
Project QC-2021-05

Reliability Standard BAL-003-2 – Frequency Response and Frequency Bias Setting

1. OVERVIEW

1.1. Applicability

The following table lists the functional entities to which BAL-003-2, the standard proposed for adoption, applies.

Standard	Functional entities
BAL-003-2	Balancing Authority (BA) Frequency Response Sharing Group (FRSG) ¹

The standard applies only to Balancing Authorities (BAs) and, in the case of Interconnections with multiple BAs, to Frequency Response Sharing Groups (FRSGs). As balancing of the Québec Interconnection is the responsibility of a single BA, this standard applies only to Hydro-Québec's Direction – Contrôle des mouvements d'énergie.

1.2. Purpose of the standard

This section describes the purpose of the standard that is the subject of this request. The title of the standard is given below, followed by its purpose.

- **BAL-003-2 – Frequency Response and Frequency Bias Setting:** To require sufficient Frequency Response from the Balancing Authority (BA) to maintain Interconnection frequency within predefined bounds by arresting frequency deviations and supporting frequency until the frequency is restored to its scheduled value. To provide consistent methods for measuring Frequency Response and determining the Frequency Bias Setting.

In the English version of standard BAL-003-2, the purpose of the standard remains the same as in the preceding version, that is, standard BAL-003-1.1. Some improvements have, however, been made in the translated (French) version of the standard, but they are not substantive. For example, the term Balancing Authority (BA) was added at the beginning of the sentence so that the translation would be closer to the English version of the standard. These improvements can be seen in the French version of the standard with tracked changes submitted herewith.

1. A group whose members consist of two or more Balancing Authorities that collectively maintain, allocate and supply operating resources required to jointly meet the sum of the Frequency Response Obligations of its members.

1.3. Regulatory context

This standard replaces standard BAL-003-1.1, adopted by the Régie de l'énergie (the Régie) in Decision D-2017-012.² Standard BAL-003-1.1 has been in effect in Québec since April 1, 2017.

Adopted by the NERC Board of Trustees on November 5, 2019, and approved by the Federal Energy Regulatory Commission (FERC) on July 15, 2020 (FERC Letter Order, Docket No. RD20-9-000³), standard BAL-003-2 has been in effect in the United States since December 1, 2020.

Standard BAL-003-2 was developed by NERC in Phase I of Project 2017-01,⁴ a two-phase project. Phase I is the phase that this request concerns. Section 2 below explains in greater detail what this first phase entailed.

Phase II marked the start of a comment period at NERC in April 2021. In this phase, a new version of standard BAL-003 will be produced. In sum, the objective of this phase is to modify the standard for better alignment with its purpose. More specifically, the NERC drafting team plans to:

- Review the Interconnection Frequency Response Obligation (IFRO) calculation
- Determine if additional reliability entities (e.g., Generator Owners and Generator Operators) should have responsibility
- Review the measurement methodology of Frequency Response (both System and equipment level)

For more information about the content studied by NERC and the reasons for Phase II, the Coordinator suggests consulting the Phase II white paper available on the NERC website.⁵

The drafting of a new version of standard BAL-003 in Phase II does not prevent the Régie from adopting standard BAL-003-2. In fact, NERC Project 2017-01⁶ was designed to be carried out in two separate phases, and Phase I culminated in the adoption of standard BAL-003-2.

1.4. Special provision for Québec

The Coordinator proposes that the special provision for Québec under Requirement R2 in the preceding standard (BAL-003-1.1) be maintained:

In Québec, a Frequency Bias Setting becomes mandatory only on approval by the Régie. Any Québec Interconnection Balancing Authority that receives a Frequency Bias Setting change request must send it to the Reliability Coordinator, who will submit it to the Régie for approval.

2. Decision D-2017-012, Régie de l'énergie, retrieved January 28, 2021, at http://publicsde.regie-energie.qc.ca/projets/332/DocPri/R-3944-2015-A-0068-Dec-Dec-2017_02_03.pdf.

3. FERC Letter Order, Docket No. RD20-9-000, retrieved January 28, 2021, at <https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Letter%20Order%20Approving%20BAL-003-2.pdf>.

4. NERC Project 2017-01, retrieved April 13, 2021, at <https://www.nerc.com/pa/Stand/Pages/Project201701ModificationstoBAL00311.aspx>.

5. NERC Project 2017-01 White Paper, retrieved May 19, 2021, at https://www.nerc.com/pa/Stand/Project201701ModificationstoBAL00311/2017-01%20Phase%20II%20White%20Paper%20RS%20endorsed_032021.pdf.

6. See Note 4.

The Coordinator is of the opinion that the special provision under Requirement R2 is still applicable in this new version of standard BAL-003, given that no changes were made in the wording of this requirement and that the Québec Interconnection has only a single Balancing Authority. Also, the Régie is the sole authority regarding requests to be formulated to a functional entity and adoption of standards. This special provision was introduced further to the request formulated by the Régie in paragraph 46 of Decision D-2017-012.⁷

1.5. Proposed effective date

The implementation plan for NERC project 2017-01⁸ calls for standard BAL-003-2 to come into effect at the start of the first operating year (December 1) that occurs at least 90 days after the standard's approval by the applicable governmental authority.

The Coordinator points out that the Régie's established practice is for standards to come into force on the first day of a calendar quarter⁹ and for there to be at least 60 days¹⁰ between a standard's date of adoption and its effective date.

The Coordinator notes, however, that standard BAL-003-2 cannot come into force as per regulatory practice on the first day of a calendar quarter since the effective date must be December 1, that is, the start of an operating year in the meaning of standard BAL-003-2.

Considering the Régie's regulatory practices and the importance of standardized practices and of effective mandatory standards being harmonized with the United States, and considering as well that the only entity to which standard BAL-003-2 applies in Québec is the Reliability Coordinator in the function of Balancing Authority, the Coordinator is of the opinion that the Régie may depart from NERC's implementation plan and reduce the 90-day lead time for the coming into force of the standard to 60 days.

Should the Régie render a decision before October 1, 2021, it would be possible for the standard to come into effect on December 1, 2021, that is, the start of an operating year in the meaning of standard BAL-003-2.

Should the Régie's decision be rendered after October 1, 2021, the Coordinator proposes to the Régie that the effective date be December 1, 2022, also the start of an operating year in the meaning of standard BAL-003-2.

1.6. Standards and requirements to retire

This submission calls for retirement of the following standards:

To retire	Comments
BAL-003-1.1	Standard BAL-003-1.1, effective in Québec since April 1, 2017, must be retired when standard BAL-003-2 comes into effect.

7. See Note 2.

8. Implementation Plan for Project 2017-01, retrieved February 9, 2021, at https://www.nerc.com/pa/Stand/Project201701ModificationstoBAL00311/Project_2017_01_Implementation%20Plan%20BAL_003_2_October_2019_clean.pdf.

9. In Decision [D-2015-168](#), the Régie set the effective date of standards as the first day of the first calendar quarter following the date of adoption of the standard.

10. In Decision [D-2016-011](#), the Régie set a minimum of at least 60 days between adoption of a standard and its effective date.

1.7. Changes to the Glossary

In translating standard BAL-003-2, the Coordinator noted a distinction between the terms Actual Net Interchange and Net Actual Interchange in the NERC Glossary of terms. Upon verification, the Coordinator noted the same type of distinction between the terms Net Scheduled Interchange and Scheduled Net Interchange.

To briefly put this in context, in Docket R-4104-2019 the Coordinator submitted to the Régie amendments to the Glossary modifying the terms Net Actual Interchange and Net Scheduled Interchange. However, the Coordinator's amendments were not in line with the NERC glossary of terms. The Coordinator's interpretation of the amendments to the Glossary proposed by NERC was different from what NERC specified.

To remedy this, the Coordinator proposes amendments to the Glossary in the document *Modifications au Glossaire*, which specifies the changes to be made to the French as well as to the English versions of the Glossary.

The Coordinator notes as well that the amendments described in the document *Modifications au Glossaire* are to take effect on July 1st 2021, thus coinciding with the effective date of the BAL-003-2 standard.

2. ASSESSMENT OF RELEVANCE

Frequency Response is an essential measure of an Interconnection's capacity to maintain frequency in case of load or generation loss. Knowledge of expected Frequency Response is especially important during disturbances or when restoring power. In fact, an inability to maintain frequency within predefined bounds can lead to Misoperation of equipment and even tripping of generating station equipment to prevent damage to the equipment, which can lead to major blackouts.

In sum, the adoption of the preceding version of standard BAL-003 in Decision D-2017-012¹¹ clearly demonstrates the importance of ensuring that every Interconnection has sufficient Frequency Response to prevent tripping or failure of equipment, and hence major blackouts.

As mentioned previously, standard BAL-003-2 was developed as part of NERC project 2017-01.¹² The project called for revision of standard BAL-003 in two separate phases. It is Phase I of NERC project 2017-01 that this request concerns.

Following is a summary of the key elements of Phase I:

Phase I involved correcting weaknesses discovered when the preceding version of the standard¹³ was implemented and improving the efficiency of administrative processes for application of the standard.

11. Decision D-2017-012 of the Régie, retrieved March 3, 2021, at http://publicsde.regie-energie.qc.ca/projets/332/DocPri/R-3944-2015-A-0068-Dec-Dec-2017_02_03.pdf.

12. See note 4.

13. That is, standard BAL-003-1.1, currently in effect in Québec.

More specifically, data collected after implementing standard BAL-003-1.1 revealed minor errors in the initial standard implementation assumptions and minor inefficiencies. The tasks in Phase I were thus as follows:

- Revise the method of Interconnection Frequency Response Obligation (IFRO) calculation
- Reevaluate the Interconnections' Resource Contingency Protection criteria
- Reevaluate the frequency nadir point (point C) so it more accurately reflects reality
- Review and modify Attachment A of the Reliability Standard to remove administrative tasks and provide additional clarity related to Frequency Response Sharing Groups (FRSGs) and the timeline for Balancing Authority activities with respect to Frequency Response and Frequency Bias Setting
- Make enhancements to the FRS Forms that include, but may not be limited to, the ability to collect and submit FRS performance data

In sum, making the fixes to standard BAL-003-2 listed above will mean a more robust Frequency Response thanks to clarified criteria.¹⁴

On July 15, 2020, FERC approved NERC's petition for approval of standard BAL-003-2. In particular, FERC stated that this new version makes the standard more efficient by refining and clarifying the process and method for calculating Frequency Response, a measurement that FERC considers necessary to support reliable operation of the grid.¹⁵

In addition, neighboring systems, including those of New Brunswick¹⁶ and Ontario,¹⁷ have also adopted standard BAL-003-2.

Given the information outlined above regarding standard BAL-003-2 and the fact that it was developed by agencies recognized in North America (including in Québec and in neighboring territories) and in compliance with the agreement signed in 2009 by the Régie, NERC and the NPCC, with the authorization of the Québec government,¹⁸ the Coordinator is of the opinion that standard BAL-003-2 contributes to the reliability of the Québec grid.

14. For more information on the substance of the modifications to standard BAL-003-1.1, consult NERC's Project 2017-01 Standards Authorization Request form at https://www.nerc.com/pa/Stand/Project201701ModificationstoBAL00311/2017_07_SAR_Clean_April2018.pdf.

15. See note 3.

16. Reliability standards on the website of the New Brunswick Energy and Utilities Board, retrieved March 3, 2021, at <https://nbeub.ca/reliability-standards>.

17. NERC system reliability standards enforcement dates on the website of the Independent Electricity System Operator (Ontario), retrieved March 3, 2021, at <https://www.ieso.ca/en/Sector-Participants/System-Reliability/Enforcement-Dates>.

18. Agreement signed in compliance with Order-in-Council 443-2009, issued April 8, 2009. http://www.regie-energie.qc.ca/audiences/normes_fiab_trans_elec/Entente_Regie_NERC_NPCC_5mai09.pdf.

3. PRELIMINARY IMPACT ASSESSMENT

This section presents the Reliability Coordinator's preliminary impact assessment.

BAL-003-2	Low	Moderate	High
Implementation of the standard	X		
Enforcement of the standard	X		
Compliance monitoring	X		

Legend

Low: Normal industry practice or standard that only requires minor adjustments to existing processes or practices.

Moderate: Change that requires the mobilization of some physical, human or financial resources to implement the proposed standard, enforce it or monitor its compliance.

High: Change that requires provision and mobilization of significant physical, human or financial resources to plan and implement the proposed standard, enforce it or monitor its compliance.

FINAL IMPACT ASSESSMENT

This section will be completed upon receipt of the impact assessment forms and at the conclusion of the consultation process prior to filing of the standard with the Régie.