

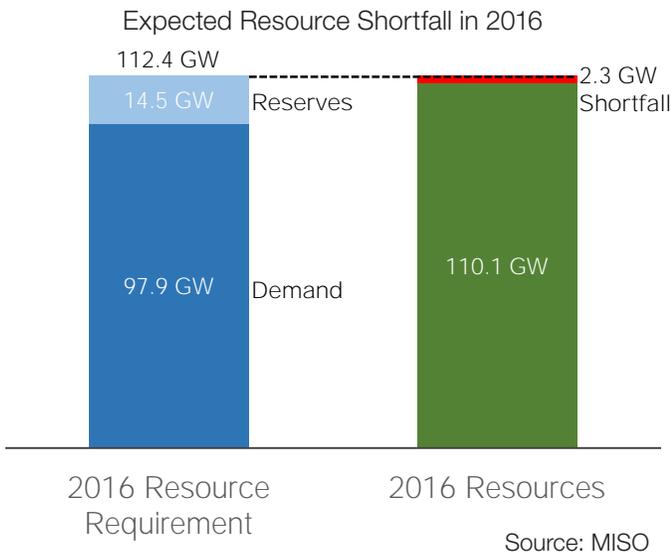


The Midwest electric system is entering a period of rapid change. Historically low natural gas prices and new environmental regulations are making it difficult for many baseload power plants to stay competitive. As a result, many power plants are retiring, resulting in diminished excess supply and concern over system reliability. As a potential system reliability management tool, demand response will be a valuable resource as we enter this period of constrained resources.

### Demand Response can meet capacity needs caused by electric generation retirements

Historically low natural gas prices, along with a suite of new environmental regulations focused on the power sector are putting pressure on America's fleet of coal power plants, particularly in the coal-heavy Midwest.

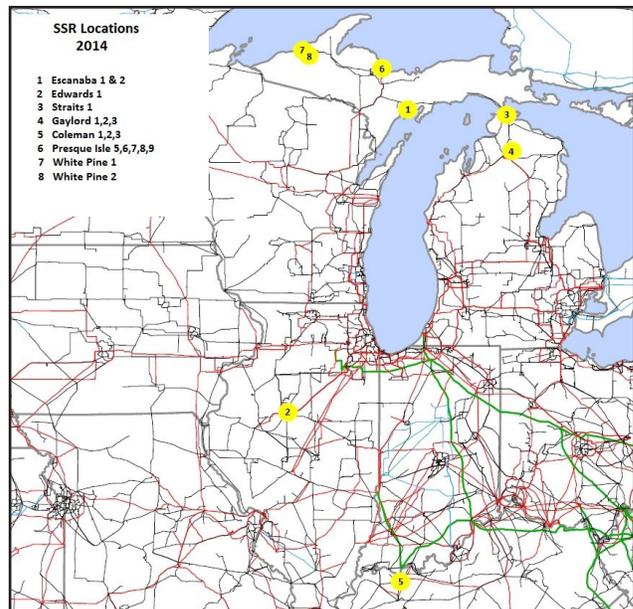
The Midcontinent Independent System Operator (MISO) has identified up to 26 gigawatts (GW) of coal capacity for potential retirement in their territory.<sup>1</sup> This was identified from generator surveys and policy studies completed during or before the summer of 2014.<sup>2</sup> This equates to about one-third of the region's total coal resources. As a result of currently planned retirements (including 10-12 GW of coal), MISO is predicting a resource shortfall in 2016 of about 2,000 MW below the level needed to maintain the reserve margin necessary for adequate system reliability (see figure below). Capacity needs driven by this shortfall could be met with Demand Response, typically with lower cost and a shorter lead-time than developing new power plants.



### Demand Response can help mitigate reliability issues posed by retiring power plants

Retiring power plants can sometimes cause challenges to operators if they are located in an area that is isolated or lacking in infrastructure. In these situations, the grid operator has the authority to prevent retirement of the power plant (see map below for examples in MISO's territory). In the Midwest, MISO will work out an agreement with stakeholders that keeps the plant online until reliability issues can be solved and equitably distributes the cost of managing the plant's retirement. As part of such an agreement, demand response, in combination with other resources like distributed generation, energy efficiency, and transmission, can provide an alternative solution that allows power plants to retire according to their economic situation. DR is an attractive option that can allow our most polluting power plants to retire because it is typically cheaper, more flexible, and can be procured more quickly than building out new infrastructure.

Location of MISO Must-Run Power plants



Source: MISO Transmission Expansion Plan 2014 Report

Written by: Steve Dahlke Policy Associate  
Dane McFarlane Senior Research Analyst

Sources:  
1. MISO One-Pager, 2014 Carbon Dioxide Analysis.  
2. MISO. MISO Transmission Expansion Plan 2014 (MTEP14), Book 2: "Resource Adequacy". 2014.



## Demand Response assumptions in resource planning

A lack of information regarding future plans around demand side resources, particularly demand response, creates a difficult investment environment for energy providers and makes it difficult to plan future energy supply resources. Utility resource plans across the region include little to no discussion of plans to expand their DR programs, despite national industry survey data reporting that the large majority of utilities plan to expand DR over the next five years.<sup>3</sup> MISO, for example, has a robust transmission planning process, but because of this information scarcity they experience challenges in developing future demand response assumptions.

Given the impending resource shortfall, it is important to accurately forecast demand response additions and include DR in resource and transmission planning conducted by both MISO and individual states. Resource forecasting in MISO’s *2015 Transmission Expansion Plan* (MTEP15) largely underestimates the amount of demand response resources available in the region compared to projections from other sources. MISO’s Business As Usual scenario projects very minor growth in DR above the 5,750 MW registered in 2014. Even MISO’s high-DR scenario<sup>4</sup> projects unusually low growth, compared to demand response projections by FERC<sup>5</sup> (see table below).

Projected Demand Response Available in MISO by 2019

	Business As Usual	High DR Scenario
MISO Projection	5,827 MW	8,850 MW
FERC Projection	8,158 MW	28,902 MW

Sources: MISO, FERC

Unlike MISO’s projections, FERC’s assumptions also incorporate improvements in technology such as advanced meters and dynamic pricing, and assume an expansion of DR program offerings to customers who currently don’t have the option. MISO historically hasn’t looked at these new technology drivers, but will be working with stakeholders and a third-party to take a closer look at evolving technologies and improving their DR and EE assumptions in their 2015 transmission plan.

Notes and Sources:

3. Utility Dive, *The State of the Electric Utility*. 2014.  
4. This is MISO’s Public Policy Future, which is intended to “capture the effects of increased carbon regulations and an even greater move towards clean energy production and efficient use of resources” as

## The Role of States

Electric resource investments in the Midwest are generally made through integrated resource planning, which is conducted by regulated utilities and approved by state public utility commissions. The scope, process and regulatory authority related to resource planning varies by state across the Midwest (see table below). These processes often give new generation resources priority or preference over demand response.

State	Formal Integrated Resource Planning?
Illinois	No. The IL Commerce Commission and IL Power Authority oversee a procurement process for new electric resources.
Indiana	Yes. Utilities are required to submit IRPs every two years.
Iowa	No
Michigan	An IRP is initiated as part of a need determination process for new generation resources, conducted over a 10-year horizon.
Minnesota	Yes. All large utilities submit plans over a 15-year horizon, typically every 2-3 years. Commission action is binding on investor-owned utilities, and advisory for cooperative and municipal generation and transmission organizations.
Missouri	Yes. Filed every three years by the state’s four investor-owned utilities, with a 20-year minimum planning horizon. The IRP must analyze demand-side, renewable, and supply resources on an equivalent basis.
North Dakota	No
South Dakota	No
Wisconsin	No

State-by-state differences in resource planning on a regionally-interconnected electricity grid pose challenges to system operators. Nevertheless, individual states have authority over resource planning, and should be a focus area for approving investments in demand response. Harmonizing differences in state resource planning across the Midwest would improve regional resource adequacy, preserve state jurisdiction, and enable greater efficiencies and cost savings.

reported in MTEP14: <https://www.misoenergy.org/Planning/TransmissionExpansionPlanning/Pages/MTEP14.aspx>  
5. FERC, *A National Assessment of Demand Response Potential*. 2009.