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## Project QC-2022-02

### TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events

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#### 1. OVERVIEW OF THE STANDARD

##### 1.1. Applicability

This document concerns the adoption of Reliability Standard TPL-007-4 to replace Reliability Standard TPL-007-3.

The table below summarizes the Functional Entities concerned.

Standard	Functional Entities
TPL-007-4	Planning Coordinator (PC) Transmission Planner (TP) Transmission Owner (TO) Generator Owner (GO)

The Reliability Coordinator in Québec (the “Coordinator”) states there is no change in the applicability of standard TPL-007-4 compared to its previous version, standard TPL-007-3.

##### 1.2. Purpose of the Standard

This section describes the purpose of the standard covered by this request. The title and purpose of the standard are as follows:

- **TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events:** Establish requirements for Transmission system planned performance during geomagnetic disturbance (GMD) events.

##### 1.3. Regulatory Context

In compliance with Section 85.6 of the Act Respecting the Régie de l’énergie, the Coordinator is submitting a Reliability Standard developed by North American Electric Reliability Corporation (“NERC”) and its appendix for adoption by the Régie.

**i. Reliability Standard TPL-007-3**

On February 17, 2021, in decision D-2021-015 (French only),<sup>1</sup> the Régie de l'énergie du Québec (the "Régie") adopted Reliability Standard TPL-007-3, which came into effect in Québec on April 1, 2021.

In the United States, Reliability Standard TPL-007-3 consisted primarily in the addition of a variance option for Canadian jurisdictions to:

- Allow Canadian jurisdictions to define and implement alternative benchmark and supplemental GMD events for performing GMD Vulnerability Assessments
- Account for regulatory approval processes in place in some Canadian jurisdictions to implement capital improvements identified in Corrective Action Plans (CAPs)

Docket R-4123-2020<sup>2</sup> was the first regulatory dossier in which Reliability Standard TPL-007 was addressed by a decision of the Régie.

In addition to its importance in ensuring reliability in case of GMD events, standard TPL-007 differs from the usual reliability regimes: unlike other reliability standards, which are prescriptive, TPL-007 is a performance standard.

**ii. NERC Project 2019-01 – Modifications to TPL-007-3**

The purpose of NERC Project 2019-01,<sup>3</sup> Modifications to TPL-007-3, is to address the directives issued by the Federal Energy Regulatory Commission (FERC) in Order No 851.<sup>4</sup> In this order, FERC directed NERC to modify Reliability Standard TPL-007-3 to:

- 1- Require the development and implementation of CAPs to mitigate assessed supplemental GMD event vulnerabilities
- 2- Establish a process for authorizing extensions of time to implement CAPs on a case-by-case basis

Though this was discussed in Docket R-4123-2020, standard TPL-007-4 nonetheless has a new Requirement, R11, which, like Requirement R7, is a performance requirement. Accordingly, the impact cannot be known until some time after the application of other requirements of the standard. The new requirement, R11, is the same as Requirement R7, but for supplemental not benchmark GMD Vulnerability Assessments. Its impacts will be known only after it is put into effect, that is, after April 1, 2026, according to the implementation plan the Coordinator proposes in Section 1.5 herein.

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<sup>1</sup> Régie decision D-2021-015, retrieved February 3, 2022, at [http://publicsde.regie-energie.qc.ca/projets/546/DocPrj/R-4123-2020-A-0017-Dec-Dec-2021\\_02\\_17.pdf](http://publicsde.regie-energie.qc.ca/projets/546/DocPrj/R-4123-2020-A-0017-Dec-Dec-2021_02_17.pdf)

<sup>2</sup> Régie Docket No. R-4123-2020, retrieved February 3, 2022, at [http://publicsde.regie-energie.qc.ca/\\_layouts/publicsite/ProjectPhaseDetail.aspx?ProjectID=546&phase=1&Provenance=A&generate=true](http://publicsde.regie-energie.qc.ca/_layouts/publicsite/ProjectPhaseDetail.aspx?ProjectID=546&phase=1&Provenance=A&generate=true) (French only)

<sup>3</sup> NERC Project 2019-01, retrieved February 3, 2022, at <https://www.nerc.com/pa/Stand/Pages/Project2019-01ModificationstoTPL-007-3.aspx>

<sup>4</sup> FERC Order No. 851, retrieved February 3, 2022, at [https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/E-3\\_Order%20No%20851.pdf](https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/E-3_Order%20No%20851.pdf)

Adopted by the NERC Board of Trustees on February 6, 2020, and approved by FERC on March 19, 2020 (Letter Order, Docket No. RD20-3-000),<sup>5</sup> standard TPL-007-4 has been in effect in the United States since October 1, 2020.<sup>6</sup>

### iii. Affected Reliability Standard in Québec

#### Standards to Retire

The table below summarizes the regulatory background of the standard to be replaced in this project.

Standard to Retire	Régie Decision	Régie Docket No.	Effective Date in Québec
TPL-007-3	D-2021-015 <sup>7</sup>	R-4123-2020 <sup>8</sup>	April 1, 2021

Reliability Standard TPL-007-3 must be retired on the date Reliability Standard TPL-007-4 comes into effect.

#### 1.4. Specific Provisions for Québec

For Reliability Standard TPL-007-4, the Coordinator requests renewal of all specific provisions in the previous version, Reliability Standard TPL-007-3, including the provision on replacing all references to Bulk Electric System (BES) with Main Transmission System (RTP, *réseau de transport principal*).

#### 1.5. Proposed effective dates

The NERC Project 2019-01 Implementation Plan<sup>9</sup> proposes that standard TPL-007-4 become effective on the first day of the first calendar quarter that is six (6) months after its regulatory approval. The Plan also provides for integrating the implementation plan of the preceding version of the standard (TPL-007-3).

The table below shows the enforcement dates for standard TPL-007-4 in the United States and those the Coordinator proposes.

<sup>5</sup> FERC Letter Order, Docket No. RD20-3-000, retrieved February 3, 2022, at <https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/%E2%80%8BLetter%20Order%20Approving%20Reliability%20Standard%20TPL-007-4.pdf>.

<sup>6</sup> Mandatory Standards Subject to Enforcement in the United States (Excel files available on the NERC website), retrieved February 3, 2022, at <https://www.nerc.com/pa/Stand/AlignRep/Mandatory%20Standards%20Subject%20to%20Enforcement.xlsx>

<sup>7</sup> Régie decision D-2021-015, retrieved February 3, 2022, at [http://publicsde.regie-energie.qc.ca/projets/546/DocPrj/R-4123-2020-A-0017-Dec-Dec-2021\\_02\\_17.pdf](http://publicsde.regie-energie.qc.ca/projets/546/DocPrj/R-4123-2020-A-0017-Dec-Dec-2021_02_17.pdf) (French only)

<sup>8</sup> Régie Docket No. R-4123-2020, retrieved February 3, 2022, at [http://publicsde.regie-energie.qc.ca/\\_layouts/publicsite/ProjectPhaseDetail.aspx?ProjectID=546&phase=1&Provenance=A&generate=true](http://publicsde.regie-energie.qc.ca/_layouts/publicsite/ProjectPhaseDetail.aspx?ProjectID=546&phase=1&Provenance=A&generate=true) (French only)

<sup>9</sup> Implementation Plan, Project 2019-01, retrieved February 3, 2022, at [https://www.nerc.com/pa/Stand/Project201901ModificationstoTPL0073/Draft%20TPL-007-4%20Implementation%20Plan\\_final%20ballot\\_QR.pdf](https://www.nerc.com/pa/Stand/Project201901ModificationstoTPL0073/Draft%20TPL-007-4%20Implementation%20Plan_final%20ballot_QR.pdf)

Requirement(s)	Québec effective dates for TPL-007-3	US effective dates for TPL-007-4	Proposed Québec effective dates for TPL-007-4
R1	July 1, 2021	October 1, 2020	Effective date of the standard
R2	July 1, 2022	October 1, 2020	July 1, 2022, or the effective date of the standard (if later)
R3	April 1, 2026	January 1, 2023	April 1, 2026
R4	April 1, 2026	January 1, 2023	April 1, 2026
R5	April 1, 2023	October 1, 2020	April 1, 2023
R6	April 1, 2025	January 1, 2022	April 1, 2025
R7	April 1, 2026	January 1, 2024	April 1, 2026
R8	April 1, 2026	January 1, 2023	April 1, 2026
R9	April 1, 2023	October 1, 2020	April 1, 2023
R10	April 1, 2025	January 1, 2022	April 1, 2025
R11 (New requirement in standard TPL-007-4)	Not available	January 1, 2024	April 1, 2026
R12 (R11 in standard TPL-007-3)	October 1, 2023	July 1, 2021	October 1, 2023
R13 (R12 in standard TPL-007-3)	October 1, 2023	July 1, 2021	October 1, 2023

Only Requirement R11 is new. For this new requirement, the NERC implementation plan proposes the same effective date for Requirement R11 as for Requirement R7, the two requirements being practically identical. The Coordinator sees no issue in proposing the same effective date for Requirement R11, that is, April 1, 2026.

The Coordinator is of the opinion that the implementation plan meets the Régie's requirements for coming into force of a standard, namely that a standard must come into force on the first day of a calendar

quarter<sup>10</sup> and that there must be at least sixty(60) days<sup>11</sup> between the standard's date of adoption and its effective date.

Considering the importance of a mandatory reliability regime harmonized with the United States, the Coordinator proposes that Reliability Standard TPL-007-4 come into effect on the first day of the first calendar quarter that is six (6) months after the standard's approval by the Régie. In addition, to maintain the schedule for implementation of Reliability Standard TPL-007-3, the Coordinator proposes the schedule presented in the table above for application of the requirements.

### **1.6. Regulatory Matters – Connection with Docket R-4123-2020**

Since the date proposed for application of requirements R7 and R11 are identical (April 1, 2026, in both cases), the Coordinator believes it would be wise to address paragraphs 70 and 71 of Régie's decision D-2021-015<sup>12</sup> in a single docket for both requirements given that the Coordinator is unable to determine the impact of the new Requirement R11, or of Requirement R7, until after studies have been conducted and the other requirements have been applied.

Hence, regarding the Régie's requests<sup>13</sup>, the Coordinator proposes a new docket addressing the impacts of standard TPL-007, the CAPs according to requirements R7 and R11, when these have been analyzed and adjusted based on other studies and criteria specified in the standard. One new docket will allow greater regulatory efficiency in addressing the impacts of standard TPL-007.

The Coordinator thus proposes that this submission include the elements mentioned in Paragraph 71 of Régie's decision D-2021-015:

- A summary description of models developed and studies conducted
- A list of applicable entities and facilities
- Threshold currents reached for transformers concerned in benchmark and supplemental GMD Vulnerability Assessments
- The results of a public consultation
- The results of CAPs
- Any other information the Coordinator considers pertinent

### **1.7. Changes to the Glossary**

No modifications to the Glossary.

## **2. ASSESSMENT OF RELEVANCE**

As mentioned, Reliability Standard TPL-007-4 addresses the directives issued by FERC in Order No. 851. The proposed Reliability Standard is reasonable, non-discriminatory and in the public interest.

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<sup>10</sup> In decision [D-2015-168](#), the Régie set the effective date of the standards as the first day of the calendar quarter following the date of adoption.

<sup>11</sup> In decision [D-2016-011](#), the Régie set a minimum of at least 60 days between adoption of a standard and its effective date.

<sup>12</sup> Régie decision D-2021-015, retrieved February 3, 2022, at [http://publicsde.regie-energie.qc.ca/projets/546/DocPrj/R-4123-2020-A-0017-Dec-Dec-2021\\_02\\_17.pdf](http://publicsde.regie-energie.qc.ca/projets/546/DocPrj/R-4123-2020-A-0017-Dec-Dec-2021_02_17.pdf)

<sup>13</sup> The Coordinator is referring to requests mentioned in paragraphs 70 and 71 of Régie decision D-2021-015.

### **2.1. Require CAPs to mitigate supplemental GMD vulnerabilities**

Under Requirement R8 of the currently effective standard TPL-007-3, responsible entities must complete a supplemental GMD Vulnerability Assessment at least once every sixty (60) calendar months. In response to FERC Order No. 851, proposed Reliability Standard TPL-007-4 requires that responsible entities develop a CAP should they conclude based on their assessments that their system could have issues in case of a supplemental GMD event.

Specifically, Part 8.3 of this requirement in standard TPL-007-3 has been removed and replaced by the new requirement, R11. The proposed Requirement R11 is basically the same as Requirement R7, which refers to CAPs developed to address issues identified in GMD Vulnerability Assessments.

The purpose of the proposed Requirement R11 is to provide the same content, notifications and deadlines for CAPs developed in response to supplemental GMD Vulnerability Assessments. It includes the same sub-requirements for requesting CAP deadline extensions as Requirement R7.

### **2.2. Establish a process for authorizing extensions of time to implement CAPs on a case-by-case basis**

Reliability Standard TPL-007-3, more specifically Part 7.3, requires that responsible entities include in their CAPs a timetable for implementing selected actions.

Part 7.4 specifies the steps a responsible entity must take should situations beyond the entity's control prevent implementation of the CAP within the timetable provided in Part 7.3.

Under the revision to these parts, entities can no longer extend implementation deadlines without prior approval. An entity must submit a detailed request for a deadline extension to its Compliance Enforcement Authority (CEA). Requests for extensions shall be considered on a prospective basis depending on the case.

All other aspects of the requirement remain the same. The only significant difference between the version currently in effect and the proposed version is that an entity may no longer extend the implementation deadline as it sees fit but must instead submit a request for an extension to the CEA.

### **2.3. Revisions to the regional variance for Canadian jurisdictions**

NERC also proposes a series of revisions to the regional variance for Canadian jurisdictions (section D.A. of the standard). These revisions ensure that Reliability Standard TPL-007 continues to take into account the different approval and compliance monitoring processes in Canada for the changes with respect to CAPs in connection with supplemental GMD Vulnerability Assessments and authorizations on a case-by-case basis of extensions of CAP implementation deadlines.

Regional variance continues to apply only in Canadian jurisdictions. The changes to the regional variance provisions reflect the changes to the continental standard.

## 2.4. Conclusion of the assessment of relevance

In the United States, FERC concluded that standard TPL-007-4 addresses the FERC directives issued in Order No. 851<sup>14</sup> via Letter Order, Docket RD20-3-000.<sup>15</sup>

Neighboring systems, in New Brunswick<sup>16</sup> and Ontario,<sup>17</sup> have adopted standard TPL-007-4.

Given the information outlined above and the fact that this standard was developed by organizations recognized in North America (including in Québec and in neighboring jurisdictions) in accordance with the agreement signed in 2009 by the Régie, NERC and the NPCC, with the authorization of the Government of Québec,<sup>18</sup> the Coordinator is of the opinion that Reliability Standard TPL-007-4 contributes to the reliability of the Québec System, is pertinent to the reliability of the Québec Interconnection and contributes to harmonization with neighbouring systems.

## 3. PRELIMINARY IMPACT ASSESSMENT

Reliability Standard TPL-007-4 is essentially a performance standard given requirements R7 and R11. In the current revision of this standard, Requirement R11 is an addition to the preceding version. The Coordinator is unable to determine the impact of this standard with any certainty. However, the Coordinator is confident that the impact will be low based on discussions with experts from HQT. Section 1.6 herein includes the Coordinator's proposal for assessment of the impact of Requirements R7 and R11.

The table below shows preliminary assessments of the impact on all Québec Entities.

TPL-007-4	Low	Moderate	High
Implementation of the standard	X		
Enforcement of the standard	X		
Compliance monitoring		X	

<sup>14</sup> See note 4.

<sup>15</sup> FERC Letter Order, Docket No. RD20-3-000, retrieved February 3, 2022, from <https://www.nerc.com/FilingsOrders/us/FERCOOrdersRules/%E2%80%8BLetter%20Order%20Approving%20Reliability%20Standard%20TPL-007-4.pdf>.

<sup>16</sup> Reliability Standards on the New Brunswick Energy and Utilities Board website, retrieved on February 4, 2022, from <http://www.nbeub.ca/reliability-standards>

<sup>17</sup> Implementation Plan for TPL-007-4 in Ontario, retrieved February 4, 2022, from <https://www.ieso.ca/-/media/Files/IESO/Document-Library/orcp/Ontario-Enforcement-Dates-for-TPL-007-4-Implementation-Plan.ashx>

<sup>18</sup> Agreement entered into pursuant to Decree No. 443-2009, issued April 8, 2009. [http://www.regie-energie.qc.ca/audiences/normes\\_fiab\\_tranp\\_elec/Entente\\_Regie\\_NERC\\_NPCC\\_5mai09.pdf](http://www.regie-energie.qc.ca/audiences/normes_fiab_tranp_elec/Entente_Regie_NERC_NPCC_5mai09.pdf)

**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

**4. 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 standards with the Régie.