

## Project 2010-14.2 BARC Phase 2 (BAL-005 and -006) Consideration of Issues and Directives

### Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 415 (S- Ref 10031 – BAL-005)</p> <p>“Both Xcel and FirstEnergy question Requirement R17 but do not oppose the Commission’s proposal to approve this Reliability Standard. Earlier in this Final Rule, we direct the ERO to consider the comments received to the NOPR in its Reliability Standards development process. Thus, the comments of Xcel and FirstEnergy should be addressed by the ERO when this Reliability Standard is revisited as part of the ERO’s Work Plan.”</p>	<p>FERC Order No. 693</p>	<p>The PRT considered the comments to the FERC Notice of Proposed Rulemaking pertaining to BAL-005 R17, which in part resulted in our recommendation to revise R17 to only include metering equipment with output directly employed in the calculation of Reporting ACE and to include the following points of measure: (1) metering equipment used for instantaneous Tie-Line MW readings that are part of the Actual Net Interchange (NI<sub>A</sub>) calculation; and (2) Frequency transducers to be used as the instantaneous actual frequency (f<sub>A</sub>) source for the Reporting ACE equation.</p> <p>The PRT also considered comments in the NOPR on control center devices and concluded that metering devices at each common point agreed to between Adjacent Balancing Authorities should be sufficiently accurate if they are employed in the calculation of the Balancing Authority’s Reporting ACE. The SDT should verify or update the specifications for accuracy of these devices. In addition, the PRT’s recommended revisions to BAL-005 R17 require that accuracy of such devices be verified to meet the specified accuracy requirements at least annually and, if they do not pass, be calibrated to the specified tolerances.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 406 (S- Ref 10033 – BAL-005)</p> <p>“Given that most of the commenters’ concerns over the inclusion of DSM as part of regulating reserves relate to the technical requirements, the Commission clarifies that to qualify as regulating reserves, these resources must be technically capable of providing the service. In particular, all resources providing regulation must be capable of automatically responding to real-time changes in load on an equivalent basis to the response of generation equipped with automatic generation control. From the examples provided above, the Commission understands that it may be technically possible for DSM to meet equivalent requirements as conventional generators and expects the Reliability Standards development process to provide the qualifications they must meet to participate. These qualifications will be reviewed by the Commission when the revised Reliability Standard is submitted to the Commission for approval.”</p>	<p>FERC Order No. 693</p>	<p>BAL-001-2, BAL-002-2, and BAL-003-1 are not prescriptive in the qualification requirements for resources that may be used by the Balancing Authority. The PRT recommends that the Standards Drafting Team revise BAL-005 to ensure that it is similarly resource neutral. The PRT recommends that the SDT consider whether the term AGC is needed within the requirements, along with revising the name of the standard to “Balancing Authority Control” to remove the implication that BAL-005 pertains exclusively to generation. In addition, the PRT recommends revising the definition of AGC to acknowledge that resources utilized under AGC are not exclusive to conventional generation. The definition of AGC may be revised as follows:</p> <p><b>AGC:</b> Equipment that automatically adjusts <del>generation resources utilized</del> in a Balancing Authority Area from a central location to maintain the Balancing Authority’s Reporting ACE within the bounds required under the NERC Reliability Standards. Resources utilized under AGC may include conventional generation, variable energy resources, storage devices and loads acting as resources, such as Demand Response. <del>may interchange schedule plus Frequency Bias. AGC may also accommodate automatic inadvertent payback and time error correction.</del></p> <p>The FERC approved retirement of BAL-005-0.2b Requirement R2 effective January 21, 2014, which required the Balancing Authority to maintain Regulating Reserve that could be controlled by AGC to meet the Control Performance Standard (BAL-001). In addition to this change, the PRT recommendations to the SDT regarding BAL-005 include the removal of any reference to “regulation service”, as the BA control of resources to comply with the NERC BAL Standards is not tied to any one specific resource or reserve type. With the requirement to maintain regulating reserve now removed, and references to regulation service recommended for removal as well, the PRT recommendations should not only put BAL-005 on the path of being resource neutral similar to the other BAL Standards, but also not prescriptive on the type of reserves the Balancing Authority utilizes. With these changes, the PRT believes that FERC’s directive to provide the qualifications that DSM must meet for provision of the regulation ancillary service may no longer be applicable. Since FERC has approved removing R2 subsequent to issuing this directive, there is no longer a basis for prescribing a qualification process for Regulating Reserve.</p> <p>The PRT recommendations focus on the components that will make up Reporting ACE which will be used to determine compliance to the BAL-001 and BAL-002 Standards. Since the FERC directive was issued, RTOs have actively worked with DR and non-conventional resources under their Tariffs to address not only the provision of regulation service, but also provision of operating reserves for contingencies. Moreover, the PRT recommendations would remove all implications to the types of resources and reserves utilized by the BA to meet its control performance requirements, rendering moot commenter’s concerns over inclusion of DSM as part of regulating reserves with respect to BAL-005, and obviating the need to specify qualifications for regulating reserves.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 418 (S- Ref 10034 – BAL-005)</p> <p>“The Commission adopts the NOPR proposal to require the ERO to modify the Reliability Standards to include a Measure that provides for a verification process over the minimum required automatic generation control or regulating reserves a balancing authority maintains.”</p>	<p>FERC Order No. 693</p>	<p>FERC approved retirement of BAL-005-0.2b Requirement R2 effective January 21, 2014, which had required the Balancing Authority to maintain Regulating Reserve that could be controlled by AGC to meet the Control Performance Standard (BAL-001). In addition to this change, the PRT recommendations to the SDT regarding BAL-005 include retiring any reference to “regulation service” and “regulating reserve”, as the BA control of resources to comply with the NERC Standards is not tied to any one specific reserve type. With the requirement to maintain regulating reserve now removed, the PRT believes that FERC’s directive for the standard to prescribe a verification process for that regulating reserve may no longer be applicable. Since FERC has approved removing R2 subsequent to issuing this directive, there is no longer a basis for having the Measure.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 419 (S- Ref 10035 – BAL-005)</p> <p>“FirstEnergy has a number of suggestions to improve the existing Reliability Standard and the ERO is directed to consider those suggestions in its Reliability Standards development process.”</p> <p><b>NOTE: This directive is addressed above at S- Ref 10031.</b></p>	<p>FERC Order No. 693</p>	<p>The PRT considered stakeholder suggestions identified in the directives and addressed those in response to P 415 above, which states:</p> <p>The PRT considered the comments to the FERC Notice of Proposed Rulemaking pertaining to BAL-005 R17, which in part resulted in our recommendation to revise R17 to only include metering equipment with output directly employed in the calculation of Reporting ACE and to include the following points of measure: (1) metering equipment used for instantaneous Tie-Line MW readings that are part of the Actual Net Interchange (NI<sub>A</sub>) calculation; and (2) Frequency transducers to be used as the instantaneous actual frequency (f<sub>A</sub>) source for the Reporting ACE equation.</p> <p>The PRT also considered comments in the NOPR on control center devices and concluded that metering devices at each common point agreed to between Adjacent Balancing Authorities should be sufficiently accurate if they are employed in the calculation of the Balancing Authority’s Reporting ACE. The SDT should verify or update the specifications for accuracy of these devices. In addition, the PRT’s recommended revisions to BAL-005 R17 require that accuracy of such devices be verified to meet the specified accuracy requirements at least annually and, if they do not pass, be calibrated to the specified tolerances.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 428 (S- Ref 10036 – BAL-006)</p> <p>“The Commission directs the ERO to develop a modification to BAL-006-1 that adds Measures concerning the accumulation of large inadvertent imbalances and Levels of Non-Compliance. . . [W]e are concerned that large imbalances represent dependence by some balancing authorities on their neighbors and are an indication of less than desirable balancing of generation with load. The Commission also notes that the stated purpose of this Reliability Standard is to define a process for monitoring balancing authorities to ensure that, over the long term, balancing authorities do not excessively depend on other balancing authorities in the Interconnection for meeting their demand or interchange obligations.”</p>	<p>FERC Order No. 693</p>	<p>The PRT consensus is that an Inadvertent Interchange accumulation value alone cannot yield useful information concerning whether a Balancing Authority is operating reliably. Frequency and Inadvertent Interchange payback may have a significant impact on the monthly Inadvertent Interchange on and off-peak values; for example, if the off-peak frequency is chronically high during a year, negative monthly off-peak Inadvertent Interchange energy values may simply be reflecting that the Balancing Authority was properly providing its frequency bias obligation to its Interconnection.</p> <p>The PRT discussed when the incentive for “leaning” on the Interconnection moves from being an economic issue to being a reliability issue. Under the current BAL-001-1 Requirement R2 (a.k.a. “CPS2”), each BA is required to operate such that its average ACE for at least 90% of clock ten-minute periods (6 non-overlapping periods per hour) during a calendar month is within a specific limit, referred to as L<sub>10</sub>. Though there are valid reasons supporting why the 90% requirement for CPS2 has been an appropriate measure of performance given the real-time challenges Balancing Authorities face in managing resources and demand, it did also open up the possibility that a BA could lean on the system for multiple ten-minute periods, and manage performance better at other times in the month to ensure the 90% performance requirement was met. The SAR supporting the development of the Balancing Authority ACE Limit (“BAAL”), approved for Project 2007-18 and later merged into Project 2010-14, was aimed at addressing that gap, specifically periods when the Reporting ACE of a Balancing Authority is negatively impacting the Interconnection frequency beyond a predefined bound.</p> <p>NERC BAL-001-2, developed and successfully balloted under Project 2010-14, and subsequently approved by the NERC BOT, includes a revision to BAL-001 replacing CPS2 with the BAAL, which requires that a Balancing Authority’s clock-minute ACE not exceed the BAAL for more than 30 consecutive clock-minutes. It is the first time that BAL-001 has included such a “real-time” measure of control performance. By the nature of the requirement, System Operators must have situational awareness of the information necessary to ensure compliance, including resource availability, reserves, and projected load. Requirement 1 (a.k.a. “CPS1”) was retained in the standard, which has been a long-standing rolling 12-month measure of overall control performance using clock-minute performance data. For the first time, both control performance requirements in BAL-001 have measures that consider Interconnection frequency in the bounds that the Balancing Authority must operate to and measure its performance, limiting operation when detrimental to Interconnection frequency and encouraging operation when in support of Interconnection frequency.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 438 (S- Ref 10037 – BAL-006)</p> <p>“Since the ERO indicates that the reliability aspects of this issue will be addressed in a Reliability Standards filing later this year, the Commission asks the ERO, when filing the new Reliability Standard, to explain how the new Reliability Standard satisfies the Commission’s concerns.”</p>	<p>FERC Order No. 693</p>	<p>The Standards Drafting Team assigned to this project will modify the regional differences so that they reference the current Reliability Standards and are in the standard form, which includes Requirements, Measures and Levels of Non-Compliance.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 444 (S- Ref 10038 – BAL-006)</p> <p>“[T]he Commission directs the ERO to modify the regional differences so that they reference the current Reliability Standards and are in the standard form, which includes Requirements, Measures and Levels of Non-Compliance. The ERO should explore FirstEnergy’s request to define the function of a waiver in its Reliability Standards development process.”</p>	<p>FERC Order No. 693</p>	<p>The Standards Drafting Team assigned to this project will modify the regional differences so that they reference the current Reliability Standards and are in the standard form, which includes Requirements, Measures and Levels of Non-Compliance. With respect to First Energy’s request for NERC to define the function of a waiver in its Reliability Standards development process, the PRT believes the FERC directive has since been addressed as Section 6.3 of the latest NERC Standards Process Manual states:</p> <p>“If the conduct of a field test (concepts or Requirements) or data collection and analysis could render Registered Entities incapable of complying with the current Requirements of an approved Reliability Standard that is undergoing revision, the drafting team shall request a temporary waiver from compliance to those Requirements for entities participating in the field test. Upon request, the Standards Committee shall seek approval for the waiver from the Compliance Monitoring and Enforcement Program prior to the approval of the field test or data collection and analysis.”</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 1896 (S- Ref 10001 – BAL-002 and -005)</p> <p>“[The Commission adopts] the NOPR proposal to require the ERO to submit a modification to the glossary that updates the definition of ‘operating reserves,’ as required in our discussion of BAL-002-0 and BAL-005-0.”</p>	<p>FERC Order No. 693</p>	<p>Revisions to BAL-002 are under consideration by the industry under Project 2010-14.2. The PRT has suggested revisions to BAL-005 so that the Standard is resource neutral.</p>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 396 (S- Ref 10029 – BAL-005)</p> <p>“[T]he Commission directs the ERO to modify BAL-005-0 through the Reliability Standards development process to develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped into or out of the balancing authority.”</p>	<p>FERC Order No. 693</p>	<p>FERC approved retirement of BAL-005-0.2b Requirement R2 effective January 21, 2014, which had required the Balancing Authority to maintain Regulating Reserve that could be controlled by AGC to meet the Control Performance Standard (BAL-001). In addition to this change, the PRT recommendations to the SDT regarding BAL-005 include retiring any reference to “regulation service” and “regulating reserve”, as the BA control of resources to comply with BAL-001 and BAL-002 is not tied to any one specific reserve type. With the requirement to maintain regulating reserve now removed, the PRT believes that FERC’s directive to develop a process to calculate the minimum regulating reserve may no longer be applicable. Since FERC has approved removing R2 subsequent to issuing this directive, there is no longer a basis for having the process.</p> <p>The PRT notes that the BOT-approved BAL-001-2, which is written under the RBS framework, provides requirements which cannot reasonably be met without appropriate planning of expected load and resource variation and consideration of the transactions ramped into or out of the BA. Specifically, under the new Balancing Authority ACE Limit (“BAAL”), the Balancing Authority must ensure that its Reporting ACE does not move outside the applicable BAAL bound for more than 30 consecutive clock-minutes. With such a requirement in place, the BA will have to maintain situational awareness of the resources and reserves available, transactions being ramped into or out of the BA Area, and other real-time variables in order to ensure compliance.</p> <p>The Reliability Guideline on Operating Reserve Management<sup>1</sup> posted in the NERC website provides BAs with additional guidance on what should be considered in the development of regulation reserves and the interplay with contingency and frequency responsive reserve. The Reliability Guideline is intended to provide recommended practices for the management of an appropriate mix of Operating Reserve. Also it provides guidance with respect to the management of Operating Reserve required to meet the NERC Reliability Standards. Overall, the Reliability Guideline guides responsible entities toward the best practices for management of the Operating Reserve types by dividing them into individual components to provide visibility and accountability.</p>

<sup>1</sup> <http://www.nerc.com/comm/OC/Reliability%20Guideline%20DL/Operating%20Reserve%20Management%20Guideline%20-%2020130718.pdf>

Project 2010-14.2 Resource and Demand Balancing (BARC 2)

Issue or Directive	Source	Consideration of Issue or Directive
<p>P 404 (S- Ref 10030 – BAL-005)</p> <p>“[T]he Commission agrees with commenters that this Reliability Standard applies to regulating reserves and not contingency reserves. The references to contingency reserves under this Reliability Standard in the NOPR are confusing. The Commission clarifies that its direction to the ERO in this section is for it to develop a modification to BAL-005-0 through the Reliability Standards development process that changes the title of the Reliability Standard to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM and direct control load management as regulating reserves, subject to the clarifications provided in this section.”</p>	<p>FERC Order No. 693</p>	<p>The PRT recommends changing the title of BAL-005 to “Balancing Authority Control” to better reflect the focus of the suggested revisions to BAL-005 for acquiring necessary data for the Balancing Authority to calculate Reporting ACE so that balancing of resources and demand can be achieved under Tie-Line Bias Control. The PRT also recommends revising the definition of Automatic Generation Control (AGC), to be neutral regarding the types of resources used under AGC. The definition of AGC may be revised as follows:</p> <p><b>AGC:</b> Equipment that automatically adjusts <del>generation</del> resources utilized in a Balancing Authority Area from a central location to maintain the Balancing Authority’s Reporting ACE within the bounds required under the NERC Reliability Standards. Resources utilized under AGC may include conventional generation, variable energy resources, storage devices and loads acting as resources, such as Demand Response. <del>may interchange schedule plus Frequency Bias. AGC may also accommodate automatic inadvertent payback and time error correction.</del></p> <p>FERC approved retirement of BAL-005-0.2b Requirement R2, which had required the Balancing Authority to maintain Regulating Reserve that could be controlled by AGC to meet the Control Performance Standard, effective January 21, 2014. The PRT recommendations to the SDT include retiring any references in BAL-005 to “regulation service” and “regulating reserve”, as the BA control of resources to comply with BAL-001 and BAL-002 is not tied to any one specific reserve type. The PRT also recommends other revisions to BAL-005, where needed, to maintain resource neutrality.</p> <p>With the requirement to maintain Regulating Reserve now removed, and the other suggested revisions mentioned above, the PRT believes that the title, purpose and stated requirements will be neutral to the type of resources and reserves utilized to comply with the NERC Standards. Since FERC has approved removing R2 subsequent to issuing this directive, there is no longer a basis for assuring other types of qualified resources are considered for inclusion within Regulating Reserve within BAL-005.</p>