



603 MANAGING THE COMMISSIONING AND TESTING OF GENERATORS

1. Purpose

To set out policies, procedures and responsibilities for the commissioning of new generating units and testing of existing generating units and generator auxiliaries.

2. Background

The testing and commissioning of generating units and generator auxiliaries may be required from time to time to:

- Ensure the designed performance of the generating unit on a regular basis.
Verify settings and performance of the generating unit and/or the generator auxiliaries following modifications or repairs.
Comply with ISO requirements.

These tests can have an effect on the reliable operation of the Alberta Interconnected Energy System (AIES) and on the real-time energy market operation as the generating unit may not be able to comply with energy market dispatch for MW, reactive power or voltage control during the test periods. Some testing, such as reactive power capability, may also have increased operational risk to the AIES that needs to be considered and coordinated. Thus, close coordination is required between the pool participant and the ISO.

It is often impractical for a pool participant to accurately restate the actual output level of the generating unit during testing and commissioning. In order for pool participants to avoid possible dispatch variance, they are required to fulfill the responsibilities identified in Section 4.1.

3. Policy

3.1 Generating unit tests

- This OPP applies to the following types of generating unit tests:
Testing and commissioning of new generating units (See Section 3.2).
Testing and commissioning of associated equipment/auxiliaries with unit capacity of 10 MVA or larger, such as turbine, stator, rotor, exciter, automatic voltage regulator, power system stabilizer and governor.
Testing of existing generating units that:
a. affects a unit's capability to produce MW or MVA or requires a unit to operate at a specific output.
b. causes an increased risk to a unit's availability.
c. limits a unit's ability to respond to energy market dispatch

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d. impacts the operation of other generating unit(s).

- This OPP does not apply to Heat Rate Tests and Relative Accuracy Test Audit (RATA) unless the generating asset has a transmission must-run (TMR) contract with the ISO.

### 3.2 Commissioning phases for new generating units

- The testing and commissioning of a new generating unit will be carried out in two phases. This does not apply to the testing and commissioning of generating unit auxiliaries of existing generators.
  - Phase 1 Testing and Commissioning - includes commissioning and testing activities such as synchronization to grid, load rejection test and testing according to WECC/ISO requirements. In this phase, energy from the generating unit must be offered into the energy market at \$0.00. The generating unit will not be subject to requirements of ISO rule 6.6 provided it has received approval for testing from the system controller and complied with other applicable ISO rules and Operating Policies and Procedures.
  - Phase 2 Data Validation and Test Reports - includes analysis of test data, generator model validation and submitting the test report to the ISO for review. The pool participants may offer energy into the energy market at \$0.00 or other values, and will be subject to all ISO rules and Operating Policies and Procedures, including those pertaining to offer and dispatch compliance.
- Phases 1 and 2 will last up to two months unless an extension has been requested by the pool participant and approved at the discretion of the ISO.

## 4. Responsibilities

### 4.1 Pool Participant

The pool participant will

- Submit a testing or commissioning plan to the ISO at [ops.coordination@aeso.ca](mailto:ops.coordination@aeso.ca) in accordance with Section 3.2 of OPP 605.
- In certain unforeseen circumstances or under emergency conditions, at the discretion of the ISO, the testing or commissioning plan submitted in short notice may be approved subject to real-time AIES reliability requirements and operational flexibility. This approval may be requested by submitting a test or commissioning plan to the ISO at [ops.coordination@aeso.ca](mailto:ops.coordination@aeso.ca), and contacting the SC as soon as possible prior to the commencement of the testing.
- Must comply with Section 3.2, if testing or commissioning a new generating unit.
- Must inform the ISO of completion of Phase 1 and receive approval from the ISO to proceed to Phase 2.
- Obtain approval for an extension of phases 1 or 2 of testing and commissioning process if required.
- Specify the type of testing, the date and time of the testing or commissioning being requested, and the time, duration and magnitude of the expected energy output levels during the test or commissioning period.

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- Offer the energy from the generating unit in the day-ahead submission, or restate in the real-time to reflect the expected energy output amount for each settlement period during the test or commissioning period.
- Inform the ISO (ops.coordination@aeso.ca) if the testing or commissioning plan changes. If the testing or commissioning plan changes on the day of testing, notify the SC as soon as possible.
- For testing and commissioning of associated equipment/auxiliaries, submit a copy copy of the test report, in the format specified in the “Requirements for Model Validation Reporting for Generators and Generator Control Systems” as posted on the ISO web site to the ISO for review.

#### 4.2 Generating Asset Owner/Operator

The generating asset owner/operator will:

- Notify the SC before changing the real power (MW) and reactive power (MVar) output level of the generating unit during the test or commissioning period.
- Contact the SC at least one hour prior to the commencement of any testing or commissioning for approval to proceed in view of real-time system conditions.

#### 4.3 ISO

The ISO will:

- Approve or reschedule the testing or commissioning of a generating unit with the pool participant based on the anticipated AIES reliability requirements.
- Inform the pool participant when Phase 2 will commence.
- Inform the pool participant if an extension to phases 1 or 2 of testing and commissioning process has been approved.
- Forward a copy of the approved testing or commissioning plan to the SC. The SC will approve, delay or cancel the testing or commissioning of a generating unit at any time before or during the testing or commissioning based on real time AIES reliability requirements.

### 5. System Controller Procedures

#### 5.1 Managing the testing or commissioning of a generating unit

The SC will:

1. Review the submitted written testing or commissioning plan to prepare for managing the secure operation of the AIES during the testing or commissioning of the generator.
2. Approve, delay or cancel the testing or commissioning of the generating unit based on real-time AIES reliability requirements at anytime before or during testing or commissioning.
3. Log in the SC shift log if the testing or commissioning was delayed or cancelled due to system reliability reasons.

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- 4. Manage the real-time operational reliability requirements of the AIES during the testing or commissioning of a generating unit in coordination with the generating asset owner and in response to the real and reactive power output levels of the generating unit.
- 5. Log in the SC shift log the start and end time of the test(s) or commissioning.

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**6. Revision History**

Issued	Description
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2006-12-22	Supersedes 2003-07-28
2003-07-28	Revised to ISO Operating Policies and Procedures

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, and to define the procedures to be followed by the System Controller (SC).		
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Generator testing is usually characterized by inability to control output and respond to dispatch instructions.		
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at outage.scheduling@aeso.ca per following schedule:

- a. at least 10 days in advance for generators of capacity less than 150 MW.
- b. at least 30 days in advance for generators of capacity equal to or greater than 150

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MW.

In certain unforeseen circumstances or under emergency conditions, at the discretion of the ISO, the testing or commissioning plan submitted in short notice may be approved subject to real time AIES reliability requirements and operational flexibility

For commissioning of a new generator, submit a commissioning plan in accordance with Section 3.2 of OPP 605.

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document. Offer the energy from the generator in the day-ahead submission, or restate in the real time to reflect the expected energy output amount for each settlement period during the test or commissioning period.0.00

Offer the energy from the generator, for the test or commissioning period, into the energy market at a price of \$0.00 to ensure the offered energy will be in merit to avoid non-compliance on an energy market dispatch.

Notify the SC as soon as possible if the testing or commissioning plan changes.

#### **4.2 Generator yOperator**

The generator operator will:

On the day of the test or commissioning, make a real time request for approval from the SC before the start of a test or the commissioning of a generator.

Notify the SC before changing the real power (MW) and reactive power (MVar) output level of the generator during the test or commissioning period.

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Notify the SC as soon as possible if the testing or commissioning plan changes.

Notify the SC when the test or commissioning is completed.

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Forward a copy of the approved testing or commissioning plan to the SC and appropriate parties. The information regarding timing and energy output levels will be used for settlement purposes in consideration of the application of dispatch variance penalties.

System Controller

The SC will approve, delay or cancel the testing or commissioning of a generator at any time before or during the testing or commissioning based on real time AIES reliability requirements.