NORTHEAST POWER COORDINATING COUNCIL

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May 6, 2003

Mr. Jonathan Raab
Lead Facilitator, New England Emergency Demand Response Initiative (NEDRI)
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280 Summer Street
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Re: Comments to Three Developing Documents:

"Opportunities For Demand Participation In New England Contingency-Reserve Markets"
Eric Hirst and Brendan Kirby-February 2003

"Opportunities for Load Participation in Contingency Reserve Markets-Draft Chapter for NEDRI Final Report"-April 27, 2003

"Spinning Reserve from Responsive Loads"
B. J. Kirby-March 2003

Dear Mr. Raab,

The Northeast Power Coordinating Council would like to thank the New England Emergency Demand Response Initiative for the opportunity to participate in the evolving discussion of how to reliably and efficiently incorporate designated responsive load into operating reserve. As you know, the NPCC Document A-06, "Operating Reserve Criteria," defines the essential reliability requirements for an NPCC Area in establishing and maintaining operating reserve. It is important to stress that Document A-06 is, fundamentally, a reliability document, and its goal is solely to ensure effective and realizable levels of operating reserve. Nevertheless, NPCC has been proactive in making A-06, and all of its policies, responsive to the changing electric marketplace. In particular, the "Operating Reserve Criteria" have undergone extensive scrutiny and revision to make sure that they are compatible with a market environment and to fully incorporate all available market resources. To further this effort, Mr. Brendan Kirby met with the NPCC Task Force on Coordination of Operation on March 5, 2003, to discuss how NPCC Document A-06 can accommodate the NEDRI objectives and to address particular questions raised in the three draft papers cited above. The TFCO advised Mr. Kirby that, with appropriate verification mechanisms and adequate telemetry, the "Operating Reserve Criteria" of NPCC do not in any way preclude the adoption of the NEDRI concepts within ISO New England Inc. In fact, the initial ISO New England ancillary service markets did allow responsive load to participate in all three reserve markets, and its real-time dispatch software and market rules supported its participation. Four pumping loads, together with one industrial load, actively participated in these markets. Metering issues at the time may have hampered wider participation in the program.

It is important to recognize that NPCC developed its reserve methodology based purely on reliability requirements; there was no intent to meet the interests of large generators at the exclusion of other options. The generator has become the historical provider with its key communications infrastructure in place for basic energy dispatch, which also provides for ready reserve activation. However, real-time telemetry is a key to successfully achieving compliance with the NERC Disturbance Control Standard (DCS). If the resources deployed initially fail to respond or appear to be underachieving, additional resources could be called on to compensate for these shortcomings and still permit compliance with the DCS within the window of fifteen minutes. To accomplish this, generators must have adequate metering so that the operators can make this critical determination. While aggregated responsive load may not need exactly the same metering, real-time feedback is needed to permit the operator to make a comparable judgment about the successful deployment of contingency reserve from a responsive load. The importance of this functionality has not been given proper consideration and should be the subject of future research. This also points to the need for comparability between the generator and the responsive load in their respective commitment to the infrastructure necessary to provide a reliable and verifiable product. There are additional problems of comparability and equity if generators can be activated for any size contingency while responsive load is restricted to a subset. Restriction of the use of responsive load to DCS events only is problematic. When a control area uses an 80% of First Contingency Loss as its reporting threshold (the NERC default that can be ratcheted downward on a Regional basis), generators and responsive load would be activated. But note that there are events that fall below the DCS threshold for which contingency reserve is activated, and this would also impact operating procedures. How does one designate one set of resources to meet the market requirement, and yet have some portion of them available for lesser sized events? Responsive load should be prepared to provide contingency reserve when deemed necessary by the ISO.

There is now the need as well for appropriate security. Three potential cyber security threats must be recognized. First, the ability to communicate requests for activation may become disabled. Second, false requests might be communicated. Third, a secure link to the ISO's EMS and other computer facilities is needed so that the risk of sabotage via hacking is mitigated.

Other particular points raised in the various publications follow:

- NPCC requires in NPCC Document A-06 a recovery period for the restoration of contingency reserves of ninety minutes (an increase from its previous value of thirty minutes). This parameter has been questioned, but it must be pointed out that this requirement was only recently changed to ninety minutes to provide compliance with NERC Operating Policy 1, "Generation Control and Performance." Further, NPCC performed its own internal evaluation of the reliability impact of increasing the restoration period for contingency reserve requirements to the NERC standard by reviewing historical occurrences of resources losses within the NPCC. While time constraints did not permit the development of a formal report, the NPCC Working Group on Control Performance (CO-1) carefully examined the impact on reliability and found only an infinitesimal change in reliability.

- In places, the above three draft documents do not distinguish clearly between "sustainability" and actually being "sustained." While a contingency reserve resource in the NPCC needs to be capable of providing its reserve for up to one hour, its reserve has been deployed and can return to a normal mode of operation in less than thirty minutes. But the requirement of sustainability for sixty minute should not be seen as an exclusionary constraint to force the selection of any particular technology type. In fact, hydro generation with small ponds are impacted by this limitation as well. The primary reason for the sixty minutes sustainability is the typical market need to perform a day ahead Unit Commitment with an hourly resolution. Conventional thermal generation with long startup profiles, for example, often do not have the flexibility to start up sooner because a contingency has occurred. Currently, hourly markets reinforce the need for this requirement. The exposure to a contingency just after the present hourly solution has becomes available must be considered. The load aggregator should consider packaging its contingency reserve product so that it can be sustained for an hour if necessary.

- The responsive load should not have an upper bound on the number of times the resource is utilized.

- The statistical provision of reserve is not a foreign to the ISO New England. An internal operating procedure calls for the activation of 125% of the magnitude of the contingency loss in order to cover most occurrences of under-delivery by individual resources, and generators are more likely to under-provide than to over-provide. So if the load aggregator bids in 100 MW, for example, and 90 MW are delivered, a DCS compliant event would still likely result. However, if 10 MW was delivered instead, then non-compliance may occur. The operator needs timely feedback relatively early in the DCS event to determine if 10 MW or 90 MW is being delivered.

Thank you for your attention to these very important concerns.

Very truly yours,

J. G. Mosier, Jr.

John G. Mosier, Jr.
Director, Operations

JGM:mr

cc: Members, NPCC Task Force on Coordination of Operation)
Mr. Rich Cowart
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