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| Verification of Maximum Real and Reactive Power Capabilities of MTS Generating Facilities and Synchronous Compensators | | Number <p style="text-align: center;">IQ-P-001</p> | |
| | | Revision <p style="text-align: center;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> Replaces procedure IQ-P-001 (2014/05/09) | |
| | | Effective <p style="text-align: center;">2017/09/01</p> | |
| Issued to <p style="text-align: center;">Québec Interconnection Generator Owners and Transmission Owners</p> | | | |
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1. PURPOSE

To provide a framework for verifying the maximum real and reactive power capabilities of generating facilities and synchronous compensators that are part of the Main Transmission System (MTS).

The results of these verifications help validate the official specifications provided by Generator Owners for generating facilities and those provided by Transmission Owners for synchronous compensators. They are also used to carry out system planning and operations studies, and to create steady-state system models.

These verifications must also be performed to update real-time system operations databases and assess resources available under peak conditions in the Québec Interconnection.

This procedure provides a framework for performing the verifications required under NERC reliability standards [MOD-025-2](#) (R1, R2 and E3) and [TOP-003-3](#) (E5), and NPCC Directories [#9](#) and [#10](#).

2. APPLICABILITY

This procedure applies to Generator Owners that own one or several generating facilities that are part of the Main Transmission System (MTS) and Transmission Owners that own one or several synchronous compensators that are part of the MTS.

The list of generating and transmission facilities that are part of the MTS appears in the [“Register of Entities Subject to Reliability Standards”](#) filed with the Régie de l’énergie.

2.1. UNIT TESTING

This procedure provides a framework for the verification of the real and reactive power capabilities of generating units that are part of an MTS generating facility and the verification of the relative power capability of synchronous compensators that are part of the MTS, as required by NERC standard [MOD-025-2](#).

2.2. STATION TESTING

This procedure also requires that the real and reactive power capabilities of MTS generating facilities be verified in accordance with NERC [TOP-003-3](#).

3. CONFIDENTIALITY OF DATA

Under this procedure, Hydro-Québec TransÉnergie (HQT) personnel shall maintain the confidentiality of data provided by applicable entities, in accordance with the [Code de conduite du Transporteur \[Transmission Provider Code of Conduct\]](#) and the [Code de conduite du coordonnateur de la fiabilité du Québec \[Reliability Coordinator Code of Conduct\]](#).

As a means of validating official specifications for generating facilities, generating units and synchronous compensators, verification results shall be made available to the Direction – Planification unit (because of its role as Transmission Planner for the Québec Interconnection) and the Direction – Contrôle des mouvements d’énergie (DCME) [System Control] unit (because of its role as Balancing Authority for the Québec Interconnection) in accordance with NERC standards [MOD-025-2](#) and [TOP-003-3](#).

4. GENERAL CONDITIONS OF VERIFICATIONS

4.1. ROLE OF FACILITY OWNER

Each owner of a facility subject to the standards is responsible for performing the verifications and ensuring the requirements in this procedure are met.

During testing, the owner may perform other tests or measure other generating unit parameters for its own purposes provided this does not change test conditions and does not lead to power variations.

4.2. VERIFICATION PROCEDURES

1. Verifications must be performed in accordance with any operating restrictions applicable to the facilities in question or related equipment. Operating constraints designed to prevent damage to facilities (e.g., on axial pulsing, vibrations and temperature) must not be exceeded.
2. Verifications must not lead to contravening operating criteria (e.g., minimum operating reserves, maximum power flows, allowable voltage ranges for equipment). Verifications, including those carried out via performance testing, may be limited or interrupted at the request of a System Control Centre (SCC) operator should a system limit be reached or transmission system reliability be likely to be compromised.
3. During the verification, the facility owner must identify in the “Comments” section of the form any condition or other factor that could influence verification results, including factors that would prevent declared net capabilities in MW or in Mvar from being reached.
4. The owner of the facility must ensure that all auxiliary equipment needed for expected normal operation is in service when performing both the real power and reactive power capability verifications.

5. INDIVIDUAL VERIFICATION OF GENERATING UNITS AND SYNCHRONOUS COMPENSATORS

The individual verification of generating units that are part of a generating facility connected to the MTS and of MTS synchronous compensators is designed to validate their electrical characteristics. This verification is required under NERC standard [MOD-025-2](#).

Note: In this section, “owner” refers to the owner of the generating facilities or the synchronous compensators.

5.1. TYPE OF VERIFICATION

As indicated in NERC MOD-025-2 Attachment 1, two types of verification may be performed:

- Verification through performance tests
- Verification using operational data

The owner of a new generating unit or synchronous compensator must verify its capabilities within 12 calendar months of its commissioning through performance tests. In addition, any equipment that has been in long term shutdown for more than five years must be verified within 12 calendar months of its recommissioning.

5.2. VERIFICATION PERIOD

Unit verifications may be performed at any time during the year.

5.3. FORM TO BE USED TO COMPILE RESULTS

The results of unit verifications must be recorded by the owner using NERC MOD-025-2 Attachment 2. A different form may be used provided it contains at least all the information requested in this attachment.

5.4. COMMUNICATION OF RESULTS

As per NERC MOD-025-2, the owner must submit a completed Attachment 2 (or a form containing the same information as identified in Attachment 2) to Direction – Planification (i.e. the Transmission Planner) within 90 calendar days of either:

- i. the date the data is recorded for a performance test; or
- ii. the date on which the data is selected for verification using historical operational data.

The results must be sent to the following address:

CME_Verification_PQ_max@hydro.qc.ca

5.5. UNIT VERIFICATION USING OPERATIONAL DATA

Unit verifications using operational data must be performed in accordance with the requirements set out in NERC MOD-025-2 Attachment 1.

5.6. UNIT VERIFICATION THROUGH PERFORMANCE TESTS

Since a performance test may impact MTS reliability, the steps listed below must be followed when performing this type of test.

5.6.1. Performance test scheduling

If the opportunity to stage performance tests arises on short notice due to special circumstances, the owner may submit an outage request that does not comply with normal processing times. Hydro-Québec TransÉnergie (HQT) will do its utmost to accommodate such tests, provided that power system conditions so permit and transmission system reliability is not compromised.

5.6.1.1. Generating facilities connected to Hydro-Québec TransÉnergie's transmission system

Ref.: Appendix A – Process A1

1. The owner must send its performance testing request as an outage request, and include its testing procedure with it. The request is then forwarded to the Regional Generation and Outage Planner.

In scheduling the test, the owner must take facility-specific factors into account (e.g., time of local ice cover formation).

The owner must complete test scheduling **before noon**, at least **4 working days** before the test date.

2. The Regional Generation and Outage Planner analyzes the request in terms of its impact on regional transmission system reliability.
 - a. If the reliability of the regional transmission system and transmission equipment is not compromised, the Regional Scheduler forwards the request to the System Control (SCC) Outage Scheduler, who analyzes the request in terms of its impact on MTS reliability. If MTS reliability is not compromised, the request is approved.

- b. Should either the Regional Generation and Outage Scheduler or the System Control Outage Scheduler deny the request, the owner will be informed and given the reasons for the refusal.

In the event of refusal, the Regional Generation and Outage Scheduler will suggest an alternative test date to the owner.

5.6.1.2. Generating facilities connected to an auxiliary carrier's system

Ref.: Appendix A – Process A2

1. The owner must send its performance testing request as an outage request, and include its testing procedure with it. The request is then forwarded to the System Control (SCC) Outage Scheduler.

In scheduling the test, the owner must take facility-specific factors into account (e.g., time of local ice cover formation).

The owner must complete test scheduling **before noon**, at least **4 working days** before the test date.

2. The System Control Outage Scheduler analyzes the request in terms of its impact on MTS reliability.
 - a. If MTS reliability is not compromised, the request is approved.
 - b. Should the Scheduler deny the request, the owner will be informed and given the reasons for the refusal.

In the event of refusal, the System Control Outage Scheduler will suggest an alternative test date to the owner.

5.6.2. Communications during a performance test

Ref.: Appendix B – Processes B1 and B2

5.6.2.1. Generating facilities connected to Hydro-Québec TransÉnergie's transmission system

One hour before test

1. On the day of testing, one hour before testing is to begin, the owner contacts the regional telecontrol centre (TC) operator to ask for authorization to go ahead with the testing.
2. The regional TC operator analyzes the impact of testing on regional transmission system reliability. Provided that testing does not compromise regional transmission system reliability, the regional TC operator asks the System Control (SCC) Dispatcher to authorize the test.

Otherwise, the regional TC operator cancels the test and informs the owner of the reasons for doing so. The latter must then reschedule the test as set out in section 5.6.1.1.

3. The SCC operator analyzes the impact of testing on MTS reliability. Provided that the request does not compromise MTS reliability and interchange schedules, the SCC operator authorizes the regional TC operator to proceed. The regional TC operator then notifies the owner that testing may begin on schedule.

Otherwise, the SCC operator notifies the regional TC operator that the test compromises MTS reliability. The regional TC operator relays this information to the owner, who must then reschedule the test as set out in section 5.6.1.1. The reasons that prevent holding the test are also given to the owner.

At the start of testing

At the scheduled time of testing or the time specified by the regional TC operator, the latter asks the owner of the facility in question to perform the test in accordance with the established procedure. The regional TC operator must notify the SCC operator of the exact starting time of the test.

During testing

The designated operator of the facility in question notes any unusual situation arising during testing and sends that information to the regional TC operator, who records it.

End of staged performance test

When testing ends, the designated operator of the facility in question must notify the regional TC operator of any restriction, constraint or alarm that occurred during the test and was related to the equipment tested. The regional TC operator records this information and forwards it to the SCC operator.

When testing ends, the regional TC operator, after receiving instructions from the SCC operator, directs the designated operator of the facility in question to adjust generation to the scheduled value or another value, depending on the state of the power system at that time.

5.6.2.2. Generating facilities connected to an auxiliary carrier's system

One hour before test

1. On the day of testing, one hour before testing is to begin, the owner contacts the SCC operator to ask for authorization to go ahead with the testing.
2. The SCC operator analyzes the impact of testing on MTS reliability. Provided that the request does not compromise MTS reliability and interchange schedules, the SCC operator authorizes the owner to proceed.

Otherwise, the SCC operator notifies the owner that the test compromises MTS reliability. The owner must then reschedule the test as set out in section 5.6.1.2. The reasons that prevent holding the test are also given to the owner.

At the start of testing

At the scheduled time of testing or the time specified by the SCC operator, the latter asks the owner to perform the test in accordance with the established procedure. The owner must notify the SCC operator of the exact starting time of the test.

During testing

The designated operator of the facility in question notes any unusual situation arising during testing and sends that information to the SCC operator, who records it.

End of staged performance test

When testing ends, the designated operator of the facility in question must notify the SCC operator of any restriction, constraint or alarm that occurred during the test and was related to the equipment tested.

When testing ends, the SCC operator directs the designated operator of the facility in question to adjust generation to the scheduled value or another value, depending on the state of the power system at that time.

5.6.3. Staging of performance test

The performance test must be performed in accordance with the requirements set out in NERC MOD-025-2 Attachment 1.

6. STATION TESTING OF GENERATING FACILITIES

As the Balancing Authority for the Québec Interconnection, the Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit has determined, in accordance with NERC TOP-003-3, that for generating facilities that are part of the Main Transmission System (MTS), the verification of real and reactive power capabilities must be performed via performance tests (also known as “station testing”).

This verification helps to validate the maximum real and reactive power that a generating facility can generate under peak conditions.

Note: In this section, the applicable Generator Owner is called the “producer.”

6.1. EXEMPTIONS

If it is not possible to perform station tests on a generating facility for one of the reasons listed below, the producer must provide as soon as possible a written explanation to the Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit giving the reason for not performing the verification:

- Adverse impact on Main Transmission System (MTS) reliability
- Risk to transmission system or equipment safety
- Unfavorable environmental conditions
- Governmental (provincial or federal) regulatory or operating license limitations
- Extended outage of generating unit or generation facility
- Generating unit has no influence on transmission system stability due to nature of existing regulation systems

The Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit must, within 30 days of receiving the producer's written explanation, notify the latter of its temporary exemption from the obligation to perform station tests on the generating facility in question. However, the producer must provide historical data of maximum real and reactive powers reached in the current year and under winter conditions, and the normal load of its station services (in MW and Mvar).

Temporary suspension of operations

An owner who temporarily suspends operations is exempted from performing station tests on its facilities described in this procedure.

However, when operations resume, the owner must perform the verifications stipulated in this procedure within 12 calendar months of recommissioning its generating facility.

Station testing during summer period

Generation facilities are exempted from station testing during the summer period since operating conditions are unsuitable at that time of the year (high voltages and light loading).

Gross power

During station testing, owners do not need to verify the gross power capability of their generating facilities since the difference between net and gross power is negligible in most cases, and net power results are more significant in regard to MTS reliability.

However, producers are required to provide real and reactive powers readings of service loads in their generation facilities during station testing.

6.2. STATION TESTING CONDITIONS

6.2.1. Test duration

The minimum duration of a station test is 75 minutes (1.25 h).

6.2.2. Testing period and frequency

Since loads on the transmission system are not heavy in summer, the Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit has determined that station tests must be conducted every **3 years in the winter period**, i.e. from **November 1 to February 28**.

A station test can be conducted outside this period provided that DCME grants a waiver to the producer. See the section below for applicable conditions.

6.2.3. Waiver request for station test

A station test can be conducted outside the winter period provided that DCME [System Control] unit grants a waiver.

A waiver request can be submitted by the facility producer to the DCME [System Control] unit if the following conditions are met:

- Permanent conditions preclude achieving the maximum power of the generating facility when conducting the station test in the winter period, as required under section 6.7.
- It is possible to conduct the station test outside the winter period and achieve the maximum power of the applicable generating station, as required under section 6.7.

The waiver request must contain the following information:

1. Name of generating facility for which a waiver request is being submitted
2. Identification of the winter period for which a waiver request is being submitted
3. Proposed alternative period for performing the station test on the generating facility

The waiver request must be submitted by the producer to the Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit no later than **October 31** before the scheduled date of the station test on the applicable generating facility.

The DCME [System Control] unit must, within **30 days** following receipt of the waiver request, notify the producer of its acceptance or refusal.

6.2.4. Other conditions

1. Verifications of hydroelectric generating stations whose real and reactive power capabilities may depend on the level or flow of the same stream must be performed simultaneously.
2. Verifications through performance tests on generating facilities which may be affected by each other's reactive power generation, depending on the maximum voltage of their common collector system, must be performed simultaneously.
3. It is preferable that generating facilities capable of being islanded within a neighboring system be tested when the generating units are synchronized with the Québec grid. Should that be impossible, the Outage Scheduler or the System Control (SCC) Operator – Interconnections, depending on the horizon, analyzes the impact of testing on maintaining interchange schedules.

- Performance testing is conducted if power fluctuations can be counterbalanced or have a negligible effect on the quantity of inadvertent energy generated, and provided a prior agreement has been reached by the System Control (SCC) Operator – Interconnections and their counterpart Operator in the Balancing Authority Area affected by the testing. Otherwise, testing is postponed.

6.3. FORM TO BE USED TO COMPILE RESULTS

Test results must be recorded by the producer using the forms provided in Appendix C of this document. A different form may be used provided it contains at least the same information.

6.4. COMMUNICATION OF RESULTS

The producer must submit test results to Hydro-Québec TransÉnergie's Direction – Contrôle des mouvements d'énergie (DCME) in accordance with the following schedule:

- No later than April 1 following the winter period during which station testing was performed (the winter period runs from November 1 to February 28).

The test results must be sent to the following address:

CME_Verification_PQ_max@hydro.qc.ca

6.5. PERFORMANCE TEST SCHEDULING

If the opportunity for station testing arises on short notice due to special circumstances, the owner may submit an outage request that does not comply with normal processing times. Hydro-Québec TransÉnergie (HQT) will do its utmost to accommodate such tests, provided that power system conditions so permit and transmission system reliability is not compromised.

6.5.1. Generating facilities connected to Hydro-Québec TransÉnergie's transmission system

Ref.: Appendix A – Process A1

1. The owner must send its station testing request as an outage request, and include its testing procedure with it. The request is then forwarded to the Generation and Outage Planner.

In scheduling the test, the owner must take facility-specific factors into account (e.g. time of local ice cover formation).

The owner must complete test scheduling **before noon**, at least **4 working days** before the test date.
2. The Generation and Outage Planner analyzes the request in terms of its impact on regional transmission system reliability.
 - a. If the reliability of the regional transmission system and transmission equipment is not compromised, the Scheduler forwards the request to the System Control Outage Scheduler (SCC), who analyzes the request in terms of its impact on MTS reliability. If MTS reliability is not compromised, the request is approved.
 - b. Should either the Generation and Outage Scheduler or the System Control Outage Scheduler deny the request, the owner will be informed and given the reasons for the refusal.

In the event of refusal, the Generation and Outage Scheduler will suggest an alternative test date to the owner.

6.5.2. Generating facilities connected to an auxiliary carrier's system

Ref.: Appendix A – Process A2

1. The producer must send its station testing request as an outage request, and include its testing procedure with it. The request is then forwarded to the System Control Outage Scheduler (SCC).

In scheduling the test, the owner must take facility-specific factors into account (e.g. time of local ice cover formation).

The producer must complete test scheduling **before noon**, at least **4 working days** before the test date.

2. The System Control Outage Scheduler analyzes the request in terms of its impact on MTS reliability.
 - a. If MTS reliability is not compromised, the request is approved.
 - b. Should the Scheduler deny the request, the owner will be informed and given the reasons for the refusal.

In the event of refusal, the System Control Outage Scheduler will suggest an alternative test date to the producer.

6.6. COMMUNICATIONS DURING A PERFORMANCE TEST

Ref.: Appendix B – Processes B1 and B2

6.6.1. Generating facilities connected to Hydro-Québec TransÉnergie's transmission system

One hour before test

1. On the day of testing, one hour before testing is to begin, the applicable producer contacts the regional TC operator to ask for authorization to go ahead with the testing.
2. The regional TC operator analyzes the impact of testing on regional transmission system reliability. Provided that testing does not compromise regional transmission system reliability, the regional TC operator asks the System Control (SCC) Dispatcher to authorize the test.

Otherwise, the regional TC operator cancels the test and informs the owner of the reasons for doing so. The latter must then reschedule the test as set out in section 6.5.1.

3. The SCC operator analyzes the impact of testing on MTS reliability. Provided that the request does not compromise MTS reliability and interchange schedules, the SCC operator authorizes the TC operator to proceed. The regional TC operator then notifies the producer that testing may begin on schedule.

Otherwise, the SCC operator notifies the regional TC operator that the test compromises MTS reliability. The regional TC operator relays this information to the producer, who must then reschedule the test as stipulated in section 6.5.1. The reasons that prevent holding the test are also given to the producer.

At the start of testing

At the scheduled time of testing or the time specified by the regional TC operator, the latter asks the producer in charge of the generating facility to perform the test in accordance with the established procedure. The regional TC operator must notify the SCC operator of the exact starting time of the test.

During testing

The designated operator of the generating facility in question notes any unusual situation arising during testing and sends that information to the regional TC operator, who records it.

End of testing

When testing ends, the designated operator of the generating facility must notify the regional TC operator of any restriction, constraint or alarm that occurred during the test and was related to the equipment tested. The regional TC operator records this information and forwards it to the SCC operator.

When testing ends, the regional TC operator, after receiving instructions from the SCC operator, directs the designated operator of the facility in question to adjust generation to the scheduled value or another value, depending on the state of the power system at that time.

6.6.2. Generating facilities connected to an auxiliary carrier's system

One hour before test

1. On the day of testing, one hour before testing is to begin, the applicable producer contacts the SCC operator to ask for authorization to go ahead with the testing.
2. The SCC operator analyzes the impact of testing on MTS reliability. Provided that the request does not compromise MTS reliability and has no significant impact on interchange schedules, the SCC operator authorizes the producer to proceed.

Otherwise, the SCC operator notifies the producer that the test compromises MTS reliability. The producer must then reschedule the test as set out in section 6.5.2. The reasons that prevent holding the test are also given to the producer.

At the start of testing

At the scheduled time of testing or the time specified by the SCC operator, the latter asks the producer to perform the test in accordance with the established procedure. The producer must notify the SCC operator of the exact starting time of the test.

During testing

The designated operator of the generating facility in question notes any unusual situation arising during testing and sends that information to the SCC operator, who records it.

End of testing

When the performance testing ends, the designated operator of the generating facility must notify the SCC operator of any restriction, constraint or alarm that occurred during the test and was related to the equipment tested.

When testing ends, the SCC operator directs the designated operator of the applicable facility to adjust generation to the scheduled value or another value, depending on the state of the power system at that time.

6.7. STAGING PERFORMANCE TEST

1. For at least **one hour**, verify the maximum real power capability of the generating facility (all generating units operating simultaneously), taking into account the reactive power (Mvar) required by the state of the power system at the time of testing.

2. For the first **15 minutes** of the second hour, maintain the state described in step 1, and verify the reactive power (Mvar) developed by raising the turbine-generator unit output voltage setpoint until one of the following limits is reached:¹
 - Maximum generator output voltage
 - Maximum transmission system voltage
 - Maximum stator or rotor current

6.8. DISCREPANCY IN RESULTS

If the results of station tests or unit tests differ from the declared capability (i.e. the calculated theoretical capability based on the parameters provided by the producer for this generating facility under conditions similar to test conditions) by more than 4%, the producer must provide an explanation to Hydro-Québec TransÉnergie's Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit within 30 days of sending the test results. In addition, the producer must provide the list of measures implemented to address the discrepancy.

If needed, the producer updates the parameters provided for this generating facility. If the producer is unable to account for the discrepancy, the test must be repeated.

6.9. INABILITY TO ACHIEVE DECLARED CAPABILITIES

At any time, when a generating facility cannot achieve the declared capability in MW or Mvar because of equipment issues, the producer must notify as soon as possible:

- The regional TC operator for a generation facility connected to the Hydro-Québec TransÉnergie transmission system
- The SCC operator for a generation facility connected to an auxiliary transmission system

In addition, the producer must submit an action plan to correct the deficiency within thirty (30) days of its detection.

If the inability to achieve the declared capability is permanent, the producer must repeat the station testing and submit the results of these tests to Hydro-Québec TransÉnergie's Direction – Contrôle des mouvements d'énergie (DCME) [System Control] unit within 30 days.


¹ The test must be repeated at a different time if the state of the power system at the time of testing does not allow one of the following limits to be reached: maximum generator output voltage, maximum stator or rotor current.

7. CONTACT INFORMATION

To submit results or any question regarding this procedure, write to:

 CME_Verification_PO_max@hydro.qc.ca




System Control Centre (SCC) in Montreal

| | |
|---------------|--|
| SCC operators |  844 870-6800 844 870-6801 844 870-6800 |
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Generation and Outage Planners

| | |
|----------------|---|
| Chicoutimi |  418 696-3815 or 819 764-5124, ext. 4320  Agent_Planification_Nord@hydro.qc.ca |
| Rouyn-Noranda |  819 764-5124, ext. 4326, 4313 or 4378  Agent_Planification_Nord@hydro.qc.ca |
| Baie-Comeau |  1 866 561-5697, ext. 3909  Agent_Planification_Est@hydro.qc.ca. |
| Québec |  1 866 561-5697, ext. 3906, 3908 or 3907  Agent_Planification_Est@hydro.qc.ca |
| Trois-Rivières |  819 694-2432, 819 694-2508, 819 694-2600, 819 694-2543 or 819 694-2422  Agent_Planification_Est@hydro.qc.ca |
| Montréal |  1 866 604-4041, ext. 3904, 3905, 3906, 3907 or 3908  Agent_Planification_Sud@hydro.qc.ca |
| Saint-Jérôme |  1 866 604-4041, ext. 3901, 3902 or 3903  Agent_Planification_Sud@hydro.qc.ca |

System Control Outage Schedulers

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| Montréal |  514 289-3150, 514 289-3845, 514 289-4364, 514 289-4368 or 514 289-5998 Fax  514 289-4556  PCME-Retrait@hydro.qc.ca |
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Note: To contact regional TC Operators, use the phone numbers provided in the common operating instruction.

8. VERSION HISTORY

| Date | Change(s) | Reason(s) |
|-------------|---|---|
| 2005/10/21 | Initial effective date | New procedure |
| 2007/10/26 | <ul style="list-style-type: none"> • Modification to most sections, to processes and to appendices • Sections 7 and 9 added • Sub-sections 5.4 and 6.1.1 added • Processes 1B and 2B added • Appendix C added | <ul style="list-style-type: none"> • Control Areas are now called Balancing Authority Areas • Administrative changes within Hydro-Québec TransÉnergie • Compliance with NPCC A-13 Criteria • Standardization of vocabulary used (French version only) |
| 2008/10/14 | <ul style="list-style-type: none"> • Minor modifications to most sections, to processes and to Appendices to clarify certain points • Section 3: reference to Québec’s Reliability Coordinator Code of Conduct added • Section 4.4.4: exemption condition for when a producer suspends operations added • Appendices A and B: consideration of state of stabilizers and of voltage regulators during tests added; • Section 9: telephone numbers of regional TC operators deleted and note added | <ul style="list-style-type: none"> • Update • New phone system for telecontrol centre (TC) operators |
| 2009/10/16 | <ul style="list-style-type: none"> • Modifications, sections 2, 4.3.4, 5.4, 6.3, and 7, and Appendices E, F and G • Section 1 – Purpose modified • Section 4 reorganized • Section 4.2.2: modification of deadlines for submitting schedules and distinction between station and unit tests • Sections 4.2.3 and 5.2.2.1 modified • Sections 5.1 and 5.2.1 modified | <ul style="list-style-type: none"> • Compliance update after NPCC Directories #9 and #10 become effective, and cancellation of Criteria A-13 • Verification method for wind farms added • Distinction between verification conditions for generating stations and wind farms • Clarifications regarding global test schedule • For hydroelectric generating stations and thermal plants, the minimum duration of station tests is 1 h 15 instead of 2 h. For all generating stations, the minimum unit test duration is 1 h 15 • Separate procedures for generating stations connected to HQT system and for generating stations connected to a private system (including Churchill Falls Generating Station) |

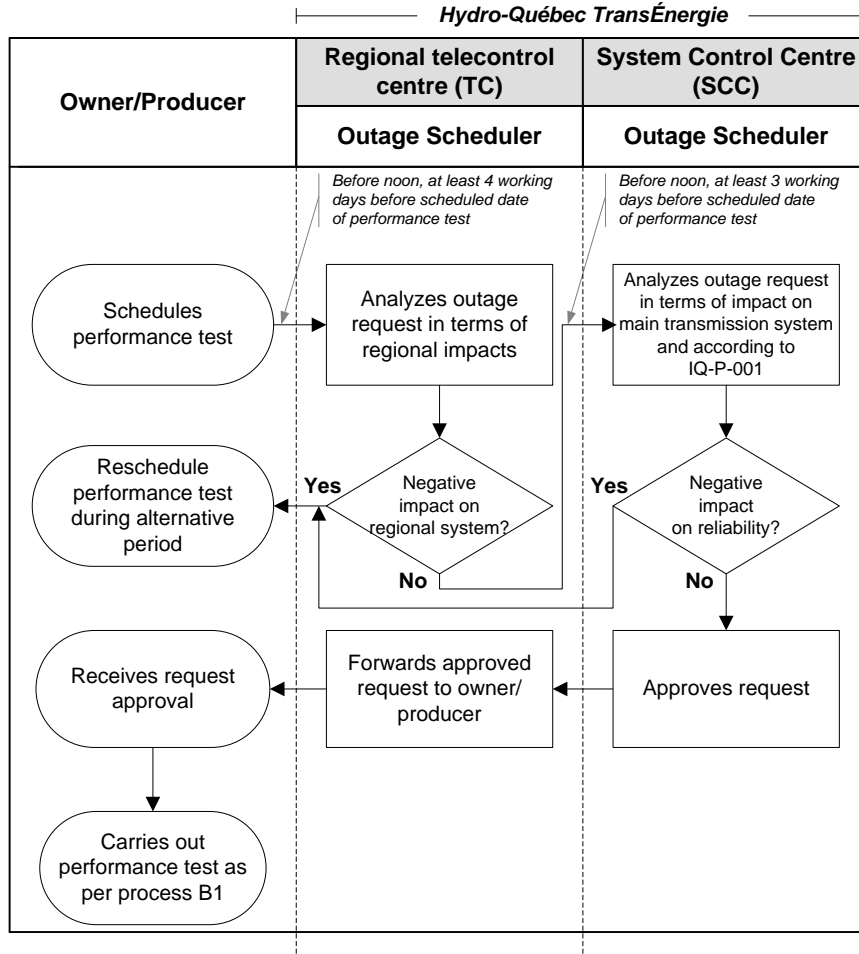
| Date | Change(s) | Reason(s) |
|-----------------------|--|--|
| 2009/10/16 (cont.) | <ul style="list-style-type: none"> Sections 5.3 and 6.2: modification of deadlines for submitting test results and performance data Sections 4.2.4, 5.3 and 6.2: use of supplied forms for compiling test results or performance data Procedure title changed Section 8: deleted contact information for Senior Agent – System Operations Appendices A and B: processes renumbered; columns and notes deleted Appendices C and D added; and crossreference to these appendices added in main text | <ul style="list-style-type: none"> Decrease number of test result reports submitted annually for generating stations and extend deadline for wind farms Standardization of the data submitted Update Describe special features of test scheduling and test performance for Hydro-Saguenay Generating Stations and Chats Falls Generating Station |
| 2010/10/18 | <ul style="list-style-type: none"> This procedure also applies to Generator Operators Direction – Contrôle des mouvements d’énergie is now Contrôle et exploitation du réseau System Control Outage Schedulers are now associated with Programmation et expertise de réseau (PER) [Power System Expertise and Scheduling] unit Section 2 modified Section 4.2.2: station tests must now be conducted every 3 years instead of every year Section 4.2.3: unit tests must now be conducted every 6 years instead of 5 years Sections 4.2.2 and 4.2.3: schedules must be also sent to Direction – CER Section 4.2.5: new section, “Waiver request for conducting the station test” Section 8: contact information (phone numbers) changed Appendix A: processes updated Appendix titled “Chats Falls Generating Station – Particular process for scheduling and conducting the tests” deleted from this document | <ul style="list-style-type: none"> Compliance update according to NERC Standard TOP-003-3 Update Compliance update New requirements Station tests allowed outside winter period under certain conditions Update Testing no longer required at Chats Falls Generating Station since this facility is in Ontario Balancing Authority Area |

| Date | Change(s) | Reason(s) |
|-------------|---|--|
| 2014/05/09 | <ul style="list-style-type: none"> Direction – Contrôle et exploitation du réseau is now Contrôle des mouvements d’énergie | <ul style="list-style-type: none"> Update |

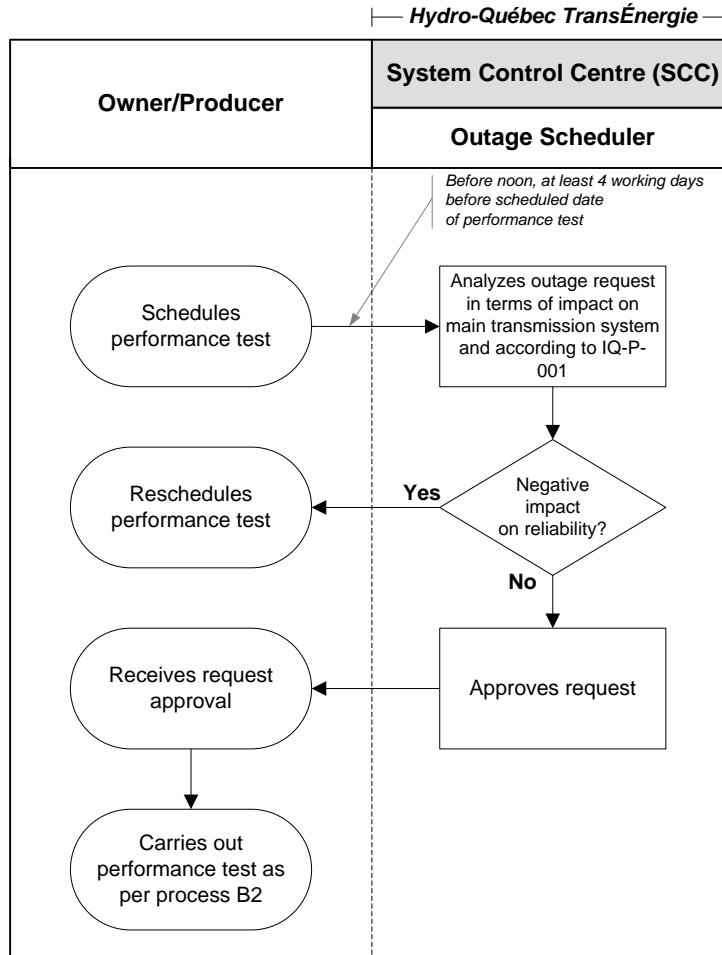
| | | |
|------------|---|--|
| | <ul style="list-style-type: none"> • Section 2 changed • Section 4.2.3: unit tests must be conducted every 5 years, instead of every 6 years • Section 4.2.6: article 2, addition • Section 4.3.4: changes • Section 6.1: changes • Section 7: changes • Section 8: new • Section 9: changes • Appendix C: company is now named “Produits forestiers Résolu” • Appendix F: changes • Document, “wind farm” replaced by “wind generating station” | <ul style="list-style-type: none"> • Compliance update Standard VAR-001-3 added • New requirement • Operating criterion added • Reasons for exemption added • Modification of performance data to be submitted • Action plan must be submitted within 30 days of detection. • Transmission of unit test results to HQT • Update • Update • Update as per section 6.1 and request for additional information • Standardization of terminology with Technical Requirements for Connecting Power Plants to transmission system |
| 2017/09/01 | <ul style="list-style-type: none"> • Overall update of procedure IQ-P-001 to comply with NERC MOD-025-2 and TOP-003-3 | <ul style="list-style-type: none"> • Full update |

APPENDIX A PROCESS – PERFORMANCE TEST SCHEDULING

Process A1
Generating stations or synchronous compensators
connected to HQT transmission system

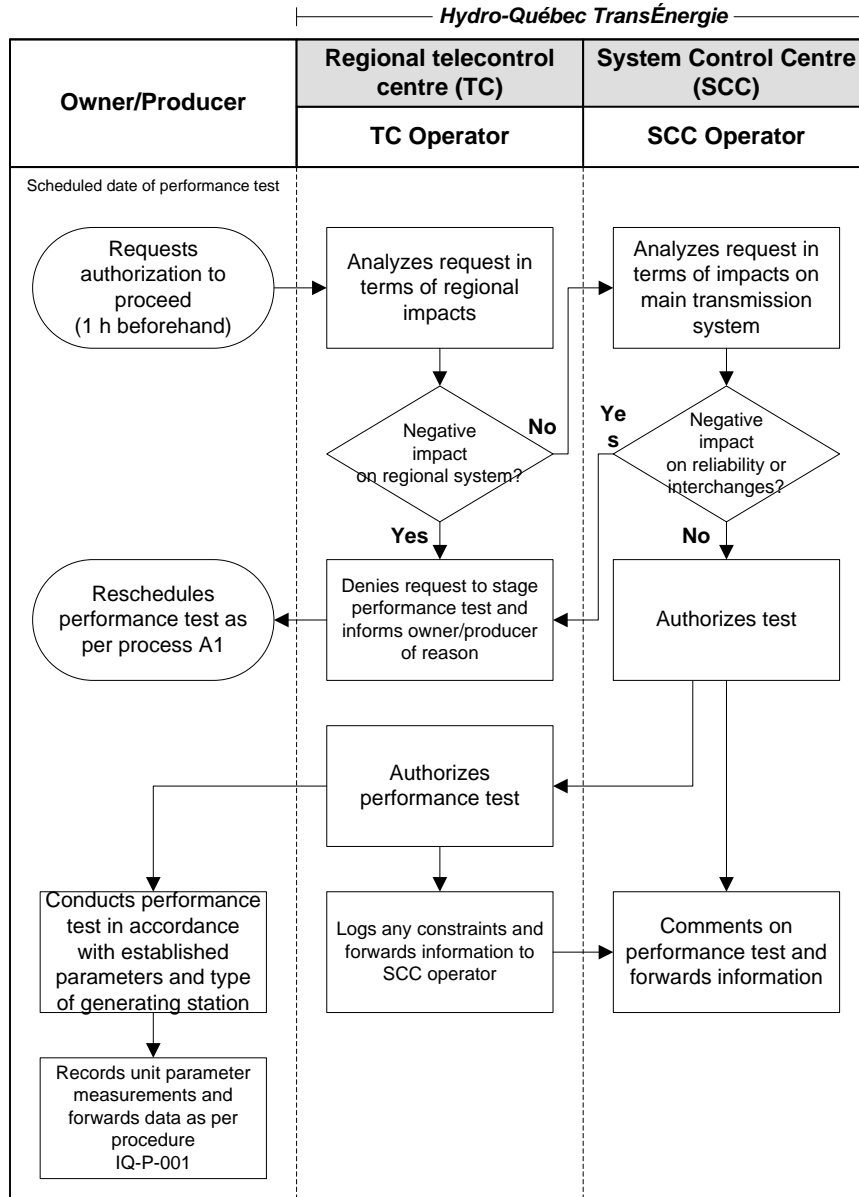


Process A2
Generating stations or synchronous compensators
connected to auxiliary carrier system



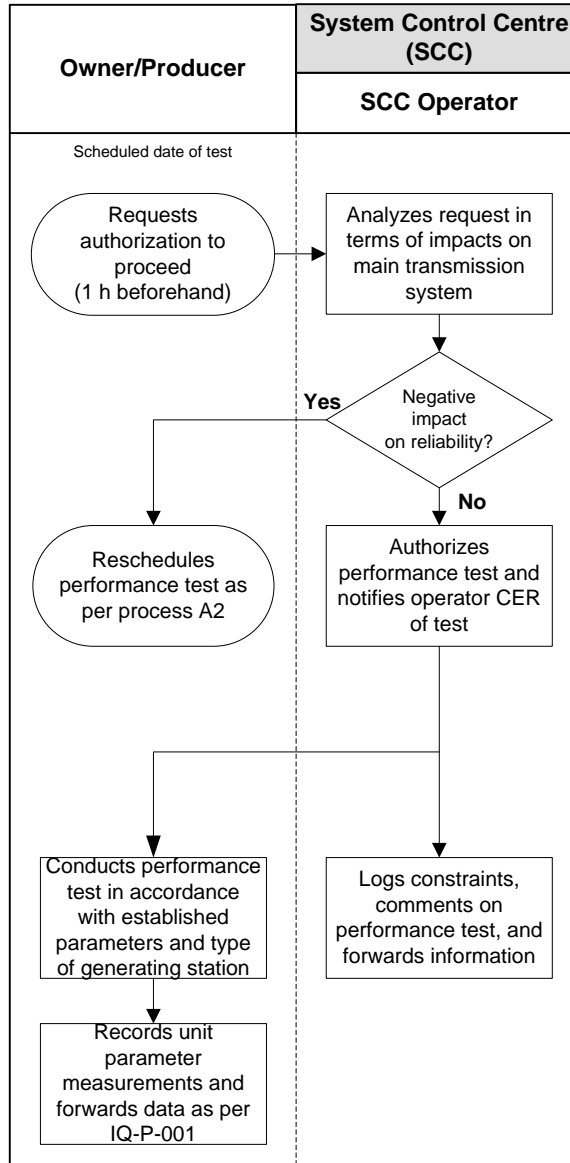
APPENDIX B PROCESS – COMMUNICATIONS DURING PERFORMANCE TEST

Process B1
Generating stations or synchronous compensators
connected to HQT transmission system



Process B2
Generating stations or synchronous compensators
connected to auxiliary carrier system

— Hydro-Québec TransÉnergie —



APPENDIX C RESULTS – STATION TEST

Testing date (YYYY-MM-DD): [- -]

| Name of generating facility | Generating station service load | Time | Total output | | T _{water} ¹ (hydroelectric generating station) (°C) | T _{air} ² (°C) | Headwater level (m) | Tailwater level (m) | Comments |
|-----------------------------|---------------------------------|--------|--------------|--------|---|---------------------------------------|------------------------|------------------------|----------|
| | | | (MW) | (Mvar) | | | | | |
| | MW: | Start: | | | | | | | |
| | Mvar: | End: | | | | | | | |

| UNIT | | DECLARED CAPABILITY | | MW | Mvar | kV | G.O. ³ (%) | Stabilizers (ON/OFF) | Voltage regulator (Auto/Manual) | Comments |
|------|--------------------------|---------------------|--------|----|------|----|--------------------------|-------------------------|------------------------------------|----------|
| | | (MW) | (Mvar) | | | | | | | |
| | Start: | | | | | | | | | |
| | After 1 h of testing: | | | | | | | | | |
| | After 1 h 15 of testing: | | | | | | | | | |
| | Start: | | | | | | | | | |
| | After 1 h of testing: | | | | | | | | | |
| | After 1 h 15 of testing: | | | | | | | | | |
| | Start: | | | | | | | | | |
| | After 1 h of testing: | | | | | | | | | |
| | After 1 h 15 of testing: | | | | | | | | | |
| | Start: | | | | | | | | | |
| | After 1 h of testing: | | | | | | | | | |
| | After 1 h 15 of testing: | | | | | | | | | |

¹Water temperature: temperature of cool water at the generator cooling system intake

²Air temperature: temperature of cool air at the cooling system outlet or generator rotor intake.

³G.O.: gate opening

By: _____ Company: _____

Date compiled: _____

E-mail: _____ Tel.: _____