

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

ISO New England Inc.

)

Docket No. ER10-2477-000

TESTIMONY OF DOUGLAS HURLEY

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

2 My name is Douglas Hurley. I am an Associate with Synapse Energy Economics. My business
3 address is 22 Pearl Street, Cambridge, MA 02139.

4

5 **Q: PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
6 **WORK EXPERIENCE.**

7

8 I have a B.S. in electrical engineering from Cornell University. In my current position with
9 Synapse Energy Economics, I represent the interests of state consumer advocates, environmental
10 organizations, and renewable resources at numerous ISO-NE and PJM stakeholder proceedings.
11 In this capacity, I was the lead representative for three members of the Alternative Resource
12 (AR) sector in the LICAP Settlement Conferences at which the design of the ISO-NE forward
13 capacity market was developed. I currently serve as the vice-chair of NEPOOL's AR Sector.
14 Prior to joining Synapse, I spent seven years as a technology consultant for Ernst & Young.

15

16 **Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

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18 The purpose of my testimony is to address the process used by ISO-NE in evaluating the Static
19 De-List Bids submitted for the third forward capacity auction ("FCA-3") and the fourth forward
20 capacity auction ("FCA-4") by Dominion Resources ("Dominion") for Salem Harbor Station. I
21 will address ISO-NE's determination to reject the Static De-List Bids for Salem Harbor Unit 3
22 and Salem Harbor Unit 4 (collectively, "Salem Harbor 3 and 4") based on its finding that
23 allowing these units to delist would jeopardize the reliable operation of the bulk power system. I
24 will also review some of the relevant prior actions of ISO-NE to address the resource
25 deficiencies in the Boston Import Area and North Shore where Salem Harbor is located.

26

Q: PLEASE PROVIDE AN OVERVIEW OF THE UNITS AT SALEM HARBOR STATION

The four units at Salem Harbor station represent only 660 MW out of the region’s more than 37,000 MW of generation capability, but Salem Harbor Station is located very close to our region’s largest load center, the Greater Boston area. Units 1-3 at Salem Harbor station were built in the 1950s and produce electricity by burning coal. Unit 4 was built in 1972 and operates on residual fuel oil. An overview of the capability and recent history of these four units is provided in Table 1, below.

Table 1 – Overview of the Four Units at Salem Harbor Station

Description				Recent Capacity Factors				
Unit	Capacity (MW)	Fuel Source	In-Service Date	2009 ¹	2008	2007	2006	2005
1	82	Coal	01/01/1952	57%	57%	81%	87%	89%
2	80	Coal	01/01/1952	44%	56%	79%	84%	92%
3	140	Coal	08/01/1958	57%	32%	66%	83%	87%
4	437	Res. Oil	08/01/1972	0.7%	0.7%	1.4%	5.3%	13%

Q: PLEASE BRIEFLY DESCRIBE THE RELIABILITY ANALYSIS PERFORMED BY ISO-NE FOR THE GREATER BOSTON AREA IN 2003.

In 2003, ISO-NE performed a reliability analysis for the Greater Boston area.² That analysis included studying the reliability impacts of retiring the Salem Harbor units. ISO-NE conducted this analysis because USGenNE, the owner of the Salem Harbor units at that time, had requested retirement pursuant to Section 18.4/18.5 of the NEPOOL Agreement. The ISO-NE analysis, using assumptions that were current for 2003, showed that the retirement of the Salem Harbor units, in isolation from any other retirements, would create resource adequacy deficiencies in the Boston Import Area and the North Shore. Under normal weather conditions, the Boston Import Area deficiency would be about 50 MW in 2007 and increase to about 500 MW in 2012. The North Shore deficiency would be about 450 MW in 2003 and increase to over 600 MW by 2012.

¹ 2009 capacity factors are calculated based on the preliminary values of gross output from 2009 Clean Air Markets Emissions data set.

² ISO-NE Final Report, July 21, 2003, presentation to Reliability Committee August 4, 2003.

1 The ISO-NE concluded that the Salem Harbor units were needed to support the Boston Import
2 Area and for the North Shore. The North Shore need could be resolved with transmission
3 upgrades; the Boston Import Area issue would be dependent on several other generating units in
4 and around Boston that had also requested retirement.

5
6 **Q: WHAT WAS THE RESULT OF THE 2003 RELIABILITY ANALYSIS PERFORMED BY**
7 **ISO-NE ON THE OPERATION OF THE SALEM HARBOR UNITS?**

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9 As a result of the need determined by ISO-NE in its 2003 reliability analysis, in 2004 a
10 settlement agreement was reached to allow the continued operation of the Salem Harbor units
11 with a negotiated compensation mechanism that included the purchase and installation of air
12 quality control equipment as a condition of operation.³ An analysis submitted as part of the
13 settlement agreement showed that the Salem Harbor units would no longer be needed after
14 transmission upgrades to the 345kV system were completed. The ISO-NE estimated that Salem
15 Harbor units 1-3 would not be needed after 2006 when the transmission upgrades increased the
16 North Shore Import limit to 1,000 MW. Unit 4 could retire in 2008 after transmission upgrades
17 increased the North Shore Import limit to 1,450 MW. The 345kV upgrades considered were
18 based on the values used in the 2004 Regional Transmission Expansion Plan (RTEP). Even
19 though these upgrades have now been completed at a cost of approximately \$235 million, ISO-
20 NE has determined that the reliability need for Salem Harbor persists at roughly the same level.

21
22 **Q: PLEASE DESCRIBE THE ISO-NE'S RELIABILITY DETERMINATION IN**
23 **RESPONSE TO DOMINION'S DE-LIST BIDS FOR SALEM HARBOR IN FCA-3.**

24
25 Despite the recent transmission upgrades and earlier analyses to the contrary, the ISO-NE's
26 determination of need for Salem Harbor for the June 2012 – May 2013 power year concluded
27 that Salem Harbor units 3 and 4 are needed on the North Shore and were needed to reliably serve
28 load in Boston because of their impact on the Boston Import interface. *See* Forward Capacity
29 Auction Results Filing (“FCA-3 Results Filing”), Affidavit of Stephen J. Rourke.

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³ Uncontested Offer of Settlement in USGen New England, Inc., ER04-841-000 (May 26, 2005); Amended
Administrative Consent Order No. ACO-NE-03-7001-AMEND1.

1 ***North Shore***

2 The primary reason that the Salem Harbor De-List Bids were rejected resulted from a Line-Line
3 contingency on the two 345kV lines connected to the Ward Hill substation. *See* FCA-3 Results
4 Filing, ER10-186 (October 30, 2009), Rourke Affidavit at 22-27. If these two lines fail within
5 thirty minutes of each other, the most recent ISO-NE analysis shows that the system does not
6 have enough power and transmission to serve forecasted 90/10 peak load on the North Shore
7 without at least 580 MW of generation located at Salem Harbor. *See* FCA-3 Results Filing,
8 ER10-186 (October 30, 2009), Rourke Affidavit at 24. This result is in contrast to the numerous
9 prior analyses performed by the ISO-NE on a quarterly basis as part of the Reliability Must Run
10 agreement for Salem Harbor. *See* Motion to Intervene, Limited Protest and Statement of
11 Objection of Massachusetts Municipal Wholesale Electric Company, *ISO New England, Inc.*,
12 Docket No. ER10-186-000, at 9 (filed Dec. 14, 2009). According to the ISO-NE, both the
13 quarterly reports and the de-list study look at double contingencies, but the de-list study looks at
14 more severe double contingencies than is the case for the earlier studies. *See* Motion for Leave
15 to Answer and Answer of ISO-NE, *ISO New England, Inc.*, at 6-8, Docket No. ER10-186
16 (January 7, 2010).

17 The double contingency studies that underlie the 2008 quarterly reports are limited to double
18 contingency scenarios that take the first contingency only on long-repair-time system elements
19 such as an underground transmission cable or on a substation autotransformer. The more severe
20 double contingency analyses used in the de-list studies include the outage of any overhead 345
21 kV transmission line as the first of two contingencies. This may explain why the de-list study
22 says Salem Harbor generation is needed for reliability while the earlier quarterly reports said
23 otherwise. But, it does not explain why the analyses underlying the quarterly reports were
24 supposedly appropriate in 2008. It now appears that the 2008 quarterly reports were based on
25 outdated reliability analysis assumptions.

26 ***Boston Import Interface***

27 The Greater Boston area uses roughly 20% of the region's total load, with an all-time peak over
28 5,500 MW in August 2006. There are a number of transmission lines that bring power into
29 Boston, and grouped together they are referred to as the Boston Import interface. When the
30 Salem Harbor units are operational, the Boston Import interface is capable of flowing more
31 power than when those units are offline. When the impact of the Salem Harbor units on the

1 Boston Import Interface is ignored, a contingency with one transmission line and one generation
2 unit offline leaves the Boston area with a deficiency of 73 MW. The important detail in this
3 scenario, however, is that the “single” generation contingency modeled includes both of the
4 Mystic 8 and Mystic 9 units, a combined total capacity of more than 1,300 MW. The ISO-NE
5 models the two units together as a single contingency because of a common mode failure. These
6 two units are both fired by natural gas, but have a single natural gas pipeline feeding fuel into
7 both of them. If any of the single pieces of equipment for that one pipeline fails, both units will
8 trip off. This means that when the ISO-NE models these units as a contingency, they are
9 modeled together and could knock out more than 1,300 MW of power inside the Boston area,
10 instead of just half that amount if the units were modeled separately. The pipeline is owned and
11 operated by an independent entity, and the ISO-NE has no authority to require the owner to
12 upgrade the pipeline to alleviate this common mode failure situation. The ISO-NE has known
13 about this situation since at least 2004, and the station owner would benefit financially if this
14 common mode failure problem were fixed. Yet still the problem persists.

15

16 **Q: WHAT LEVEL OF COMPENSATION WILL RESULT FOR DOMINION DUE TO**
17 **ISO-NE’S REJECTION OF ITS STATIC DE-LIST BIDS FOR SALEM HARBOR UNITS**
18 **3 AND 4 IN FCA-3?**

19 In the twelve months from June 2012 – May 2013 New England will pay Dominion as much as
20 \$36.9 million (and up to \$18.49 million⁴ above market rate) to keep Units 3 & 4 up and running
21 for their almost 580 MW of reliability. Without any action to alter this situation, ratepayers will
22 be forced to continue to pay a similar or greater amount in 2013-2014, and every year thereafter
23 until the reliability need is resolved.⁵

24 **Q: WHAT OBLIGATIONS DOES ISO-NE HAVE IN THE EVENT THAT IT REJECTS**
25 **A STATIC DE-LIST BID FOR RELIABILITY REASONS?**

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27 If ISO-NE rejects a Static De-List Bid for reliability reasons, then the requirements of Section
28 III.13.2.5.2.5, “Bids Rejected for Reliability Reasons,” are triggered. This provision of the

⁴ The capacity market clearing price during the time period June 2012 – May 2013 is \$2.95, pro-rated down to \$2.66 per kilowatt per month because of excess capacity in the region. If Dominion receives \$5.33/kW-month during this time period, the amount above market cost is $(\$5.33 - \$2.66) \times 12 \text{ months} \times 577,000 \text{ kW} = \18.49 million .

⁵ All capacity revenues are reduced by various factors including Peak Energy Rents (PER) and availability penalties. Revenues for rejected delist units are also reduced by market revenues, e.g. energy market payments.

1 FERC-approved Tariff directs ISO-NE to “review the status of the specific reliability need,
2 identify alternatives to resolve that reliability need and determine the time to implement those
3 solutions with the Reliability Committee.” Section III.13.2.5.2.5(g)(i). The Tariff requires ISO-
4 NE to conduct this review prior to the start of the New Capacity qualification period for the
5 subsequent Commitment Period. Thus, when the ISO-NE rejected the Salem Harbor static de-
6 list bid in FCA-3 it triggered a process that, based on the Tariff, would be completed by
7 December 15, 2009. *See id.*

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9 **Q: DID ISO-NE INITIATE A NEED-SPECIFIC REVIEW REGARDING SALEM**
10 **HARBOR STATION AFTER IT REJECTED THE STATIC DE-LIST BIDS IN FCA-3?**

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12 No. ISO-NE did not initiate a separate analysis of the reliability need for Salem Harbor Station.
13 Instead, ISO-NE points to the Greater Boston Area Needs Assessment as a sufficient tool to
14 address the reliability issues facing the NEMA/Boston area. *See Forward Capacity Auction*
15 *Results Filing (“FCA-4 Results Filing”), ER10-2477-000 (August 30, 2010), Affidavit of*
16 *Stephen J. Rourke (“Rourke Affidavit”) at 23-24.*

17
18 **Q: PLEASE DESCRIBE THE ISO-NE’S RELIABILITY DETERMINATION IN**
19 **RESPONSE TO DOMINION’S DE-LIST BIDS FOR SALEM HARBOR IN FCA-4.**

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21 In FCA-4, ISO-NE concluded that at least 460 MW are needed from Salem Harbor Station.
22 Although a few of the assumptions for the transmission operability analysis were changed in
23 accordance with PP-10, ISO-NE’s findings regarding the need for Units 3 & 4 were based on
24 virtually the same contingencies that determined need in FCA-3. *See Rourke Affidavit, FCA-4*
25 *Results Filing, at 13-14.*

26 The primary reason that the Salem Harbor De-List Bids were rejected resulted again from a
27 Line-Line contingency on the two 345 kV lines connected to the Ward Hill substation. The ISO-
28 NE concluded that in the event of an N-1-1 scenario, 460 MW of generation at Salem Harbor
29 Station is necessary to avoid Long Time Emergency (“LTE”) overload violations in the North
30 Shore portion of the NEMA Load Zone. *See Rourke Affidavit, FCA-4 Results Filing, at 20.* As
31 explained above, this analysis conflicts with the quarterly reports that ISO-NE had issued in
32 2008.

1 **Q: WHAT LEVEL OF COMPENSATION WILL RESULT FOR DOMINION DUE TO**
2 **ISO-NE'S REJECTION OF ITS STATUS DELIST BIDS FOR SALEM HARBOR UNITS**
3 **3 AND 4 IN FCA-4?**

4
5 In the twelve months from June 2013 – May 2014, New England will pay Dominion as much as
6 \$34.65 million (and up to \$16.95 million above market rate) to keep Units 3 & 4 up and running
7 for their almost 580 MW of reliability. Without any action to alter this situation, ratepayers will
8 be forced to continue to pay a similar amount every year thereafter until the reliability need is
9 resolved.

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11 **Q: DOES THIS CONCLUDE YOUR TESTIMONY?**

12
13 Yes.

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

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17 Executed on 10/14/2010

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Douglas Hurley