

MISO's Ramp Capability Product improves the efficiency and reliability of the electric system

Overview

Demand for electricity varies constantly. MISO manages these short-term fluctuations by continuously instructing electric generators and other energy-providing resources to increase or decrease their energy output (i.e. "ramping" up or down) to match real time demand.

The Ramp Capability Product is a market-based solution that:

- 1) better positions electric generating resources to respond to both expected and unexpected short-term changes in energy requirements; and
- 2) sends economic signals that encourage resources to offer more ramp capability to MISO.

MISO's Ramp Capability Product provides these reliability and economic benefits more efficiently than simply increasing existing operating reserve requirements.

Background

MISO ensures reliability by managing online generation to meet changing demand and to ensure adequate operating reserves that are needed to address larger or infrequent deviations, such as the unexpected loss of an electric generator. Ramping capability is a measure of the ability of generators to quickly respond to short-term fluctuations in energy requirements. When the energy resources cannot ramp fast enough to follow the changing demand, a shortage in operating reserves may occur, triggering high "scarcity" pricing.

The need for ramping is increasing with the addition of new renewable energy resources, such as wind and solar generation, and the greater scheduling flexibility in exchanging energy with neighboring regions (e.g. 15 minute scheduling intervals). Without sufficient ramping capabilities, there could be an increase in the frequency and severity of short-term operating reserve scarcity events.

Incentivizing Reliability

Before launching the Ramp Capability Product, MISO managed rampable electric generating capacity to meet these uncertain system energy requirements. Generators and other resources were compensated through market prices for delivering energy and providing certain ancillary services, but not explicitly for providing ramp capability. Occasionally, system-wide ramp capabilities were insufficient to match energy requirements, resulting in operating reserve shortages. This triggered energy price spikes, even when system conditions did not pose a significant reliability risk.

The Ramp Capability Product provides a determined quantity of ramp capability from available generation resources to respond to both expected and unexpected variations of system ramping needs. Procuring these requirements in both Day-Ahead and Real-Time markets will cost-effectively dispatch the most efficient resources to handle changing energy requirements, reducing overall costs by up to \$5 million annually, while also bolstering system reliability.

Additional Resources

MISO's Ramp Management webpage:

<https://www.misoenergy.org/WhatWeDo/MarketEnhancements/Pages/RampManagement.aspx>

Did you know?

- The Ramp Capability Product is expected to reduce costs by up to \$5 million annually while also bolstering system reliability.
- The Ramp Capability product incentivizes improved ability of electric generating resources to respond to constantly changing electricity requirements.