

Regulation and Load Following Metering, Communications, and Control Requirements

The Ancillary Services Task Team has indicated that the Ancillary Services Regulation and Load Following need to be under direct control of the RTO. For Regulation, this means a hard-wired signal sent to the generation to provide regulation. For Load Following, the control identified is instructed direction to move generation to follow the load. This paper will address the metering, control, and communications requirements for these two ancillary services as it applies to resources bid into the RTO West Market and those self-supplied. The metering, communications, and control for the two supply options for obtaining these ancillary services are the same.

Regulation

Regulation Service follows the minute-to-minute fluctuations in the Area Control Error for the RTO West Control Area. The resources providing this service need to respond to raise and lower pulses sent from the RTO during real-time. This means being able to respond to signals sent every few seconds. The resource will need to have real-time MW metering that is telemetered to the RTO. This signal will indicate to the RTO if the resource is at either end of its operating range and if it is responding to the raise and lower pulses sent. There needs to be a reliable communications in both directions. The signals sent to the units may go through an intermediary controller for the resources supplied by self-provision or bids into the Ancillary Services Market or directly to the plants. However, the signal back to the RTO should come directly from the plants.

Therefore, the only resources that can bid into the Regulation market have to be tied into the RTO AGC system and have direct communications back to the RTO. This can be directly or through an intermediary controller. It is envisioned that at the start of the RTO, most of the control will occur through an intermediary control with resources moving over to direct links later.

Load Following

Load Following Service follows the load trends up or down over a longer period, perhaps minutes. With instructed direction, the resource does not need to hard-wired to the RTO AGC. However, it will need to move when instructed to do so by the RTO. Therefore, a telecommunications link between the RTO and the load following resource will be required with the ability to confirm that the instructions have been received. The RTO will need to know the actual generation when the instructions are given, the mw change in the generator output, and the energy delivered or reduced. This information will allow the RTO to settle with the load following provider. The resource output will need to have real-time MW metering that is telemetered into the RTO. In addition, hourly MWH readings will need to be available to the RTO either through a direct circuit or a dial up circuit.

The MWH meter should have revenue-metering accuracy since the settlements will be based on this meter reading. The real-time metering accuracy may not need to be of as high a quality since it is used more for indicating what the unit is doing. However, the starting output of the plant may need to be known to a higher degree of accuracy since it is also used in the settlements.