NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Notes
Balancing Authority Controls SDT— Project 2007-05

October 20, 2009 | 8:00 a.m. – 5:00 p.m. EDT
October 21, 2009 | 8:00 a.m. – 12:00 noon EDT
Tennessee Valley Authority Offices
Chattanooga, TN

1. **Administration**

   a. Antitrust Guidelines
   Andy Rodriquez reviewed the anti-trust guidelines with meeting participants.

   b. Introduction of Attendees

   The following members and guests were in attendance:
   - Larry Akens, Chair
   - Tom Artau
   - Gerry Beckerle
   - Terry Bilke
   - Dave Folk
   - Will Franklin
   - Adam Griffin
   - Howard Illian
   - Sydney Niemeyer
   - Guy Quintin
   - Kris Ruud
   - Scott Sells
   - Raymond Vice
   - Tom Washburn
   - Cory Galik
   - Howard Gugel
   - Andy Rodriquez

   c. Approval of Agenda
   The drafting team reviewed the Agenda and approved it unanimously.

   d. Approval of Meeting Notes

The drafting team reviewed the meeting notes from the previous two meetings and approved them unanimously.

2. **Coordination Efforts**

Larry Akens provided an update on the work efforts of the RBCSDT. ERCOT is planning on jointing in December/January. The RBCSDT is still looking for small entities (<1000W peak load) to participate in the Field Test.

Sidney Niemeyer provided a brief update on the FRSDT. They are meeting later in the week to finalize their data request. There is also a Frequency Response Working Group request that is being put out.

NAESB is still monitoring the group's progress.

3. **Review of Roadmap**

The team reviewed the roadmap. Outstanding issues to still be addressed are Inadvertent and the FAC/Metering standard. BAL-004 and BAL-012 are being reviewed by NERC Staff. Field Trials for BAL-004 are pending waiting for feedback on the draft standard. On the ERCOT field trial, we have not heard from Ken recently, as his new job duties seem to be keeping him away from participation.

4. **Discussion of Inadvertent**

Sydney indicated that he thinks the over-biasing of the Eastern Interconnect is a part of the problem. In addition this also increases the L_{10} so there is more "looseness" for entities that are off schedule and therefore more looseness n CPS2. If FERC wants improved control (which seems to be why FERC was pushing for penalties for Large Inadvertent balances), then maybe fixing the bias problem will help improve control (e.g., the corrected bias would naturally tighten control). Howard pointed out that CPS1 is also impacted because of the bias term in the denominator. So it would help both CPS1 and CPS2. Larry questioned how much this really impacts the problem – is it a small part or a large part?

Sydney questioned whether or not the FRSDT really had fixing the bias setting in their scope. Some members of the BACSDT think that the FRSDT has been given the responsibility to rewrite BAL-003, not just collect data.

Howard doesn't think the core problem is bias. He thinks it is that people don't really care about inadvertent. Sydney reminded everyone that PJM has sad they want to pay back their inadvertent but can't because frequency is always running high. Howard suggested that if their CPS1 is higher than 140%, they have plenty of opportunity.

Howard said we need to make sure the penalties for inadvertent don't set the wrong behavior in motion. The concept of including an inadvertent payback term in the control ACE could eliminate the problem of inadvertent balances. We can solve it within the current standards – but we don't seem to have a way to incent the right behavior. FERC has said they want to see standards that say big

balances are a violation, but Howard is concerned that this would make people afraid to create "good" inadvertent.

Howard further discussed two kinds of automated payback that would work. The first would be to do unilateral payback within certain bounds. This is currently allowed, but people don't seem to want to do it. The other is a balanced payback that would be included in the reporting ACE (so would not be counted against you). Howard believes that anything other than these two options will not work, and seemed to indicate that we should tell FERC that their desire to fix inadvertent is wrong. Larry reminded Howard that we went to FERC and discussed this exact point, and they seemed to care about control. Howard responded that he thinks we can take no action in response to their order, provided we give them a reason that explains why taking no action is a good choice. Andy responded that FERC has generally indicated that if they have directed a specific action to be taken, they expect that action to be taken or an alternate action to be proposed that addresses their underlying concern.

The team discussed writing a standard that was focused on the rate of accumulation of inadvertent. However, we have to be careful of penalizing for "good" inadvertent. We could define "bad" inadvertent as taking energy when frequency is low, or pushing megawatts when frequency is high. Maybe we create a metric that looks at the change in frequency and the change in inadvertent, and use that to address the issue? A shorter term CPS1 might deal with this. Perhaps the team should explore CPS60 (from the Balancing Resources and Demand project?)

Raymond Vice suggested we could calculate a "perfect" ACE and calculate its Root Mean Square, then compare that to the actual ACE RMS, and use that as a metric to compare them. We would need to think about what this really means. However, Howard says if Bias is accurate, a short-term CPS1 would capture this. Is this similar to the "darn-it" concept that Terry Bilke had proposed? i.e., if CPS went out of range, you got a "darn-it," and if you had too many "darn-its" in a specified period, you would get in trouble.

Perhaps we can do this with an Hourly CPS1 score as a short term indicator? We would need to have more samples, and would probably need to change the criteria (as the smaller sample size would probably affect the data). We already have the minute-by-minute data, but instead of looking at a monthly calculation and a rolling evaluation of 12-months, we could look at it as an hourly calculation and a rolling evaluation of 24 hours. A CPS1 score of 100% means you have a RMS contribution of 18 millihertz. Given the possibility of sampling error, we would need to have to allow for something more that 18 millihertz. We also need to make sure that we allow for a unit trip or contingency to be recovered from without failing CPS1. The benefit of a longer-term CPS is that it lets people offset the impact of such events with good control during other periods.

Sydney asked if we can we use short term CPS1 to calculate whether or not you had a darn-it, but then look at the count of darn-its over a monthly period. Howard said that the question would be how to set the number of "darn-its" based on reliability criteria. People don't want a score that is based on "normal" behavior – they want to only be scored on whether or not they directly harmed reliability.

Andy suggested that while average scores are good, they are always based on samples, and therefore a poor indicators in the short term but good indicators in the long term. If we want to incent short-term improvements in behavior, Andy thinks we should focus on the behavior itself, not the trends or performance metrics that result form the behavior. Howard responded that if you don't focus on long-term measures, you face the challenge of trying to exclude all the special cases from the short term. Andy suggested that instead of finding the perfect solution (e.g., one that penalizes all the entities that did bad things and none of the entities that did good things), we should try to deal with incremental improvements. Could we make improve the situation by writing standards that ensure the worst offenders would get caught, and allow mild offenses to stay under the radar (since we can't guarantee they were actually "bad" behavior)? Howard agreed we could do this, but we need to make sure it results in an improvement – and make sure that we don't penalize for the low-probability event that occurs occasionally. Raymond suggested we could look for repetitive behaviors. Howard suggested that those behaviors might show up in long-term statistics, and if we look at them in other ways, they may be more complex.

Sydney suggested that the long-term statistic has the potential to cause bad behavior. If an entity has a problem but knows they can offset bad performance with good performance, they may take cost-saving measures instead of doing the right thing (e.g., I should start a generator, but I know my CPS1 can handle this, so I won't start a generator).

Larry suggested that it would be good if someone would volunteer to develop a short-term CPS1 measure. There were no volunteers, but Raymond said that he had data that could help in this discussion.

Larry, Sydney, and Gerry will look at their historical data and analyze what the impact would be if we calculated CPS1 on a short-term basis (a compliance factor based on one hour, rather than on 12 months).

Andy will re-circulate the discussion we have had in the past regarding BAL-00x (reducing inadvertent through control) and the discussion with Howard about the causes of inadvertent.

5. **Discussion of BAL-002 (DCS) and Operating Reserves**
Howard expressed come concerns about the use of contingency reserves. He suggested that load forecast error should be addressed with contingency reserves, and replace it as quickly as possible. The team generally agreed that if you have

no other options, you should do this – but you should have other options if you are performing operations planning correctly.

The team agreed that the current definition of "reportable disturbance" is appropriate for use in the next version of the BAL-002 standard. Andy will update the most recent draft of BAL-002 to reflect the previous discussions of the standard.

The team discussed operating reserves, and how we would need to develop the standards related to them. The team is thinking that we would develop a reference document, white paper, or attachment that defines reserve types. However, we need to be careful about the difference between market products and reliability services.

The team discussed the reserve paper. There was a question if we needed another kind of reserves – some to deal with load forecast error. Usually, this is included in contingency reserve, but it was uncertain if it was clear that was the case. Some members of the team were referring to this as load following reserve.

Guy suggested we could say regulating reserves is equal to load following reserve and regulating reserve. Raymond said that we need to consider the temporal aspect of this as well. In general, you have:

Frequency Responsive Reserve (instantaneous)
Load Following Reserve (short-term)
      Made up of regulating reserve for AGC and
      Manually dispatched reserve
Contingency reserve (10-minute)

DCS evaluation is based on 15-minutes, but that is to allow for ramping and decision making – there should not be the belief that it is acceptable to ramp from minute 14 to minute 15. Waiting until the last minute like this leaves a large amount of uncertainty to the dispatcher (is the unit unable to come up and should I get someone else? Or are they just waiting?).

Howard suggested that we really need to plan for multiple periods each day, as our system is no longer a "plan for peak" system. He suggested a four-period planning approach, to look at the various conditions at the peak, valley, and during the two shoulder periods.

Howard also suggested that the paper should be updated to be more specific about the separation of the kinds of reserves, and we have to have better definitions of them. We need to explain what the services are used for, and how other uncertainties are covered. Guy will develop proposed definitions, and add them to the paper. Howard sees this paper as a deliverable that will support the standard.

Sydney described "reserves as resource maneuverability that not used to meet your normal variations in load."

Howard pointed out we need to define back-down capability as well. We've always assumed that we can just back down, but in some cases now, you can't. "Margin" may be a better way to refer to these things. So:

X Margin = X Reserve Margin + X Backdown Margin

where X is the time period. E.g., instantaneous reserve margin, instantaneous back-down margin.

Sydney suggested that the capacity that is used to serve load should not be considered part of the reserves. He is not in support of a new category of "load following reserves."

Howard suggested we think about the concept of "margin," and see if it is a good way of handling this question more clearly.

6. **Interpretation Request**
Howard Gugel (NERC staff) requested that the team review a Request For Interpretation related to BAL-001 and BAL-002. The team assisted Howard in developing the response to the RFI.

7. **Discussion of FAC/Metering Standard**
This item was not covered, as the team ran out of time.

8. **Assignments and Action Items**
Raymond will provide data to aid in evaluating the short-term CPS1 discussion.

Larry, Sydney, and Gerry will look at their historical data and analyze what the impact would be if we calculated CPS1 on a short-term basis (a compliance factor based on one hour, rather than on 12 months).

Andy will re-circulate the discussion the team has had in the past regarding BAL-00x (reducing inadvertent through control) and the discussion with Howard about the causes of inadvertent.

Andy will update the most recent draft of BAL-002 to reflect the previous discussions of the standard.

Guy will update the Operating Reserve paper to add the detail and separation discussed in the meeting.

All will think about the use of the term "margin" to describe the concept of reserve and backdown capacity.

9. **Future Meetings** *(Italics not confirmed)*

October 20/21 (8-5, 8-12) – Chattanooga, TN
November 5 – ConCall/WebEx, 10-4 Central
December 1-2 (8-5, 8-12) – Chicago, IL
January 19 – ConCall/WebEx, 10-4 Central
February 24-25 (8-5, 8-12) – Atlanta/SOCO
March 16– ConCall/WebEx, 10-4 Central
April – St Louis/Ameren
May– ConCall/WebEx, 10-4 Central

10. **Adjourn**
The drafting team adjourned at approximately 11:40am on October 21.