

September 6, 2012

## REGIONAL ENTITY EXECUTIVES

FRCC	—	Stacy Dochoda	SERC	—	Scott Henry
MRO	—	Daniel P. Skaar	SPP	—	Ron Ciesiel
RFC	—	Timothy R. Gallagher	TRE	—	Lane Lanford
NPCC	—	Edward A. Schwerdt	WECC	—	Mark Maher

Dear Regional Entity Executives:

### 2012 Probabilistic Assessment Report

The NERC Reliability Assessment Subcommittee (RAS) is requesting your assistance for a consolidation of probabilistic assessment reports across NERC.

NERC's Generation and Transmission Reliability Planning Models Task Force (GTRPMTF) recommended the creation of an annual report summarizing a probabilistic assessment of the resource adequacy by area across NERC.<sup>1</sup> The GTRPMTF was subsequently disbanded and the Planning Committee has assigned RAS to coordinate the assembly of this report.

In 2011, the RAS piloted this effort to produce enhanced resource adequacy metrics for the *2010 Long-Term Reliability Assessment*.<sup>2</sup> The NERC Planning Committee (PC) approved the recommendations from this report which initiates a mandatory probabilistic assessment study to be performed biennially.

The Probabilistic Assessment (ProbA) Report is designed to complement the Long-Term Reliability Assessment by providing additional probabilistic statistics of Loss of Load Hours (LOLH) and Expected Unserved Energy (EUE). Included in this request, RAS plans to report on the third and fifth year of the *2012 Long-Term Reliability Assessment*—2014 and 2016 results.

Five documents are attached for reference:

- Attachment 1 – 2012 Probabilistic Assessment Timeline (included in this document)
- Attachment 2 – 2012 Probabilistic Assessment Reporting Outline (included in this document)
- Attachment 3 – Table of Assessment Areas and Contacts

<sup>1</sup> [http://www.nerc.com/docs/pc/gtrpmtf/GTRPMTF\\_Meth\\_&Metrics\\_Report\\_final\\_w\\_PC\\_approvals\\_revisions\\_12.08.10.pdf](http://www.nerc.com/docs/pc/gtrpmtf/GTRPMTF_Meth_&Metrics_Report_final_w_PC_approvals_revisions_12.08.10.pdf)

<sup>2</sup> *2010 Long-Term Reliability Assessment: Pilot Probabilistic Assessment*, June 2012: [http://www.nerc.com/files/2012\\_ProbA.pdf](http://www.nerc.com/files/2012_ProbA.pdf)

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- Attachment 4 – Draft Data Reporting Template
- Attachment 5 – Approved Report: *Pilot Probabilistic Assessment, June 2012 (Appendices)*
  - Participants should use this pilot report as a starting point for the 2012 submission

A conference call of participants was held on Tuesday August 21, 2012 at 2:00 p.m. EST to exchange information and comments—additional conference calls are scheduled per Attachment 1.

On behalf of NERC’s Planning Committee and the Reliability Assessment Subcommittee, we thank you for your continued support of NERC’s Reliability Assessments.

Sincerely,

Kevan Jefferies  
RAS-ProbA- Team Leader, Ontario Power Generation

John N. Moura  
Associate Director, Reliability Assessment

CC:  
Reliability Assessment Subcommittee

**Attachment 1:****Probabilistic Assessment Schedule**

Reliability Assessment Subcommittee (RAS) has set the schedule below for the *2012 Probabilistic Assessment*.

Aug. 21, 2012	Intro Webinar - Field Questions by Participants
Sept. 6, 2012	Issue Letter Requesting Participation in 2012
Sept./Oct. 2012	Confirm Final Reference Case Data (2012 LTRA)
Dec. 10, 2012	RAS-ProbA Team Conference Call: Pre-submission Inquiries
Dec. 21, 2012	First Draft Due to NERC
Jan. 17, 2013	RAS-ProbA Team Conference Call: Peer Review
Feb. 1, 2013	Final Drafts Due to NERC
Feb. 4-8, 2013	NERC Staff Consolidation of Reports
Feb. 8, 2013	Draft Report Submitted to RAS-ProbA Team
Feb. 15, 2013	RAS-ProbA Team Conference Call: Review Initial Draft
Feb. 25, 2013	Draft Report Submitted to RAS
Mar. 2013	Draft Report to PC (Potential Approval in March)
Jun. 2013	PC Approval of Final Report

**Attachment 2:****Probabilistic Self Assessment – Methodology and Metrics**

In an effort to add more consistency to the reliability assessment, all Assessment Areas submissions should follow the outline below in preparing their written assessment.

All questions below are represented in the final methodology and metrics report:

[http://www.nerc.com/docs/pc/gtrpmtf/GTRPMTF\\_Meth\\_&\\_Metrics\\_Report\\_final\\_w\\_PC\\_approvals\\_revisions\\_12.08.10.pdf](http://www.nerc.com/docs/pc/gtrpmtf/GTRPMTF_Meth_&_Metrics_Report_final_w_PC_approvals_revisions_12.08.10.pdf)

**General instructions per Section D.1 of the *Methodology and Metrics* document:**

1. The data used in the simulation models should be consistent with the data reported in the LTRA, or explained if different.
2. No confidential data will be disclosed by an Assessment Area in their report.
3. The calculation years for the report will be 2014 (year 3) and 2016 (year 5), based on the 2012 LTRA.
4. Please annotate responses in comment boxes to facilitate the peer review process.

Please organize your response into the following template. Your self-assessment should respond to the following questions:

**NOTE: Footnote references refer to the relevant sections in the *Methodology and Metrics* document****1. Summary**

- a. Identify the entities included in the Assessment Area and whether the individual entities were modeled or whether they were modeled as a single combined entity.<sup>3</sup>
- b. Seasonal capacity totals (summer and winter) – year 3 and year 5 by subcategory, with a total provided:<sup>4</sup>
  - 1.b.1. Controllable capacity demand response (demand and supply side)
  - 1.b.2. Intermittent and energy-limited variable resources

<sup>3</sup> The entities need to those in the Assessment Areas defined in Table 1. See Section A.2.d.

<sup>4</sup> See Section A.3.e regarding reporting of controllable capacity demand response (CCDR), section A.4.f for intermittent and energy-limited variable resources, section A.4.g for traditional dispatchable capacity, and section A.4.e for capacity sales and purchases. *Note that all capacity should account for retirements and re-ratings (Section A.4.c).*

- 1.b.3. Traditional dispatchable capacity
- 1.b.4. Sales
- 1.b.5. Purchases
- c. Coincident forecast 50/50 peak seasonal demands (summer and winter) as reported in the LTRA, and the comparable demands from the simulation, if different – year 3 and year 5.<sup>5</sup>
- d. Net Energy for Load as reported for the LTRA and the simulated NEL, if different – year 3 and year 5.<sup>6</sup>
- e. Assessment Area metrics results – year 3 and year 5<sup>7</sup>

## 2. Software Model Description

- a. Describe the basic computational approach – Monte Carlo or analytical method.<sup>8</sup>
- b. Does the model have an algorithm to reduce the number of hours included in the metric calculations when the hours have no material impact on the metrics? Was the algorithm used?<sup>9</sup>

## 3. Demand Modeling

- a. For items 1.c and 1.d, explain any differences between the reported information and similar data reported in the LTRA.<sup>10</sup>
- b. Explain the development of the chronological load model and any loads within the Assessment Area's geographic boundary that are accounted for elsewhere.<sup>11</sup>
- c. Explain how load forecast uncertainty was modeled.<sup>12</sup>
- d. Explain the treatment of behind-the-meter generation and whether it was netted from load or explicitly modeled with associated load.<sup>13</sup>

<sup>5</sup> See Section 3.a and 3.b.

<sup>6</sup> The sum of the chronological loads for an Assessment Area (simulated NEL) may differ from the Net Energy for Load reported in the LTRA. The development of a chronological Assessment Area load model from the chronological load forecasts of the Assessment Area entities may require adjustments. See Section 3.a and 3.b.

<sup>7</sup> See section B.3.

<sup>8</sup> Not discussed in the *Methodology and Metrics* document. However, this was addressed in Section 2 of the GTRPMTF report posted at [http://www.nerc.com/docs/pc/gtrpmtf/Final\\_GTRPMTF\\_Rpt\\_to\\_PC-06-09-09.pdf](http://www.nerc.com/docs/pc/gtrpmtf/Final_GTRPMTF_Rpt_to_PC-06-09-09.pdf).

<sup>9</sup> See Section B.3.a and footnote 7.

<sup>10</sup> For 1.c, explain any demand differences (the LTRA may report non-coincident load forecasts while the chronological load model will have coincident forecasts); for item 1.d, explain any differences between the simulated NEL and the LTRA reported NEL. See Section B.3.c. and footnote 8.

<sup>11</sup> See A.3.a and A.3.b.

<sup>12</sup> See A.3.c for a complete list of the topics to be addressed.

<sup>13</sup> See A.3.d.

#### 4. Controllable Capacity Demand Response Modeling

- a. Explain whether controllable capacity demand response is modeled as a load modifier or as a resource. In addition, describe how it is modeled. Either modeling approach is acceptable.<sup>14</sup>

#### 5. Capacity Modeling

- a. For the capacity in item 1.b above, explain any differences between the Assessment Area capacity and the LTRA capacity for the four LTRA categories in Table 2 of the *Methodology and Metrics* document.<sup>15</sup>
- b. For “Future-Planned” generation, explain the process for determining whether such generation is “firm and deliverable.”<sup>16</sup>
- c. Document generation additions and capacity re-ratings.<sup>17</sup>
- d. Document all jointly-owned units, including temporary unit power sales or purchases, and how they are modeled when such units are shared by entities in different Assessment Areas.<sup>18</sup>
- e. Document capacity sales and purchases, indicating the selling and purchasing party.<sup>19</sup>
- f. For intermittent and energy-limited variable resources such as wind, solar, and hydroelectric units, document how each these resources are modeled and what data is used.<sup>20</sup>
- g. For traditional dispatchable capacity, document how it is modeled and what data is used. Specifically, three topics should be addressed:<sup>21</sup>
  - 5.g.1. Ratings
  - 5.g.2. Forced outage modeling
  - 5.g.3. Planned outage modeling

#### 6. Transmission

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<sup>14</sup> Section A.3.e has a list of items that should be addressed at a minimum (to the extent they apply). The report should include any additional information that describes the modeling of controllable capacity demand response.

<sup>15</sup> See Section A.4.a.

<sup>16</sup> See Section A.4.b.

<sup>17</sup> See Section A.4.c.

<sup>18</sup> See Section A.4.d.

<sup>19</sup> See Section A.4.e.

<sup>20</sup> See Section A.4.f.

<sup>21</sup> See Section A.4.g.

- a. Document transmission additions and retirements for years 3 and 5 that are included in the modeling and explain any differences between the modeled transmission additions and retirements and the transmission addition and retirement data provided for the LTRA.<sup>22</sup>
- b. Describe the Assessment Area's transmission modeling approach, how that approach takes in to account transmission constraints and outages within and outside of the Assessment Area, and how it developed the data needed for modeling, consistent with its planning processes. If transmission constraints (e.g. thermal, voltage, stability, or interface limits) are used in the Assessment Area's process, the methodology should be described. The Assessment Area should also describe how deliverability of internal and external resources and access to external supplemental resources is addressed.<sup>23</sup>

#### **7. Assistance from External Resources**

- a. Explain the Assessment Area's assumptions and methodology for quantifying non-firm assistance from resources outside the Assessment Area's footprint.<sup>24</sup>

#### **8. Definition of Loss-of-Load Event**

- a. Explain the Assessment Area's definition of a loss-of load event.<sup>25</sup>

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<sup>22</sup> See Section A.5.a.

<sup>23</sup> See Section A.5.b.

<sup>24</sup> See Section A.6.

<sup>25</sup> See Section B.1.