD ZONES AND MAXIMUM CAPACITY LIMIT FOR EXPORT-CONSTRAINED LOAD ZONES

Q: WHAT ARE IMPORT-CONSTRAINED LOAD ZONES?

A: Import-constrained Load Zones are areas within New England that may not have adequate local resources and transmission import capability to reliably serve local demand. The Load Zones to be modeled as import-constrained zones were discussed as part of the stakeholder process and any change to the Load Zones would be made in accordance with Section III.2.7(g) of Market Rule 1.

Q: WHAT IS THE LOCAL SOURCING REQUIREMENT?

A: The Local Sourcing Requirement is the minimum amount of capacity that must be electrically located within an import-constrained Load Zone after taking into consideration the amount of transfer capability into the zone from the rest of New England. Market Rule 1, Section III.12.2 describes the calculation methodology.

Q: WHAT ARE EXPORT-CONSTRAINED LOAD ZONES?

A: Export-constrained Load Zones are areas within New England where the available resources, after serving local load, may exceed the area's transmission capability to export excess resource capacity. The Load Zones to be modeled as export-constrained zones were discussed as part of the stakeholder process and any

change to the Load Zones would be made in accordance with Section III.2.7(g) of Market Rule 1.

Q: WHAT IS THE MAXIMUM CAPACITY LIMIT?

A: The Maximum Capacity Limit is the maximum amount of resources that can be procured from an export-constrained Load Zone to meet the Installed Capacity Requirement. Generally speaking, this is the amount of capacity that can be used to fully meet the needs within the export-constrained Load Zone plus that amount which can be exported from the Load Zone to meet regional needs. The Maximum Capacity Limit is applied to export-constrained Load Zones within New England. It is a mechanism designed to limit the amount of capacity to be procured in an export constrained area to avoid purchasing "bottled-in" capacity that is unavailable to the rest of New England.

Q: PLEASE DESCRIBE THE METHODOLOGY FOR CALCULATING THE LOCAL SOURCING REQUIREMENTS.

A: The Local Sourcing Requirements are calculated using the same assumptions of forecasted load and resources as those used in the calculation of the Installed Capacity Requirement. In order to determine the locational requirements of the system, the Local Sourcing Requirements are calculated using a multi-area reliability model. This multi-area model is configured based on an approximation of the electrical topology of the system, as required by Section III.12.2. of Market Rule 1. The electrical topology is determined based on the forecasted network

topology that is produced in advance of the calculation of the resource requirements.

For each import-constrained zone, the Local Sourcing Requirement is determined by modeling the zone under study vis-à-vis the rest of New England. This, in effect, turns the modeling effort into a two-area reliability simulation. The reliability target of this analysis is a system-wide LOLE of 0.105 days per year when the transmission constraints between the two zones are included in the model. Because the Local Sourcing Requirement is the minimum amount of resources that must be electrically located in a zone to meet the system-reliability requirements for a zone with excess capacity, the process to calculate this value involves shifting capacity out of the zone under study until the reliability threshold, or target LOLE, is achieved. If a zone has insufficient capacity, capacity would be shifted into that zone. Shifting capacity, however, may lead to skewed results, as capacity is not homogeneous. For example, one MW of capacity from a nuclear plant is not necessarily the same as one MW of capacity from a wind turbine in terms of their load carrying capability due to their expected forced outage rates. Consequently, in order to model the effect of shifting capacity, firm load is shifted. Specifically, as one MW of load is added to an import-constrained zone, a MW of load is subtracted from the rest of New England, thus keeping the entire system's load constant and the LOLE constant. If a zone has insufficient capacity, load is shifted out of that import-constrained zone. This process continues until the LOLE of the New England Control Area is equal to 0.105 days per year. At this

point, if additional capacity were to be shifted out of the zone (or additional load were added), the LOLE criterion would not be met.

The Local Sourcing Requirement is calculated using the value of shifted load and the existing resources in the zone. The load that was shifted must be subtracted from the total resources (including proxy units, if any) to determine the minimum amount of resources that are required in that zone. Before the shifted load is subtracted, it is first converted to equivalent capacity by using the average resource-unavailability rate in the zone. Thus, the Local Sourcing Requirement is the existing resources in the zone, minus the unavailability-adjusted, load-shift amount.

As this load shift test is being performed over a transmission interface internal to the New England Control Area, an allowance for transmission-related LOLE must be applied. An LOLE of 0.105 days per year is the point at which it becomes clear that the resources within the zone under study are becoming sufficient. Further reduction in local sources would cause the LOLE in New England to rapidly increase above the criterion.

Q: PLEASE DESCRIBE THE METHODOLOGY FOR CALCULATING THE MAXIMUM CAPACITY LIMIT.

A: Another aspect of the FCM is a method to model export-constrained zones. Because of transmission constraints out of these zones, not all potentially available resources can simultaneously supply capacity to the export-constrained zone and to

the "Rest of New England." Rest of New England refers to all areas except the export-constrained Load Zone under study. Export-constrained zones are incorporated into the FCM through the calculation of the Maximum Capacity Limit.

In order to determine the Maximum Capacity Limit, the New England total Installed Capacity Requirement and the Local Sourcing Requirements of the Rest of New England are needed. Given that the Installed Capacity Requirement is the total amount of resources that need to be purchased in New England, and the Local Sourcing Requirement for the Rest of New England is the minimum amount of resources required for that area to satisfy its reliability criterion, the difference between the two is the maximum amount of resources that can be purchased within the export-constrained zone without purchasing "bottled-up" capacity.

Q: PLEASE DESCRIBE THE LOCAL SOURCING REQUIREMENTS FOR THE 2012/2013 CAPABILITY YEAR.

A: The 2012/2013 Capability Year Local Sourcing Requirements for the Connecticut and NEMA/Boston Load Zones are 6,640 MW and 2,019 MW, respectively.

Q: PLEASE DESCRIBE THE MAXIMUM CAPACITY LIMIT FOR THE MAINE LOAD ZONE FOR THE 2012/13 CAPABILITY YEAR.

A: The Maximum Capacity Limit for the Maine Load Zone for the 2012/2013 Capability Year is 3,257 MW. This is the amount of capacity resources that the

third Forward Capacity Auction can procure from the Maine Capacity Zone, including capacity resource imports from the New Brunswick ties.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: JULY 06, 2009.

Peter K. Wong

ATTACHMENT 2

The Honorable M. Jodi Rell
State Capitol
210 Capitol Ave.
Hartford, CT 06106

Connecticut Dept. of Public Utility Control
10 Franklin Square
New Britain, CT 06051-2605

Maine Public Utilities Commission
State House, Station 18
242 State Street
Augusta, ME 04333-0018

The Honorable John E. Baldacci
One State House Station
Rm. 236
Augusta, ME 04333-0001

The Honorable Deval Patrick
Office of the Governor
Rm. 360 State House
Boston, MA 02133

Massachusetts Dept. of Public Utilities
And Energy
One South Station
Boston, MA 02110

The Honorable John H. Lynch
State House
25 Capitol Street
Concord, NH 03301

New Hampshire Public Utilities Commission
21 South Fruit Street
Ste. 10
Concord, NH 03301-2429

The Honorable Donald L. Carcieri
State House Room 115
Providence, RI 02903

Rhode Island Public Utilities Commission
89 Jefferson Blvd.
Warwick, RI 02888

The Honorable James H. Douglas
109 State Street, Pavilion
Montpelier, VT 05609

Vermont Public Service Board
112 State Street, Drawer 20
Montpelier, VT 05620-2701

Harvey L. Reiter, Esq.
Counsel for New England Conference
Of Public Utilities Commissioners, Inc.
c/o Stinson Morrison Hecker LLP
1150 18th Street, N.W., Ste. 800
Washington, DC 20036-3816

William M. Nugent
Executive Director
New England Conference of Public Utilities
Commissioners, Inc.
500 U.S. Route 1, Ste. 21C
Yarmouth, ME 04096

Elia Germani, President
New England Conference of Public
Utilities Commissioners, Inc.
c/o RI Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

Power Planning Committee
New England Governors' Conference Inc.
76 Summer Street, 2nd floor
Boston, MA 02110-1226

Heather Hunt
Executive Director
NESCOE
242 Whippoorwill Lane
Stratford, CT 06614

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document and attachments upon each person identified in Attachment 2 of the attached transmittal letter, in the manner specified in the transmittal letter.

Dated at Holyoke, Massachusetts, this 6th day of July, 2009.

Christopher J. Hamlen