




System Operating Procedures

SOP-RTMKTS.0080.0021

Administer Alternative Technology Regulation
Pilot Program

Effective Date: September 27, 2010
Revision No. 0

	© ISO New England Inc. 2010	Procedure: Administer Alternative Technology Regulation Pilot Program
	Process Name: Dispatch Regulation	
	Procedure Number: RTMKTS.0080.0021	Revision Number: 1
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Administer Alternative Technology Regulation Pilot Program


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1. Objective

The objective of this procedure is to specify the necessary interactions among parties affected by an Experimental Alternative Regulating Resource (EARR) in the ISO New England (ISO) Alternative Technology Regulation Pilot Program.

2. Background

FERC Order 890 states that Regulation and Frequency Response service “may be provided by generating units as well as other non-generation resources such as demand resources where appropriate.” To be in compliance with FERC Order 890, ISO New England will conduct a pilot program to evaluate EARR physical performance characteristics and explore feasible approaches to incorporate alternative technology resources into the regulation market.

3. Responsibilities

NOTE


Any NERC Certified System Operator, certified at the RC level, has the authority to take action(s) required to comply with NERC Reliability Standards.

NOTE

Jurisdictional Entity (JE) is the entity that operates the distribution and/or sub-transmission facilities in which the EARR is connecting to. The JE may need to interface with another entity hierarchically above them to verify the feasibility of allowing regulation to occur.

The JE is responsible for:

- A. Connection and disconnection of the EARR
- B. Verifying the regulation to be performed will not affect MW or MVAR flows adversely
- C. Verifying the regulation to be performed by the EARR will not affect voltage adversely

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- D. Verifying the regulation to be performed by the EARR will not affect other equipment (e.g., adversely affecting tap changing transformers)
- E. When needed, interacting with any hierarchical entity to verify regulation performed by the EARR will not adversely affect grid operations

ISO is responsible for:

- F. Defining the EARR telemetry requirements for participation in the Alternative Technology Regulation Pilot Program
- G. Establishing and maintaining EARR tuning parameters to assure successful regulation operations during the Alternative Technology Regulation Pilot Program
- H. Assuring the accuracy of EARR settlement data for the Alternative Technology Regulation Pilot Program Participants
- I. Developing EARR testing strategies cooperatively with of the Alternative Technology Regulation Pilot Program Participants
- J. Maintaining EARR real-time data (as a backup role to the Alternative Technology Regulation Pilot Program Participant)


The EARR Participant is responsible for:

- K. Providing real-time telemetry to ISO as specified by ISO
- L. Develop EARR testing strategies cooperatively with ISO
- M. Obtaining approval for its intended regulation operations from its JE on a continuous basis as specified by the JE

ISO, the EARR Participant and the JE shall exchange contact information as necessary to successfully perform required tasks.

4. Controls

- B. None

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5. Instructions

5.1 EARR Participant Interactions with the JE

The following discussion assumes that the process starts with an off-line EARR (i.e., the circuit breaker is open).

5.1.1 EARR Participant Request for Breaker Closure

- A. When the EARR Participant wishes to close the breaker, the EARR Participant contacts the JE to request the closure of the breaker.
- B. The EARR Participant describes the intended operations and the probable output levels under the intended operations.

5.1.2 JE Evaluation of Breaker Closure Request


- A. Upon receipt of the EARR Participant request for breaker closure, the JE accepts the request or rejects the request based on reliability concerns.
- B. The JE may need approval from other entities before the request can be accepted.
- C. If rejected, the JE shall tell the EARR Participant when the request is likely to be accepted.
- D. If accepted, the JE shall describe any exceptional operating limitations.

5.1.3 EARR Participant Describes Intended Regulation to the JE

- A. Once the breaker has been closed, the EARR Participant will inform the JE of any intended operational changes, and await approval for the changes from the JE before implementing the changes.

5.1.4 JE finds Security Risk While Regulation is in Progress

- A. If the JE discovers that network security risks have arisen some time after the breaker is closed, and that now the breaker must be opened, the JE directs the opening of the breaker.
- B. The JE shall inform the EARR Participant when the breaker can be re-closed.

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5.1.5 JE Must Stop Regulation in Progress


- A. If, during the course of providing regulation from the Participant’s EARR, the regulation output fluctuations are having an adverse impact on reliability, but a suitable output is achievable without having an adverse impact on reliability, the JE shall direct the EARR Participant to stop providing regulation and to adjust the output to a satisfactory value.

5.1.6 EARR Participant Unavailability to Implement a JE Directive to Stop

- A. If the JE directs the EARR Participant to change its regulation status to “OFF” but the EARR Participant cannot perform the task in a timely manner for any reason, the JE shall contact the ISO Operations Shift Supervisor to disable the EARR for regulation.

5.1.7 EARR Participant Availability to Interact With the JE

- A. The JE and EARR Participant shall exchange contact information to assure successful completion of relevant tasks.
- B. The EARR Participant shall provide 24 hours a day, 7 days a week coverage to interact with the JE per section 5.1 of this document.

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5.2 JE and ISO Interactions

5.2.1 Operator Disabling of EARR Regulation

A. The only interaction needed between the JE and ISO Operations personnel occurs when the JE seeks to change the regulation status of an EARR to “OFF,” and the EARR Participant is unable to make the desired change for any reason in a timely manner.

B. In this case:


- (1) The JE will call ISO Operations Shift Supervisor to request the EARR be disabled for regulation.
- (2) The ISO Operations Shift Supervisor disables the EARR for regulation on the EARR Summary Display (see Attachment A – Operator Access to EARR Information)
- (3) The ISO Operations Shift Supervisor notifies the **P**roduct **E**ngineer responsible for the **A**lternative **R**egulation Pilot Program, or designee (PEAR) that the regulation status has been disabled.
- (4) The PEAR will investigate the cause of the inability of the EARR Participant to change its regulation status to “OFF.”
- (5) Upon completion of this investigation, the PEAR will notify the ISO Operations Shift Supervisor to clear the operator disable flag for the EARR once the cause for Participant unavailability is resolved.

5.2.2 Contact Information Exchange

A. The JE and ISO Operations personnel shall exchange contact information required to successfully complete the required tasks, if these tasks are not already covered by the normal interactions between the entities. (See Attachment D – Contact Information.)

5.2.3 Entities Other than ISO Obtaining EARR Real-Time Data

A. The JE and/or hierarchically upward entities that it reports to may obtain access to output, limit, response rate, and other relevant data via ICCP by making a request for such information to their Data Communications Task Force member.

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5.3 EARR Participant and ISO Personnel Interactions

5.3.1 PEAR as Primary Contact for EARR Participant

- A. The Alternative Technology Regulation Pilot Program is designed to minimize ISO Operations Shift Supervisor involvement with the project.
- B. The ISO Operations Shift Supervisor serves as the primary initial contact only for the JE when the EARR Participant cannot change the regulation status to “OFF” in a timely manner.
- C. The EARR Participant shall use the PEAR as their primary point of contact.
- D. The ISO Operations Shift Supervisor shall provide “last resort support” for tasks noted below in case the PEAR is unavailable for an extended period of time.
If called by the EARR participant to address telemetry problems, the Operations Shift Supervisor will attempt to perform the requested manual replacements. For any other request, the Operations Shift Supervisor will notify the EMS on call analyst of their request.

5.3.2 Cooperative Development of Test Strategy

- A. The EARR Participant and the PEAR shall mutually agree to a basic strategy for a multi-day period appropriate for the present project circumstances.
 - (1) Foreseeable deviations from the basic strategy and action to be taken to be able to deviate effectively from the basic test strategy shall be agreed to mutually as well.
 - (2) In developing the portion of the test strategy for foreseeable deviations from the basic test strategy, the extended period of unavailability of the PEAR, after which the ISO Operations Shift Supervisor may be contacted as a data entry person of last resort, shall be defined.

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5.3.3 Telemetry Failure and Manual Replacement of EARR Real-Time Data

- (1) In the event that the EARR Participant is experiencing data quality problems for the automatic response rate, limits, or desired regulation status, the EARR Participant shall contact the PEAR to seek possible assistance in manually replacing values, so that regulation can be resumed if possible. The ISO Operations Shift Supervisor may be contacted as a data entry person of last resort per 5.3.2 item 2 above. Note that these entries are in kilowatts for the limits, and kilowatt per minute for the response rate, and standard manual replacement techniques are used. See Attachment A – Operator Access To EARR Information.

5.3.4 Changing Tuning Parameters to Support Changing Test Scenarios

- A. As part of basic test strategy, the possible need to adjust tuning parameters in the micro-AGC algorithm for alternative regulation limit pairs shall be addressed.
- B. If the need for tuning parameter changes is identified in the development of the testing strategy, the EARR Participant shall not attempt to regulate with the alternative limits until the PEAR has confirmed that tuning parameter changes have been implemented.

5.3.5 Review of Test Results


- A. The PEAR and the EARR Participant shall agree to a process for reviewing recent results, using standard settlement data provided to the greatest extent possible.

5.3.6 Logging Test Results

- A. The PEAR shall maintain a log to archive the conduct of the tests, including the times at which tuning parameters were changed, noting old and new values.

5.3.7 EARR Participant Modification of Regulating Limits and/or Response Rate

- A. If the EARR Participant wishes to change regulating limits or the response rate, the EARR shall be taken off of regulation before the changes are made, and then placed back on regulation after the changes have been completed.

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5.3.8 Telemetry Requirements

A. The EARR Participant shall telemeter to ISO the following standard data set:

- Desired regulation status
- Output
- Regulation high limit
- Regulation low limit
- Automatic response rate
- Breaker status
- Automatic voltage regulation status
- Voltage
- kVAR output
- Power factor
- Frequency
- Stored energy

B. The EARR Participant may obtain a waiver for telemetry of some of these quantities, on a case-by-case basis, from the ISO.

5.3.9 Continuous EARR Participant Support

A. The EARR Participant shall provide 24 hour a day, 7 days a week coverage to maintain the data set described in 5.3.8.


5.3.10 Information Sent From ISO to the EARR Participant

A. The EARR Participant shall be capable of receiving and utilizing the following data items sent to them by ISO :

- AGC setpoint
- Composite regulation status

5.3.11 Data Archiving Requirements

A. To support the review, analysis, and the prospective need to reconstitute settlement data, all data essential to the control and settlement process shall be archived.


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5.3.12 Micro-AGC Tuning Constant Selection

- A. The PEAR shall initialize and maintain the micro-AGC tuning constants to support regulation testing as shown in Attachment B - RTGEN Analyst EARRs Parameter and Summary Displays and defined in the Design Note For Experimental Alternative Regulation Resources.

5.3.13 Daily Review of Settlement Data

- A. To assure the accuracy of settlement data, a daily review of the following shall be performed by the Senior Operations Analyst:
- regulation capacity
 - time on
 - fade time
 - regulation service
 - perfect AGC output
- B. This review is analogous to that performed for the generators providing regulation for the ISO Reliability Coordinator Area/ Balancing Authority Area. See Attachment C for the relevant display.
- C. In the event of erroneous data, the data shall be reconstituted to the extent possible using methods comparable to those deployed for generators that provide regulation.

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6. Performance Measures

None


7. References

Market Rule 1 Appendix J - Alternative Technologies Regulation Pilot Program

Design Note For Experimental Alternative Regulating Resources

8. Revision History

Rev. No.	Date	Reason	Contact
0	11/18/08	Initial draft procedure	Mike Potishnak
1	09/27/10	Biennial review by procedure owner; Updated copyright date and corrected the Approved By : position title; Corrected typo in Section 2 Background; Replaced text in the 1 st NOTE in Section 3 Responsibilities' Step 5.3.13.B replaced "Control" with "Reliability Coordinator"; Attachment A updated EARRs Summary Display; Attachment D added telephone contact information for VCHARGE in as new item (7)	Mike Potishnak

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9. Attachments

Attachment A - Operator Access To EARRs Information (Confidential)


Attachment B - RTGEN Analyst EARRs Parameter and Summary Displays (Confidential)

Attachment C - GDMA Display For Reviewing and Modifying Settlement Data (Confidential)


Attachment D - Contact Information (Confidential)

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**Attachment A - Operator Access To EARRs Information
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Attachment B - RTGEN Analyst EARRs Parameter and Summary Displays
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Attachment C - GDMA Display For Reviewing and Modifying Settlement Data
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Attachment D - Contact Information
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