



MICHIGAN

Electric Reliability in Michigan

a policy brief

Public Sector Consultants' research on electric reliability in Michigan is composed of two major works: a full report and analysis titled "Electric Reliability in Michigan: The Challenge Ahead," and this policy brief, which is intended to highlight the important elements of the full report. Both were released on Wednesday, November 19, 2014.

Michigan faces a near-term challenge of ensuring an adequate supply of electricity to its residents and businesses. More than 66 million customers across the country are facing this same challenge (Perkins 2014). As soon as 2016, the retirement of aging coal plants (driven by federal environmental regulations and high costs) will cause Michigan's electric reserve margins to dip below target levels.

Although greater reliance on energy efficiency and renewable energy generation can help bridge the supply gap, even aggressive efforts in those areas will not eliminate the need for new base load power plants in the next three to five years. Unfortunately, Michigan's electric choice law does not offer the customer base certainty required for utilities to make long-term investments in new base load plants (PSC 2007, 9). The law also results in higher operating costs for incumbent utilities, which must either maintain excess generating capacity or be prepared to purchase electric power at market prices in order to cover the needs of choice customers that may return. These costs are borne by the utility's remaining customers while a small fraction of customers served by retail energy marketers get a free ride. An example of this "cost shifting" is occurring in the Upper Peninsula of Michigan (see Issue in Focus on page 4).

While reforms were made to Michigan's retail electric market in 2008 to mitigate some of these concerns, a fundamental flaw in the state's electricity market structure remains: no entity has been clearly assigned the responsibility for ensuring adequate, long-term supplies for customers participating in electric retail open access. Absent reform, the current hybrid market structure will either place reliability at risk (assuming the utility does not plan generation to meet the needs of current retail open access customers) or shift additional costs of new capacity unfairly to the utility's existing customers while a small fraction of customers served by retail energy marketers get a free ride.¹ Michigan needs to establish the policy framework to address this impending supply problem in a way that is reliable, affordable, and fair for Michigan residents and businesses.

¹ According to the MPSC Commissioner John Quackenbush, "The nearly 11 percent load participation in the choice market today translates into 0.3 percent of total customers for DTE and 0.06 percent for Consumers Energy. The current rate structure essentially transfers fixed costs no longer recoverable from customers participating in choice to all remaining customers." (See *Reading Michigan to Make Good Energy Decisions: Electric Choice*. Available at www.michigan.gov/documents/energy/electric_report_440539_7.pdf (accessed 10/14/14).)

Changes in Energy Policy Have Made Ensuring Necessary Supply Challenging

Greater federal influence and the movement from a system of state-regulated and vertically integrated utilities to deregulation have created challenges for ensuring enough electricity supply to meet customer needs.

Traditional Utility Model / Vertically Integrated Utilities

Generating base load electricity² is a high-cost, long-term investment. Without a sense of certainty, energy providers have a difficult time funding such projects. Under the traditional model³, the approach to building new generation was relatively straightforward (Spence 2008). The utility would calculate its expected growth, build facilities necessary to meet their projections, and seek regulatory approval to recover the cost in their rates.

During the 20th century, utilities successfully built infrastructure to meet the rapid growth in demand for electricity, providing declining retail rates to customers through the 1970s (Joskow 2000). Retail electric prices spiked significantly in the late 1970s and '80s, due in large part to global oil prices that increased utility operating costs, pressuring market restructuring (Joskow 2000, 48). Industry restructuring was driven by the belief that energy service was not a natural monopoly and deregulation would lead to lower energy costs.

Federal policies paved the way for competition in the electric industry, creating wholesale markets by giving producers nondiscriminatory access to energy transmission. States followed, implementing retail restructuring practices that gave consumers a choice of power providers. This approach resulted in a patchwork of different policies to implement retail restructuring being adopted in as many as 20 states by the year 2000 (Joskow 2000, 44).

Industry Restructuring in Michigan

Michigan was one of those states that experimented with retail restructuring. Public Act 141, signed into law in 2000, established Michigan's hybrid form of electric restructuring. This gave customers the option of remaining with their incumbent utility⁴ or receiving service from an Alternative Energy Supplier (AES), also known as retail energy marketers (PSC 2006). In an effort to guarantee reliable service for citizens, the incumbent utilities remained fully regulated and were set as the default service provider (PSC 2006, 4).⁵ This meant that customers were free to switch between regulated utilities and unregulated retail energy marketers, but only the regulated utilities were obligated to serve customers. To meet this obligation, regulated utilities were required to either maintain extra electric generation capacity for customers that might return and

spread the costs across their remaining customers, or purchase electric power at market prices to cover the needs of each returning customer—whose rates were based on the average costs of the entire utility. Michigan's restructuring created two distinct challenges. First, the additional costs incurred by the regulated utility were not paid by returning customers but rather spread across all customers. Second, regulated utilities had to be prepared to serve a customer base with an unknown number of actual customers on a year-to-year basis, which complicated decisions about future capital investments.

Concerns regarding reliability prompted the Michigan Public Service Commission (MPSC) to conduct an in-depth assessment of Michigan's future energy needs. The Capacity Needs Forum report concluded that Michigan needed new generation, and it was unlikely that either regulated utilities or retail energy marketers would have the certainty required to build it under the current structure (MPSC 2006).

“unless there are some significant enhancements to existing supplies, growing demand will cause existing electric generation and transmission capacity to be insufficient to maintain reliability standards in the Lower Peninsula”

—Michigan Capacity Needs Forum:
Staff Report to Michigan Public Service Commission
Presented January 2006

Energy Policy Reform

In 2006, Governor Jennifer Granholm directed the MPSC to develop an energy plan that would “identify any legislative or regulatory changes necessary ... to best position the state to meet the energy challenges of the future” (Granholm 2006). *Michigan's 21st Century Electric Energy Plan*, released in January 2007, established goals aimed at ensuring reliable electricity and investment in generation. The plan also made recommendations for state commitment to renewable energy and efficiency (MPSC 2007).

In response to the report's recommendations, the Michigan Legislature passed market reforms as part of a comprehensive energy package. Included in these reforms was Public Act 286 of 2008, which adopted aspects of the plan's recommendations. In an effort to improve stability, PA 286 capped the number of customers served by retail energy marketers at 10 percent of the state's electric load. The legislature also adopted a recommendation

2 The amount of electricity needed to sustain the basic energy demands, henceforth referred to as “generation.”

3 Utilities were vertically integrated, meaning they owned and operated generation assets, the transmission network, and the local distribution network required to deliver electricity to customers throughout their geographic service areas. These licensed monopoly energy service providers were able to charge administratively established rates that allowed the companies a “fair” return on their prudently made investments. In return for their monopoly status, utilities accepted an obligation to serve all customers who requested service and were willing to pay the regulated rates.

4 Utilities that supplied electric energy to retail customers located in an exclusive service territory established by the MPSC prior to the passage of PA 141.

5 The regulatory compact obliged utilities to serve all customers in their territory, in exchange for state regulators allowing them to earn a reasonable return on investment.

that allowed utilities to seek approval for new generation before construction begins.⁶ While these reforms reduced the level of fluctuation for utilities, they did not resolve the fundamental flaw of the hybrid market structure. Incumbent utilities are still required to serve an unknown customer base, which inhibits accurate supply planning and results in higher operating cost. These costs are borne by the utility's remaining customers while a small fraction of customers served by retail energy marketers get a free ride.

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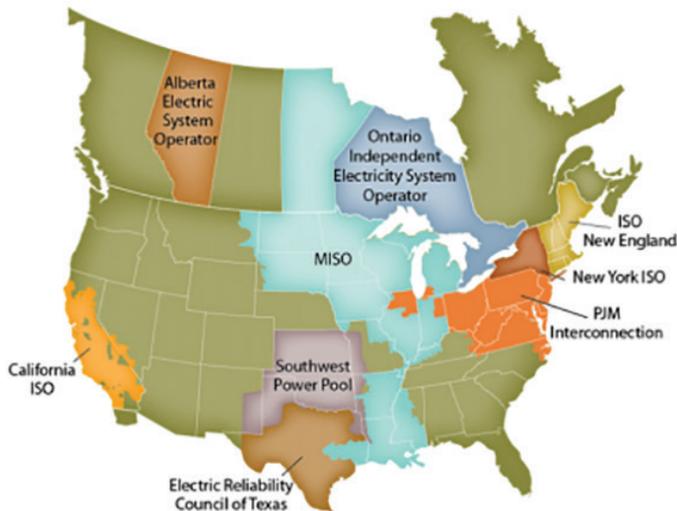
The reforms of 2008 and recommendations of *Michigan's 21st Century Electric Energy Plan* were based on expectations of a modest growth rate in energy consumption for the years ahead.⁷ These projections showed Michigan was facing a supply shortage and that policy changes were needed to avoid it. At the same time Michigan enacted its new policy, the country entered a severe economic recession (NBER 2010). The anticipated shortages were postponed by a sharp decrease in energy consumption. When anticipated shortages didn't materialize, the need to build new generation was delayed, and any flaws in Michigan's hybrid market structure were left hidden. Michigan can no longer delay investing in its energy security.

It is Michigan's Responsibility to Ensure Adequate Supply

Among policies aimed at promoting electric competition, the Federal Energy Regulatory Commission created regional coordinators for electric markets and transmission systems. Michigan's transmission operators were given the choice to join Regional Transmission Organizations (RTOs) under PA 141. In 2002, the majority of the state's transmission companies joined the Midwest Independent System Operator (MISO). MISO plays an integral role in providing reliable electricity across its service territory, and conducting annual planning exercises with energy generators to help ensure providers will have enough capacity to meet expected demand. In recent years, MISO attempted to develop new techniques to attract generation investment through market mechanisms. The primary method—a "capacity market"—has not resulted in the generation needed to replace plant retirements (Potomac 2014). Individual states retain all authority over planning and permitting new generation resources (FERC 2012). While it does not have authority to require new generation, MISO can require a plant to remain in operation if they determine it is necessary for reliability. Currently, MISO is exercising this authority in Michigan's Upper Peninsula, highlighting the challenges caused by the state's energy policy (see Issue in Focus, page 4).

MISO specifies that nothing in its resource adequacy planning role *"affects existing state jurisdiction over the construction of additional capacity or the authority of states to set and enforce compliance with standards for adequacy."* (APSC 2011)

Regional Transmission Organizations



SOURCE: Sustainable FERC Project, N.d., "ISO RTO Operating Regions." Available at <http://sustainableferc.org/wp-content/uploads/2013/10/ISO-RTO-Operating-Regions.jpg> (accessed 10/13/14).

Resource Adequacy Frameworks

MISO's Role

- **Coordinate Energy Supply and Delivery**
 - Wholesale market
 - Interstate transmission
- **Set Reliability Standards**
 - Planning reserve margin
 - No authority to require new generation
- **Must Run Requirements**
 - Last resort measures only
- **Capacity Markets**

State's Role

- **Regulate Retail Rates and Energy Distribution**
- **Authority Over Electric Generation Resources**
 - How much?
 - Where?
 - What kind?
- **Regulatory Oversight of Utility Investments**
 - "Used and useful"
 - "Safe, reliable, adequate service"

⁶ The Certificate of Need would allow utilities to seek commission approval for a plant before undergoing construction. Utilities would prepare an Integrated Resource Plan detailing their expected demand and proposed actions.

⁷ Both the *Michigan Capacity Needs Forum* and *Michigan's 21st Century Electric Energy Plan* made projections that Michigan would need new generation to meet steadily increasing energy demands, 2.1 percent and 1.9 percent respectively.



ISSUE IN FOCUS

Michigan's Upper Peninsula

Across the state, the problems created by Michigan's current market structure are clear—the uncertainty in planning for future reliability needs, the involvement of federal agencies, the tension between federal and state regulators, and the shifting of fixed costs to remaining residential and small business customers. Nowhere is it being demonstrated more clearly, however, than in Michigan's Upper Peninsula.

In 2008, the Michigan Legislature reduced the level of retail open access participation from 100 percent to 10 percent of an electric utility's average retail sales. One industry was specifically exempt from the 10 percent cap, though: iron ore mining and processing facilities. These facilities were allowed to receive service from an alternate supplier regardless of whether their load exceeded that 10 percent cap. In June 2013, Cliffs Natural Resources, which operates two mines in the Upper Peninsula, notified Wisconsin-based We Energies that it would be leaving their service for an alternative electric supplier (33). Following that loss of more than 80 percent of their customer base, We Energies announced their plans to retire the 431 MW Presque Isle Power Plant (PIPP) in Marquette, Michigan.

Closing the Presque Isle Power Plant, however, would threaten reliability across the Upper Peninsula. Both the state and federal government are attempting to control the situation, by insisting that PIPP remain in service despite the economic implications. We Energies entered into an agreement to keep the plant open with the Midcontinent Independent System Operator (MISO)—the federally regulated entity in charge of ensuring reliability for the regional electric grid. This agreement would require Upper Peninsula customers to pay \$97 million per year to maintain PIPP (34). The Michigan Public Service Commission (MPSC) is contesting this decision and attempting to reassert control over the situation in the Upper Peninsula. The MPSC claims MISO's intervention was unjustified because PIPP cannot retire without the MPSC's permission (35). The MPSC continues to work with various parties to seek other solutions to the Upper Peninsula's long-term energy needs (36).

"[The Presque Isle crisis] is an example of what happens when the federal government makes [energy] decisions for you."

—Valerie Brader, Senior Policy Advisor to Governor Rick Snyder

"If the MPSC were to spread the costs of the loss in load in [We Energies] territory (85% load loss)... to Michigan full-service customers, the increase in rates could be greater than 70%."

—*Readying Michigan to Make Good Energy Decisions: Electric Choice* pg. 13.

The planned retirement of PIPP exposes another major challenge created by Michigan's "hybrid" energy market: utilities in Michigan are required to have the capacity to serve all customers in their service territory, even those who choose a different supplier. Despite no longer selling power directly to the mines, We Energies must maintain PIPP in order to serve them if they decide at any time to return to regulated service. The obligation to serve forces utilities to operate with higher costs that are not paid by customers served by alternative energy suppliers. Instead, the added costs are passed on to the utility's existing customers.

Because of Michigan's hybrid market structure, residents and businesses in the state's Upper Peninsula are absorbing the costs to maintain an outdated plant. These significant price hikes, along with the problems of state and federal tension and planning for future reliability needs, are evidence enough that the state needs to take concrete steps to address its energy challenges as soon as possible.

Update as of January 13, 2015

Residents of the U.P. will avoid significant and prolonged increases in their utility bills following a plan announced by Governor Snyder, on Tuesday, January 13, 2015. The designation of the Presque Isle Power Plant as an SSR set off a flurry of activity as state officials, energy providers, and residents tried to find a solution that would allow them to avoid the \$97 million cost FERC imposed on them.

The proposed agreement between We Energies, Upper Peninsula Power Company (UPPCO), Cliffs Natural Resources, Invenergy, and the State of Michigan has four primary components.

- ◆ We Energies and the Wisconsin Public Service Corporation will sell their utility service territory and electric generation in Michigan, including PIPP, to UPPCO. UPPCO will serve their new customers using the rates already approved by the Michigan Public Service Commission and continue operating the PIPP.
- ◆ UPPCO will be required to terminate the plant's SSR agreement by July 2015, and Cliffs has agreed to return to purchasing power directly from the plant until it is retired.
- ◆ Cliffs will partner with the Invenergy to build and operate a combined heat and power facility to supply their energy needs. Excess energy produced at the new facility can be sold to local utilities.
- ◆ Governor Snyder, Attorney General Bill Schuette, and Cliffs Natural Resources have agreed to rescind their opposition to the planned merger of We Energies and Integrys Energy Group.

In his statement, Governor Snyder said, "The solution these agreements advance ensures reliability, rids the U.P. of years of unaffordable charges, improves the environment, and most of all gives the U.P. the power and ability to adapt to the future (37)."

Environmental Regulations Constrain Supply

The need for new generation is unavoidable, driven in large part by significant retirements of coal plants across the Midwest. Coal has long been the primary fuel source in electric generation (EIA 2014).⁸ Environmental regulations are severely impacting the ability of coal to compete with other fuel sources. The Environmental Protection Agency's (EPA) new standards for mercury and air toxics specifically target facilities that generate from fossil fuels.⁹ These new emissions standards for coal plants require investment in costly control technologies to stay in operation (MPSC 2007). MISO has reported that 83 percent of its coal fleet is being impacted by these regulations. (MISO 2014).¹⁰

*"[T]he cost to retrofit these [retiring] generation stations is the same or higher than the cost to replace them at nearly **\$667,000/MW**"*

—Clair Moeller
MISO executive vice president
November 30, 2011

The uncertainty could soon increase with new carbon emission standards proposed under the Clean Air Act. While the details of the EPA's Clean Power Plan¹¹ are subject to change, any carbon emission reduction standards will negatively impact coal generators and add to energy shortages (MISO 2014).

Impacts on Michigan's Energy Future

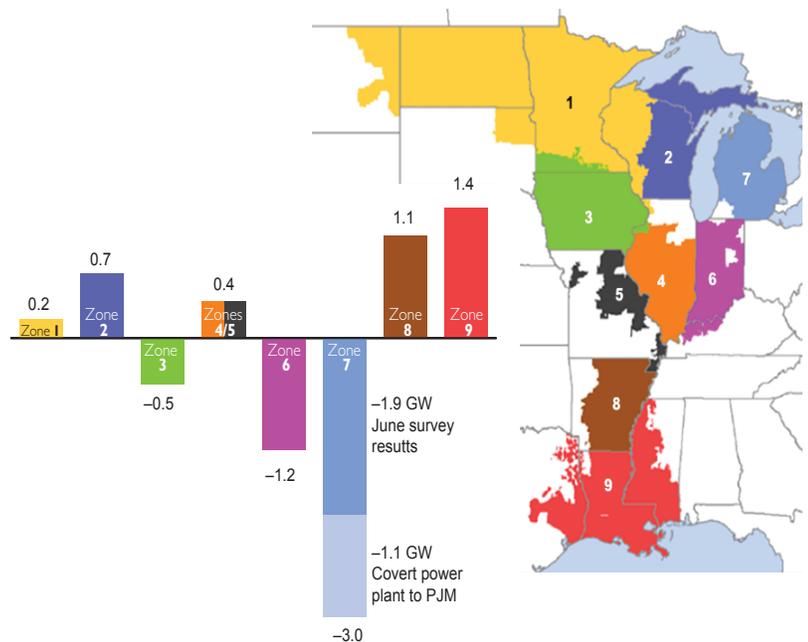
These EPA regulations severely impact states like Michigan that rely heavily on coal generation (EIA March 2014).¹² Unable to justify additional compliance costs, many of Michigan's electricity generators are retiring coal plants. The state's largest electricity providers have announced the retirement of nine coal generation units by 2016. Combined with smaller plants, Michigan is expecting to lose a total of 1.3 GW—enough energy to serve approximately 1 million people, which is equivalent to the combined population of Detroit, Grand Rapids and Lansing (MISO 2014). Coal plant retirements are straining Michigan's energy supply more than any other region within MISO, as shown in exhibit to the right. Without intervention, by 2016, Michigan will fall below the minimum reserve required in MISO, doubling its risk of experiencing an outage.



DETROIT Grand Rapids LANSING

1.3 GW is enough energy to serve approximately **1 million people**, which is equivalent to the combined population of these three cities.

2016 Resource Adequacy Forecast, Local Resource Zone Summary



8 In 2013, coal accounted for 39 percent of the nation's electricity.

9 For more details on the EPA's Mercury and Air Toxics Standard, visit: www.epa.gov/mats/pdfs/20111221MATSsummaryfs.pdf

10 The decision to invest in control technologies is based on the plant's ability to recover the costs of investment through continued electricity sales. Michigan's coal plants are more than 40 years old on average.

11 On June 2, 2014, the U.S. Environmental Protection Agency, under President Obama's Climate Action Plan, proposed a plan to cut carbon pollution from power plants.

12 Coal makes up more than 50 percent of Michigan electric generation portfolio.

SOURCE: Sustainable FERC Project, N.d., "ISO RTO Operating Regions." Available at <http://sustainableferc.org/wp-content/uploads/2013/10/ISO-RTO-Operating-Regions.jpg> (accessed 10/13/14).

Time for Action

Michigan has the responsibility to make sure there is a supply of affordable and reliable energy to power its future, but it needs to act quickly. A number of decisions must be made about the right mix of resources: how much to depend on energy efficiency, renewable energy, more generation facilities, and other ways to address capacity shortfalls. MISO estimates that planning, permitting, and construction of new base load generation could

Time is of the essence...
for construction of new
base load generation could
take as long as **6 years**

take as long as six years (MISO 2014). The complications presented by Michigan's current market structure must also be addressed, and the state needs to recognize the lack of success that federally regulated regional transmission organizations have had in supporting new capacity investments. The state needs to decide how much control to maintain over its energy future and how much to relinquish to the federal government by depending on the regional transmission organization.

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