

Entergy Transmission Guidelines for Automatic Generator Control Applications

November 21, 2006

Purpose:

This document provides guidelines for Entergy's transmission customers in establishing a generating facility on Automatic Generator Control (AGC). Each AGC request will be studied individually and established in accordance with these guidelines, which identify the needs of Entergy's Transmission Group to properly implement an AGC transfer. These guidelines are not intended to identify any separate requirements that may be established by the Balancing Authority to which the generator will provide AGC service. A generator desiring to provide AGC service to a particular Balancing Authority Area must enter into separate arrangements with that Balancing Authority.

Definitions:

Automatic Generator Control (AGC): Automatically adjusting generation in a Balancing Authority Area from a central location to maintain the Balancing Authority's interchange schedule plus Frequency Bias. AGC may also accommodate automatic inadvertent payback and time error corrections.

Balancing Authority (BA): The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.

Balancing Authority Area (BAA): The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resources balance within this area.

Generating Facility: A facility interconnected to the transmission system that contains one or more electrical generators.

GIA: Entergy's FERC approved Generator Imbalance Agreement.

QF: A Qualifying Facility under the Public Utilities Regulatory Policies Act (PURPA) of 1978.

SOC: Entergy's Transmission System Operations Center.

AGC applications:

Generating Facilities may commit all or part of their generating capacity to AGC service and may contract to provide AGC service to one or more BAAs simultaneously. Different AGC scenarios shall necessitate different facility requirements, software modifications, and operating procedures of Entergy Transmission. Each request must therefore be studied separately.

Pseudo-Tie requirements:

All Generating Facilities providing AGC service to a non-Entergy BAA shall do so under a pseudo-tie arrangement, not through a dynamic schedule.

Documentation and Correspondence:

If a Generating Facility or BAA wishes to establish an AGC arrangement and transfer energy via a pseudo-tie across the Entergy transmission system, the following documentation and correspondence will be necessary:

- 1) **Letter of Notification:** Entergy must receive a Letter of Notification from the customer, which shall identify the Generating Facility, the specific generator(s) within the facility that will provide AGC service, the requested commencement date, and the MW range expected to be delivered. The letter also may specify other details that will expedite establishment of the AGC service.
- 2) **Meter Logic:** The customer and Entergy shall agree on the appropriate meter logic to be used in delineating, on a real time basis, auxiliary or host load, point to point transmissions, QF deliveries, and AGC service from the output of the various generators at the Generating Facility. All possible generating scenarios will be considered, and operational issues shall be resolved and documented. In each instance, these aspects of the AGC service shall be in accordance with applicable tariffs.
- 3) **Facilities Study:** Entergy will perform, at the customer's expense, a facilities study to determine the new facilities and process changes that are needed to establish the AGC service. In addition to determining the scope of work, the facilities study will provide a cost estimate and a schedule to design and implement all changes required to implement the AGC service.
- 4) **Dynamic Transfer Operating Agreement:** All parties directly affected by the implementation of the AGC generator shall execute a Dynamic Transfer Operating Agreement, which shall stipulate normal and contingency AGC operations as well as other operational issues. Entergy shall file the agreement with FERC.
- 5) **Equipment Specifications:** If customer owned facilities are to be used by Entergy for AGC service, the specifications of such equipment shall be submitted to Entergy for review and approval.

Transmission Service:

Prior to commencing AGC service, transmission service must be obtained from Entergy Transmission. It may be necessary to perform additional load flow studies up to the full AGC contract MW amount to ensure deliverability of the power. If transmission upgrades are identified as a result of these studies, such upgrades must be completed prior to commencement of the AGC service. Until such time as the upgrades are completed, AGC service shall be capped at the maximum transmission capacity (if any) available for such service without such upgrades.

Metering and Communication:

Revenue accuracy metering facilities and telemetry shall be used for all AGC service. If the Generating Facility is within Entergy's BAA, Entergy Transmission shall facilitate the installation and commissioning of such metering facilities, which may include the metering equipment, RTU, data communication circuits, and software modifications necessary to provide to the SOC instantaneous and accumulator data for the AGC energy and non-AGC energy. The meter(s) shall be installed, owned

and maintained by Entergy. Other metering equipment, which may include the CTs, CVTs and RTU in the Generating Facility's switching station, may be installed, owned and maintained by the customer. All facilities shall meet Entergy design, construction and maintenance standards and, if customer owned, the specifications shall be submitted to Entergy for review and approval. All facilities and studies required to allow the Generating Facility to deliver AGC service shall be funded by the customer.

Data Requirements:

Entergy Transmission requires the following data points for all AGC energy and non-AGC energy.

- Instantaneous MW flow from the generator or set of generators
- Instantaneous MVAR flow from the generator or set of generators
- Integrated MW-Hours from the generator or set of generators (Rec hourly)
- Integrated MVAR-Hours from the generator or set of generators (Rec hourly)
- Integrated MVAR-Hours to the generator or set of generators (Del hourly)
- Instantaneous line-to-line bus voltage (kV)

AGC Value Determination:

Unless approved by Entergy, the real-time AGC MW value shall be established by the actual metered MW output of the AGC generator(s), net of the appropriate host load and scheduled energy in accordance with Entergy tariffs. Additionally, unless approved by Entergy, the AGC MW requirements shall not be calculated using signals, pulses or load meters apart from the Generating Facility.

Host Load and Retail Service:

The customer and Entergy Transmission shall ensure that all meter logic used to net auxiliary or host load from the output of the various generators at the applicable Generating Facility complies with approved tariffs. All possible generating scenarios shall be addressed. Entergy shall under no circumstances pro-rate any portion of the auxiliary load for netting purposes. Only actual metered data shall be used for any netting. If the actual output of the Generating Facility is negative (energy flow is metered as an export out of the Entergy Transmission System at the point of interconnection) the Generating Facility shall purchase the energy under the appropriate retail tariff.

PURPA/QF Applicability:

Like all Generating Facilities providing AGC service, a Generating Facility that has qualified as a QF under PURPA and has entered into an AGC agreement shall ramp its generators up or down to provide real-time AGC services to the BAA contracting for AGC service. Load following requirements shall not be transferred to Entergy or the Eastern Interconnect via a PURPA Put.

GIA Applicability:

All energy delivered into or across Entergy's transmission system under an AGC agreement shall be exempt from GIA billing.

Cost:

The customer shall reimburse Entergy for actual costs, including the estimated tax cost incurred by Entergy, to set up the Generating Facility on AGC service. The cost may include, but not be limited to, metering equipment installation, testing, software programming, system load flow studies and system upgrades. The customer shall provide reasonable and adequate security prior to construction, as determined by Entergy.