
Project QC-2021-04

IRO-002-7 – Reliability Coordination – Monitoring and Analysis and TOP-001-5 – Transmission Operations

1. OVERVIEW OF THE STANDARDS

1.1. Applicability

The functions covered by the IRO-002-7 and TOP-001-5 standards are indicated in the table below:

Standard	Functions covered
TOP-001-5	Balancing Authority (BA) Transmission Operator (TOP) Generator Operator (GOP) Distribution Provider (DP)
IRO-002-7	Reliability Coordinator (RC)

1.2. Purpose of the Reliability Standard

The purpose of TOP-001-5 is to prevent instability, uncontrolled separation or Cascading outages that adversely impact the reliability of the Interconnection by ensuring prompt action to prevent or mitigate such occurrences.

The purpose of IRO-002-7 is to provide System Operators with the capabilities necessary to monitor and analyze data needed to perform their reliability functions.

1.3. Regulatory Context

The Régie de l'énergie (hereinafter, the "Régie") adopted IRO-002-4 and TOP-001-3 in Decision D-2017-067¹ and set July 1, 2017, as the date of their coming into force in Québec with specific provisions regarding applicability of the standards to the Main Transmission System (RTP) and as well as specific provisions concerning generation facilities for industrial use. In its decision D-2021-047², the Régie adopted the same IRO-002-4 and TOP-001-3 standards filed in Phase 2 of the R-4001-2017 filing with new specific provisions regarding the applicability of the standards and set April 1, 2022 as their effective date with an implementation date of August 1, 2022.

Since these versions, three (3) new versions of IRO-002 and two (2) versions of TOP-001 that have been approved by FERC. A summary of the regulatory context of these standards in the United States is presented below:

¹. Régie de l'énergie, Décision D-2017-061, consulted on March 11, 2021, at:
http://publicsde.regie-energie.qc.ca/projets/404/DocPrj/R-4001-2017-A-0005-Dec-Dec-2017_06_16.pdf.

² Régie de l'énergie, decision D-2021-047, filing R-4001-2017 Phase 2, consulted on April 19, 2021 at : https://sde.regie-energie.qc.ca/projets/404/DocPrj/R-4001-2017-A-0034-Dec-Dec-2021_04_15.pdf

i. IRO-002-5 and TOP-001-4 reliability standards

The modifications to the IRO-002-5 and TOP-001-4 standards are in response to a FERC Order 817³ and were addressed in NERC's *2016-01 Modifications to TOP-IRO standards review project*.⁴

The NERC Board of Trustees adopted IRO-002-5 and TOP-001-4 on February 9, 2017. FERC approved these versions in a letter order dated April 17, 2017, in Docket No. RD17-4-000⁵, with an effective date of October 1, 2017 for the IRO-002-5 standard and July 1, 2018 for the TOP-001-4 standard.

ii. IRO-002-6 reliability standard

Version IRO-002-6, relevant only to the Western Electricity Coordinating Council (WECC) Interconnection, was adopted by NERC on May 9, 2019 and approved by FERC in a letter order dated July, 11 2019, in Docket No. RD19-6-000.⁶

iii. IRO-002-7 and TOP-001-5 reliability standards

As for the modifications to the new IRO-002-7 and TOP-001-5 standards, they are in response to the first phase of the NERC *Standards Efficiency Review (SER)* project which aimed at identifying Reliability Standard requirements that are redundant and provide little or no benefit to reliability or are more administrative in nature. The Coordinator will refer to this NERC project again in the context of future filings⁷.

The NERC Board of Trustees adopted the latest revisions of IRO-002-7 and TOP-001-5 on May 9, 2019 and FERC approved these latest revisions of IRO-002-7 and TOP-001-5 in Order 873⁸ on September 17, 2020.

1.4. Specific Provisions for Québec

i. IRO-002-7

The Coordinator is proposing to renew the following specific provisions adopted by the Régie in its decision D-2021-047:

- Applicability of the standard to the facilities of the Main Transmission System (RTP), and for requirement R5, to the facilities designated under this requirement,
- For requirement R5, replace the term “non-BES” with the term “non-RTP” for the Facilities within the RC’s Area.

ii. TOP-001-5

The Coordinator proposes to renew the following Québec specific provisions applicable to the requirement R3 adopted by the Régie in its decision D-2021-047 and proposes the following additional specific provisions applicable to requirement R10:

³ FERC Order 817, consulted online on xx, 2021 at : https://www.ferc.gov/sites/default/files/2020-04/E-10_2.pdf

⁴ NERC, Project 2016-01 Modifications to TOP and IRO Standards, consulted on March 11, 2021 at: <https://www.nerc.com/pa/Stand/Pages/Project-2016-01-Modifications-to-TOP-and-IRO-Standards.aspx>.

⁵ FERC, Letter order in Docket No. RD17-4-000, consulted on March 11, 2021, at: <https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Delegated%20Order%20Approving%20IRO-002-5%20and%20TOP-001-4.pdf>.

⁶ FERC, Letter order in Docket No. RD19-6-000, consulted on March 11, 2021, at: <https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/FERC-IRO-002-6.pdf>.

⁷ The SER refers to a number of other standards. The Coordinator will propose revisions to those standards in future files. The full scope of NERC Project 2018-03 can be found at: <https://www.nerc.com/pa/Stand/Pages/Project-2018-03-Standards-Efficiency-Review-Retirements.aspx>.

⁸ FERC, Docket No. RD-19-16-000 and RM19-17-000, Order No. 873, consulted on March 11, 2021, at: <https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20on%20SER%20Retirements.pdf>

- Specific provision applicable to Requirement R3 for the Distribution Provider in regards to load shedding;
- With the exception of Requirement R10.6, the applicable facilities for this standard are the facilities of the Main Transmission System (RTP). Requirement R10.6 requires obtaining and the usage of status, voltages, and flow data for non-BES facilities outside the Transmission Operator Area identified as necessary by the Transmission Operator. As the RTP does not exist outside the Transmission Operator Area, the scope remains BES.
- The Requirement R10.1 only applies to the facilities of the Main Transmission System (RTP)
- Replace the term “non-BES” with the term “non-RTP” in Requirement R10.3.

1.5. Proposed Effective Dates

i. TOP-001-4 and IRO-002-5

IRO-002-5 and TOP-001-4 became effective in the United States on July 1, 2018, and October 1, 2017, respectively. The NERC Implementation Plan⁹ prescribed a period of three months between regulatory approval and effective date for IRO-002-5 and twelve months between regulatory approval and effective date for TOP-001-4.

ii. IRO-002-6

IRO-002-6 became effective in the United States on January 1, 2020 and its implementation plan is only relevant for the Western Electricity Coordinating Council (WECC) region.

iii. IRO-002-7 and TOP-001-5

As for IRO-002-7 and TOP-001-5, they come into effect on April 1, 2021 and the NERC implementation plan¹⁰ allowed for a period of 3 months between regulatory approval and the implementation of the standards.

Since two versions of the TOP-001 standard with different implementation delays have been approved by FERC since the last version of the standard approved by the Régie, three different effective dates would be required to reflect the changes made to the standard. These three dates would include retirement and additions of requirements which, in the end could cause confusion in regards to entry dates. The objective being to avoid confusion with the entre dates, the Coordinator proposes an effective date for the TOP-001-5 standard that is 12 months following regulatory approval, as was granted in the United States for the TOP-001-4 standard. The following tables summarize the proposed effective dates:

⁹ NERC, Implementation Plan, consulted on March 11, 2021, at:

https://www.nerc.com/pa/Stand/Project%20201601%20Modifications%20to%20TOP%20and%20IRO%20Standards/Implementation%20Plan_2016_01_clean_Nov_27_2016.pdf.

¹⁰ Project 2018-03 Implementation Plan, consulté le 11 mars 2021, au :

https://www.nerc.com/pa/Stand/Project%20201803%20Standards%20Efficiency%20Review%20Require/2018-03_clean_Implementation_Plan_04232019.pdf

TOP-001-5	Effective date in the United States	Proposed Effective Date in Québec
All requirements	12 months following regulatory approval	First day of the first calendar quarter that is 12 months after regulatory approval.

IRO-002-7	Effective date in the United States	Proposed Effective Date in Québec
All requirements	3 months following regulatory approval	<p>First day of the first calendar quarter that is 3 months after regulatory approval.</p> <p>All Requirements become effective on August 1, 2022.</p>

1.6. Standards or Requirements to Retire

The IRO-002-4 and TOP-001-3 standards, adopted by the Régie in its Decision D-2021-047 and which come into effect on April 1, 2022, are to be retired once IRO-002-7 and TOP-001-4 come into effect.

1.7. Modifications to the Glossary

None.

2. ASSESSMENT OF RELEVANCE

IRO-002-5 and TOP-001-4 followed upon FERC Order No. 817 to address the following concerns:

- TOP-001-3 Requirement R10 does not provide for the TOP to monitor the non-BES Elements in its area in order to determine SOL exceedances.
- The TOP and IRO standards were not clear regarding the RCs, BAs and TOPs obligation to have redundant and diversely routed data exchange capabilities within their primary Control Center as well as the requirement to test alternate or less frequently used data exchange capability.
- The TOP and IRO standards were not clear regarding the RCs, BAs and TOPs obligation to test alternate or less frequently used redundant and diversely routed data exchange capabilities.

The IRO-002-7 and TOP-001-5 standards emerged from NERC's Standards Efficiency Review (SER) project with the purpose of identifying and retiring Reliability Standard requirements that provide little or no benefit to reliability.

The table below summarizes the changes in each revision of the standard since the IRO-002-4 and TOP-001-3 versions adopted by the Régie. Full information on NERC's rationale for retiring requirements may be found in the Project 2018-03 documentation, particularly the Technical Rationale¹¹ document¹¹.

Version	Modification from previous version
IRO-002-5	Added Requirement R2 and R3 requiring the RC to have redundant and diversely routed data exchange capabilities within the RC's primary Control Center, as well as the requirement to test for redundant functionality at least once every 90 days.
IRO-002-6	WECC variance, not applicable in the Québec Interconnection.
IRO-002-7	Retirement of Requirement R1 (applicable to the RC0, as it is redundant with IRO-008-2 and IRO-010-2. In particular, Requirement R1 of IRO-002-6 is covered by IRO-008-2, R1, which obligates the RC to perform operational planning analyses to assess whether the planned operations for the next-day will exceed System Operating Limits (SOL) and Interconnection Reliability Operating Limits (IROL) within its Wide Area. Additionally, regarding data exchange, the purpose of IRO-010-2 is to prevent instability, uncontrolled separation, or cascading outages "by ensuring the RC has the data it needs to monitor and assess the operation of its Reliability Coordinator Area". Specifically, Requirements R1, R2 and R3 of IRO-010-2 are premised on the existence of data exchange capabilities.
TOP-001-4	Modified Requirement R10 requiring the TOP to monitor the non-BES Elements in its area in order to determine SOL exceedances. Added Requirements R20-R21 and R23-R24 requiring the TOP and BA to have redundant and diversely routed data exchange capabilities within their primary Control Center as well as the requirement to test alternate or less frequently used data exchange capability every 90 calendar days.
TOP-001-5	Retirement of requirements R19 (applicable to the TOP) and R22 (applicable to the BA) of TOP-001-4 as they are redundant with TOP-002-4 (R1 and R4) and TOP-003-3 (E5). Requirements R19 and R22 of TOP-001-4 require the TOP and the BA respectively to have data exchange capabilities with entities from which they need to perform Operational Planning Analyses (OPA) and next-day Operating Plans. TOP-002-4 Requirement R1 requires a TOP to perform an OPA to determine whether next-day operations within its area will exceed System Operating Limits and requirement R4 requires each BA to have a next-day Operating Plan addressing expected generation resource commitment and dispatch, Interchange scheduling and related matters. Furthermore, the TOP-003-3 standard largely mirror Requirements R19 and R22 of TOP-001-4 in which the TOP and the BA must have data exchange capabilities with its reporting entities to satisfy the requirements of Reliability TOP-003-3.

¹¹ NERC Project 2018-03 technical justification, retrieved on March 11, 2021, from https://www.nerc.com/pa/Stand/Project%20201803%20Standards%20Efficiency%20Review%20Require/2018_03_Technical_Rationale_Clean_04232019.pdf.

Furthermore, the neighbouring systems, which are New-Brunswick and Ontario systems, also adopted the SER project proposed Standards.

In accordance with the agreement made in 2009 between the Régie, NERC and the NPCC and with the authorization of the Québec government,¹² this standard was developed and approved by external agencies for North America, including Québec. In the opinion of the Reliability Coordinator, this standard is relevant for system reliability in Québec and the standard contributes to harmonization with neighboring systems.

3. PRELIMINARY IMPACT ASSESSMENT

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

IRO-002-7	Low	Moderate	High
Implementation of the standard		X	
Enforcement of the standard		X	
Compliance monitoring		X	

TOP-001-5	Low	Moderate	High
Implementation of the standard		X	
Enforcement of the standard		X	
Compliance monitoring		X	

Legend:

- Low:** Normal industry practice that only requires minor adjustments to existing processes or practices.
- Moderate:** Change that requires allocation of some physical, human or financial resources to implement the proposed standard, maintain it or monitor its compliance.
- High:** Change that requires allocation of significant physical, human or financial resources to plan and implement the proposed standard, maintain it or monitor its compliance.

4. FINAL IMPACT ASSESSMENT

This section shall be completed upon receipt of the impact assessment forms and at the conclusion of the consultation process prior to filing of reliability standards with the Régie de l'énergie.

¹². Agreement entered into in accordance with Order-in-Council 443-2009 dated April 8, 2009.
http://www.regieenergie.qc.ca/audiences/normes_fiab_tranp_elec/Entente_Regie_NERC_NPCC_5mai09.pdf [in French only].