

ATTACHMENT L

GENERATOR COMMUNICATIONS PROJECT

ANCILLARY SERVICES REQUIREMENTS PROTOCOL

ASRP 4.2.1

Operating Characteristics of Generating Unit

A Generating Unit offering Regulation must have the following operating characteristics and technical capabilities:

- (a) it must be capable of being controlled and monitored by the ISO Energy Management System (EMS) by means of the installation and use of a standard ISO direct communication and direct control system, a description of which and criteria for any temporary exemption from which, the ISO shall publish on the ISO internet "Home Page;"
- (b) it must be capable of achieving at least the ramp rates (increase and decrease in MW/minute) stated in its bid for the full amount of Regulation capacity offered;
- (c) the Regulation capacity offered must not exceed the maximum ramp rate (MW/minute) of that Unit times a value within a range from a minimum of ten minutes to a maximum of thirty minutes, which value shall be specified by the ISO and published on the ISO's internet "Home Page;" and
- (d) the Generating Unit to ISO Control Center telemetry must in a manner meeting ISO standards include indications of whether the Generating Unit is on or off AGC at the Generating Unit end terminal equipment; and
- (e) the Generating Unit must be capable of the full range of movement within the amount of Regulation capability offered without manual Generating Unit operator intervention of any kind.

ANCILLARY SERVICES REQUIREMENTS PROTOCOL

APPENDIX A

Certification for Regulation

A 1

A Generator wishing to provide Regulation as an Ancillary Service from a Generating Unit whether pursuant to the ISO's auction or as part of a self-provision arrangement must meet the following operating characteristics and technical requirements in order to be certified by the ISO to provide Regulation service unless granted a temporary exemption by the ISO in accordance with criteria which the ISO shall publish on the ISO's internet "Home Page;"

A 1.1

Operating Characteristics

A 1.1.1 the rated capacity of the Generating Unit must be greater than 10 MW;

A 1.1.2 the maximum amount of Regulation to be offered must be reached within a period that may range from a minimum of 10 minutes to a maximum of 30 minutes, as such period may be specified by the ISO and published on the ISO's internet "Home Page:"

A 1.2 **Technical Requirements**

A 1.2.1 **Control**

A 1.2.1.1 the electrical output (in MW) of the Generating Unit must be capable of automatically changing within one second following a direct, digital, unfiltered control signal generated a signal from the ISO EMS through a standard ISO direct communication and direct control system, must meet the minimum performance standards for communications and control which will be developed and posted by the ISO on its internet "Home Page";

A 1.2.1.23 the Generating Unit power output response (in MW) to a control signal must meet the minimum performance standards for control and unit response which will be developed and posted by the ISO on its internet "Home Page." As indicated by the Generating Unit power output (in MW), the Generating Unit must respond immediately, without manual Generating Unit operator intervention, to control signals and must sustain its specified ramp rate, within specified Regulation limits, for each minute of control response (MW/minute) must be capable of immediately increasing or decreasing its real power output (MW). The maximum amount of Regulation to be offered must be reached within a 10 minute period;

A 1.2.24 **Monitoring:**

the Generating Unit must have remote monitoring equipment a standard ISO direct communication and direct control system to send signals to the ISO EMS to dynamically indicate monitor, at a minimum the following:

A 1.2.24.1 actual power output (MW);

A 1.2.24.2 high limit, low limit and rate limit values as selected by the Generating Unit operator; and

A 1.2.2.4.3 in-service status indication confirming availability of Regulation service.

A 1.5 ISO approved communication services must be in place between the Generating Unit control interface and the ISO EMS;

A 1.2.36 **Voice Communications:**

ISO approved voice communications services must be in place to provide both primary and alternate back-up voice communication must be in place between the ISO Control Center and the operator controlling the Generating Unit at the generating site and between the Scheduling Coordinator and the operator. The primary dedicated voice communication between the ISO Control Center and the operator controlling the Generating Unit at the generating site must be digital voice communication, as provided by a standard ISO direct communication and direct control system; and

- A 1.37** the communication and control system and the Generating Unit must pass a qualification test to demonstrate the overall ability to provide Regulation meeting the performance requirements of the ASRP for Regulation.
- A 2** A Generator wishing to be considered for certification for Regulation service by the ISO must make a written request to the ISO, giving details of the technical capability of the Generating Units concerned and identifying the Scheduling Coordinator through whom the Generator intends to offer Regulation service. The Generator shall at the same time send a copy of its request to that Scheduling Coordinator. Technical review request forms will be available from the ISO.
- A 3** No later than one week after receipt of the Generator's request, the ISO shall provide the Generator with a listing of ~~acceptable communication options and required~~ interface equipment ~~options~~ for Regulation, including a standard ISO direct communication and direct control system. The ISO shall send a copy of the listing to the Generator's Scheduling Coordinator.
- ~~**A 4** The Generator may elect to implement any of the options defined by the ISO, and, if it wishes to proceed with its request for certification, shall give written notice to the ISO of its selected communication option and interface equipment option, with a copy to its Scheduling Coordinator.~~
- ~~**A 5** When it receives the Generator's notice, the ISO shall notify the Generator and the Scheduling Coordinator in writing confirming receipt of the notice and issuing provisional approval of the selected options. Upon receipt of the ISO acknowledgment the Generator may proceed as indicated below to secure the necessary facilities and capabilities required.~~
- A 46** The Generator may ~~also~~ propose alternatives that the Generator believes may provide an equivalent level of communication and control for consideration by the ISO. Such proposals shall be in writing and contain sufficient detail for the ISO to make a determination of suitability. The ISO may request additional information, if required, to assist in its evaluation of the proposal.
- A 57** The ISO shall respond by accepting the alternative proposal, rejecting the alternative proposal, or suggesting modifications to the alternative proposal. Such acceptance, rejection, or suggested revision must be provided not later than six weeks after the proposal is received by the ISO. The Generator and the ISO shall keep the Scheduling Coordinator informed of this process by each sending to the Scheduling Coordinator a copy of any written communication which it sends to the other.
- A 68** Upon agreement as to ~~the any alternative~~ method of communication and control to be used by the Generator, the ISO shall provisionally approve the proposal in writing providing a copy to the Generator's Scheduling Coordinator at the same time. ~~If agreed by the ISO, the~~ Generator may then proceed to procure and install the equipment and make arrangements for the required communication and control.
- A 79** Design, acquisition, and installation of the ~~Generator's~~ ISO-approved communication and control equipment shall be under the control of the ISO Generator. The ISO shall bear no cost responsibility or functional responsibility for such equipment, except that the ISO shall arrange for and monitor the maintenance of the communication and control system at the Generator's expense, unless otherwise agreed by the ISO and the Generator. The ISO shall

be responsible for the design, acquisition and installation of any necessary modifications to the ISO EMS at its own cost.

A 810 The ISO, in cooperation with the Generator shall perform ~~its own~~-testing of ~~its the~~ communication and control equipment to ensure that the communication and control system performs to meet the ISO requirements.

A 911 When ~~it the~~ ISO is satisfied that ~~its plant, equipment and the~~ communication and control systems meet the ISO's requirements, the Generator shall request in writing that the ISO conduct a certification test with a suggested primary date and time and at least two alternative dates and times. The ISO shall, within two Business Days of receipt of the Generator's request, accept a proposed time if possible or suggest at least three alternatives to the Generator. If the ISO responds by suggesting alternatives, the Generator shall, within two Business Days of receipt of the ISO's response, respond in turn by accepting a proposed alternative if possible or suggesting at least three alternatives, and this procedure shall continue until agreement is reached on the date and time of the test. The Generator shall inform its Scheduling Coordinator of the agreed date and time of the test.

A 102 Testing shall be performed ~~under the direction of by~~ the ISO, with the cooperation of the Generator. Such tests shall include, but not be limited to, the following:

A 102.1 confirmation of control communication path performance;

A 102.2 confirmation of primary and secondary voice circuits for receipt of Dispatch instructions;

A 102.3 confirmation of the Generating Unit control performance; and

A 102.4 confirmation of the ISO EMS control to include changing the Generating Unit output over the range of Regulation proposed at different Set Points, from minimum to maximum output, and at different rates of change from the minimum to the maximum permitted by the design of the Generating Unit.

A 113 Upon successful completion of the test, the ISO shall certify the Generating Unit as being permitted to provide Regulation as an Ancillary Service and shall provide a copy of the certificate to the Scheduling Coordinator at the same time. The ISO shall change its Generating Unit data base to reflect the permission for the Generating Unit to provide Regulation service.

A124 The Scheduling Coordinator may bid Regulation service from the certified Generating Unit into the Markets starting with the Day-Ahead Market for the hour ending 0100 on the second Trading Day after the ISO issues the certificate.

A 135 The certification to provide Regulation shall remain in force until:

(a) withdrawn by the Scheduling Coordinator or the Generator by written notice to the ISO to take effect at the time notified in the notice, which must be the end of a Trading Day; or

(b) if the Generating Unit obtained ISO certification on the basis of a prior communication and control technology, until revoked by the ISO for failure to comply with the requirement set forth in A 13.1 that the

Generating Unit install an ISO-specified standard ISO direct communication and direct control system (unless exempted by the ISO).

A 13.1 Unless exempted by the ISO, if the Generating Unit obtained ISO certification on the basis of a prior communication and control technology, the ISO shall provide written notice to the Generator of the Generator's obligation to install an ISO-specified standard direct communication and direct control system along with a required date for said work to be completed as mutually agreed upon by the ISO and the Generator. Failure to meet the completion date shall be grounds for the revocation of certification, provided that the ISO must provide the Generator with at least ninety (90) days advance notice of the proposed revocation.

A 146 The certification may be revoked by the ISO only under provisions of the ASRP or the ISO Tariff.