

The Narragansett Electric Company
d/b/a National Grid (Rhode Island Reliability Project)

EFSB Docket No. SB-2008-02

Rebuttal Testimony of

Mark Stevens, P.E.

June 4, 2009

1 Q. Please state your full name and business address.

2 A. My name is Mark Stevens. My business address is 25 Research Drive,
3 Westborough, MA.

4 Q. Have you previously filed testimony in this matter?

5 A. Yes, I filed prefiled testimony in RIPUC Dkt. No. 4029 on February 20, 2009. I
6 understand that the prefiled testimony from RIPUC Dkt. No. 4029 will be
7 incorporated in this proceeding.

8 Q. Have you reviewed Mr. Booth's prefiled testimony on behalf of the DPUC?

9 A. Yes, I have and I would like to respond to several of his comments.

10 Q. On page 21, lines 9 – 10 and 15 – 19, Mr. Booth states "I do question a single
11 contingency analysis which includes a generator outage and a line outage. . . . I
12 would, however, not expect a critical generating plant in Rhode Island to be off-
13 line during a peak load condition for dispatch reasons unless it was also having an
14 outage condition. It appears unlikely that a critical plant would not be dispatched
15 during peak load conditions whether normal or stressed dispatch." Do you agree
16 with this?

17 A. No. There are several reasons that a generator may not be available:

- 18 • Due to its bid price, it may not be dispatched
19 • It may stop operating due to financial difficulties
20 • There may be a gas supply issue
21 • It may have decided to sell off its gas

1 • It may have a forced outage.

2 Additionally, it is not prudent to design the system such that it depends on one
3 particular generator in order to meet the required reliability criteria.

4 Q. On Page 22, Lines 13 – 20 (see also Page 24, Lines 6-11 and Pages 25 – 26, Lines
5 20 -24 and 1-17), Mr. Booth states “the contingency analyses contained in the
6 ER, and Table 3-1, and Mr. Stevens' statement on page 6 ‘this table shows load
7 shedding requirements in the 100 megawatt to more than 500 megawatt range’
8 would mean the maximum loss of load is 500 MW versus the total Rhode Island
9 load of 2137 MW. I find Mr. Stevens' statement and Mr. Collison’s testimony and
10 the report of ICF to be some what incongruent and irreconcilable. The idea that
11 2000 megawatts of non-transmission alternatives would be required in lieu of the
12 “Project” seems substantially overstated in light of Mr. Stevens' testimony.”

13 Please explain this apparent irreconcilable difference between your testimony and
14 that of Mr. Collison.

15 A. Mr. Booth raised this issue in several places in his testimony. The 100 MW to
16 more than 500 MW range refers to the amount of load that would have to be shed
17 in a targeted local “load pocket” in order to eliminate the violations. The 2000
18 MW referenced in the ICF report is the amount of DR and DSM that would be
19 required to eliminate the violations if the DR and DSM were to be spread
20 proportionally over the entire Rhode Island Sub-area. (The Rhode Island Sub-
21 area is defined by the ISO-NE Regional System Plan as the Rhode Island load

1 and the associated bordering Massachusetts load. This Sub-area contains about
2 2880 MW, which is about 35% more load than the State of Rhode Island load
3 alone.) The amount of load reduction required when proportionally spreading the
4 reduction over a large area would be significantly more than if the load was all
5 shed in the targeted local load pocket. See also the response to DPUC Data
6 Request 1-12 which is repeated below, and page 50 of the ICF report which is
7 found in Appendix F of the Environmental Report.

8 Response to Data Request DPUC 1-12:

9 “The 100 MW to over 500 MW of load that must be shed after
10 the first contingency, but prior to the second contingency
11 (specified on page 3-6 of the Rhode Island Reliability Project
12 Environmental Report, Volume 1, Table 3-1 Most Severe
13 Planning Criteria Violations in Rhode Island) refers to load that
14 would have to be shed in a specifically targeted area. The
15 targeted area includes only the load that is served by Rhode
16 Island substations that are south of the Hartford Avenue
17 substation. This represents load that must be shed to address the
18 most severe dispatch and contingency conditions, such as voltage
19 collapse resulting in blackouts. The targeted load shedding does
20 not address all criteria violations observed in the Needs Analysis.
21 As mentioned on page 3-5 of the Rhode Island Reliability Project
22 Environmental Report, Volume 1, there are many other dispatch
23 and contingency conditions that result in “lesser” criteria
24 violations that are not included in Table 3-1.”

25
26 “In contrast, the demand reduction specified in the ICF
27 International Report refers to demand reduction that would
28 provide the same level of reliability as the Rhode Island
29 Reliability Project. Therefore, ICF attempted to implement
30 demand reduction that would address all criteria violations,
31 similar to the Rhode Island Reliability Project. This reflects a
32 higher amount of demand response (spread over many area
33 substations) than that which is required to relieve only the most

1 severe conditions. The Report is therefore consistent with the
2 findings of the Needs Analysis.”

3
4 Q. On page 26, lines 23 – 24 and page 27, lines 3 – 12, Mr. Booth states that he does
5 not think it is realistic to expect National Grid to be able to achieve even the
6 lower 500 megawatt level of distributed generation and DSM installations in the
7 same time frame that they proposed to complete the 345 kV line. Do you agree
8 with this?

9 A. Yes, we agree with Mr. Booth. Additionally, the 500 MW of DSM would have to
10 be in a very specifically targeted local area, and therefore would require a very
11 large percentage of the local load to participate. This would make the DSM much
12 more expensive than if it were spread out over the entire State of Rhode Island.

13 Q. On Page 3, Lines 10 – 14 of Mr. Hahn’s testimony, he is unable to explain the
14 differences between the forecast found in the 2006 CELT Report and the forecast
15 provided in your prefiled testimony. Could you clarify this for the Board?

16 A. Certainly. It is important to understand that the CELT forecasts include load and
17 losses. This means that as the generator dispatch and transfers are changed, then
18 the losses change, which causes the “load” (which is actually load plus losses) to
19 change. This accounts for some of the differences between the 2006 CELT and
20 the values shown in table on page 6 of my prefiled testimony. Other differences
21 may be due to various minor adjustments and scalings made during the study
22 process. The difference in the load levels between the 2006 CELT forecast and
23 that used in the study comes out to about 2% of the Rhode Island load. This

1 small difference would not have a material impact on the need for the proposed
2 Project.

3 Q. Subsequently, on page 3, lines 10 – 11 and 18 – 19 and Page 4, Lines 2 – 4, Mr.
4 Hahn is asked about the differences between the forecast found in the 2006 CELT
5 Report and the forecast provided in your prefiled testimony. In his response he
6 states “. . . second, the response to DPUC 2-11 refers to the ‘2008 Power Supply
7 Area Forecast’ as the source of the 2014 90/10 loads used in the load flow runs.”
8 Could you explain this confusion?

9 A. Yes. The 2008 Power Supply Area Forecast was not used in the load flow runs, it
10 was used to specifically answer DPUC Data Request 2-11. This question
11 requested “the latest actual load value recorded and any forecast of those load
12 values in future years”.

13 The relationship between the National Grid Power Supply Area Forecast and the
14 ISO CELT Forecast is as follows. Each year the ISO creates the CELT forecast
15 using (among other things) data provided by each of the New England
16 transmission owners. The data that National Grid supplies to the ISO comes from
17 the National Grid Power Supply Area Forecast for that year.

18 Q. Mr. Hahn also states “. . . hence, it is not completely clear which actual forecast
19 was used to inform the conclusions regarding the contingency and needs analysis
20 discussed in Mr. Stevens’ testimony.” Please explain.

1 A. In the course of an extensive study that spans more than four years, many system
2 attributes change. One of these is the forecast. Therefore, for the various
3 analyses that were done over the course of the four plus years, different load
4 forecasts were used. The key point is that all of the forecasts over the course of
5 the study continue to show a strong need for the Rhode Island Reliability Project.

6 Q. On page 8, lines 4 – 17, Mr. Hahn agrees that the adjustments discussed
7 previously would not obviate the need for Rhode Island Reliability Project.

8 However, he states “the needs analysis should be conducted using the most recent
9 load forecast available, including the most recent data concerning which demand
10 resources will be available in order to make the need determination as strong as
11 possible. Moreover, there have been a number of factors since the original Needs
12 Analysis conducted by ISO-NE, which relied upon the 2005 CELT forecast, that
13 support a fresh look at the Needs Analysis for the Rhode Island Reliability
14 Project . . .” Do you believe a new analysis of the need for the Project is
15 necessary or justified under the circumstances?

16 A. No. The table on page 6 of my prefiled testimony showed a total net adjustment
17 of -82 MW. The table in the response to DPUC 2-19 is an updated and corrected
18 version of the same table which results in a total net adjustment of -45 MW. This
19 updated table reflects data from the 2009 CELT Report (issued in April 2009) and
20 the second FCA, provided to National Grid from the ISO. Mr. Hahn’s version of
21 the table (based on the latest CELT data and FCA data that he acquired) results in

1 a total net adjustment of -72 MW. Given the system issues, as Mr. Hahn agrees,
2 the differences between these three adjustment values will not have a material
3 impact on the need for the proposed Project.

4 All of the factors that Mr. Hahn mentions on page 8 of his testimony (and copied
5 above) have been taken into account in the aforementioned tables. Using good
6 engineering judgment, the tables clearly indicate that there is no need to go
7 through the exercise of re-doing the needs analysis with the latest data. (If the
8 analysis were to be re-done, it would likely show, at most, that the overloads
9 would be reduced by just a small percentage, which would not materially
10 decrease the need for the Project.) In fact, Mr. Hahn agreed with this conclusion
11 on page 6, line 13 of his testimony where he stated, 'I do agree that another Needs
12 Analysis would not be necessary'.

13 Q. Does this conclude your testimony?

14 A. Yes it does.