



## Executive Summary from:

# *Michigan Unplugged?*

## *The Case for Shared Investment in Regional Transmission Projects.*

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**Executive Summary**

## *I. Executive Summary*

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### **INTRODUCTION AND PURPOSE**

There is a growing need to invest in our nation’s electrical-power transmission system—often referred to as “the grid.” With this need comes debate over how to pay for the investment, especially for projects that provide far reaching benefits over long periods of time.

Electricity transmission facilities are major investments. They have traditionally been funded by local utilities, with costs allocated across the local users. Improving the grid, however, requires more than a patchwork of locally planned and funded improvements. In the Midwest and other areas of the country, states, utilities, and other stakeholders have agreed to pursue a regional approach to plan and build a more robust grid. As a result, many new transmission projects are now designed to benefit large geographic areas.

Midwest Independent Transmission System Operator, Inc. (MISO)—an independent corporation of grid stakeholders in the Midwest—is responsible for managing and planning this region’s grid. As part of this responsibility, MISO follows Federal Energy Regulatory Commission (FERC) guidelines for planning and cost allocation. In early 2009 MISO began developing a new cost allocation method to be used specifically for regionally beneficial transmission projects. Developing and adopting the cost allocation methodology involved multiple committees, transmission and generator owner input, support from the Organization of MISO States and the Midwest Governor’s Association, and approval from the MISO board of directors. Ultimately it received FERC approval in December 2010.

The approved cost allocation method assigns costs based on load (actual use of electricity), and applies only to a new category of project called “Multi-Value Projects” (MVPs). This is consistent with FERC guidelines that hold “those who share in the benefits of transmission projects should also share in their costs.”<sup>1</sup> This seemingly straight-forward guideline has grown complex with the introduction of regionally beneficial projects. Beneficiaries are now spread over much larger areas; benefits accrue over longer periods of time; and the types of benefits span many more categories, from improved reliability, to integrating new power sources, to allowing greater interstate flows of electricity. With this new complexity, FERC and others have recognized that benefits from regional projects do not have to be, and often cannot be, calculated and attributed “to the last penny, or for that matter to the last million or perhaps hundred million dollars.”<sup>2</sup>

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1. Federal Energy Regulatory Commission, “Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities,” June 17, 2010, paragraph 135.
  2. *Illinois Commerce Commission, et al., v. FERC*, 576 F.3d at 476 (7th Cir. 2009).

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*Purpose of the Report*

The MISO cost allocation for MVPs, which FERC found to be consistent with the “beneficiary pays” cost allocation principle, is now being challenged by parties that feel it does not assign cost in a way that is commensurate with benefits. Some are also asserting that Michigan’s Lower Peninsula might be best treated as its own planning region, thus exempting it from MVP costs.

In this report, we assess whether or not the current MVP cost allocation methodology is consistent with the principle that costs should be commensurate with benefits. We also consider whether there is any evidence that the approved methodology places an unfair cost burden on lower Michigan. Finally, we assess the risks and consequences that stem from modifying the structure of the already adopted cost allocation in ways that abandon the load-based charge cost allocation or segregate the Lower Peninsula of Michigan from the rest of the MISO region.

**FINDINGS***1. The electrical grid is a backbone of our economy, and it requires upgrades to remain reliable.*

- a. The grid today is a complex system of interconnected and interdependent components that provide greater value as a whole than they do as individual parts. The grid’s main components are electricity generating plants, high-voltage electrical transmission facilities, local power distribution facilities and lines, and end-user facilities.
- b. Despite improvements in recent years, the grid remains insufficient to meet projected demands for reliable, economical, and cleaner energy.
- c. Despite being a state of two peninsulas, Michigan is highly connected to the grid, both physically and economically. Multiple transmission lines connect Michigan with Indiana, Ohio, Wisconsin, Ontario, and the rest of the region. Further, the state’s manufacturing-intensive economy is dependent on the interstate import and export of finished and unfinished goods, often on a just-in-time basis. Interruptions anywhere on the region’s electricity grid can therefore have costly impacts on Michigan.
- d. Transmission of power across the grid is done very economically, accounting for just 7% of the total cost of electricity nationally in 2008.
- e. The majority of the cost of electricity is driven by generating costs and local distribution costs—68% of the cost per kilowatt hour (kWh) was from the electrical generation, and the remaining 24% was from local distribution, in 2008.
- f. Electricity prices are higher in Michigan than in other Midwest states. The lowest electricity prices in the region are found to the west in North Dakota, South Dakota, and Iowa.

See “The Electrical Grid and our Economy” on page 8 for our presentation of this material, including specifics about the grid in and around Michigan.

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*2. The grid began as a disparate collection of local electrical utilities. Over time it has developed into a networked collection of facilities that, with the coordination of regional stakeholders, provides greater reliability, efficiency, and value.*

- a. FERC and industry stakeholders have developed the Regional Transmission Organization (RTO) framework to maintain and expand the grid. MISO is the RTO that coordinates planning and investment for most transmission infrastructure in the Midwest, including Michigan.
- b. Planning transmission projects to expand and strengthen the grid is one of the primary functions of RTOs, and FERC strongly encourages RTOs to determine cost allocation in tandem with transmission planning.<sup>3</sup>
- c. MISO's governance structure includes representatives from generator owners like Detroit Edison, Consumers Energy, municipal and cooperative utilities, transmission owners like ITC, end users, and other stakeholder groups. This membership elects the MISO board of directors and participates in committees and planning groups to set standards, develop grid improvement projects, and decide on cost allocation methodologies.
- d. MISO's MVP cost allocation methodology was developed over a multi-year period with broad membership involvement and input from non-member stakeholder groups like the Organization of MISO States and the Midwestern Governors Association. The methodology was then approved by MISO's membership-elected board of directors, and found by FERC to align with federal guidelines for assigning costs in a manner commensurate with benefits.

See "Stakeholder-led Management" on page 16 and "Planning Grid Improvements" on page 17.

*3. The cost allocation method adopted by MISO and approved by FERC provides a straight-forward model for distributing costs; assigns costs proportionate to use; and is consistent with the cost allocation methodologies used for other complex infrastructures.*

- a. Transmission project costs have traditionally been assigned directly to the requesting utilities. This has worked well for single-utility, single-state projects, or where projects were built for defined market areas.
- b. Regional transmission projects, like MVPs, provide difficult-to-quantify and impossible to precisely allocate benefits. It is often easy to dismiss such benefits in the quest for lower cost allocations. Thus, it is unlikely that a formula can be derived that will fairly and transparently allocate costs in a way that is satisfactory to a majority of parties.

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3. FERC's Order 890, along with a June 2010 Notice of Proposed Rulemaking (NOPR) that is currently under review, ties cost allocation to regional transmission planning to facilitate the development of new projects.

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- c. Other regional infrastructures with wide-reaching benefits are supported using a “postage stamp,” or “load-based” cost allocation similar to that adopted by MISO, in which a standard charge is applied to each unit used. Gas taxes, toll roads, per-gallon water and sewer charges, and first-class postage stamps are examples.
- d. To illustrate the complexity of a formulaic cost allocation, consider having to devise a formula that precisely allocates the costs of the U.S. Postal Service based on the benefit being received at any given time, by any given customer. Instead of flat-rate postage rates based on package weight or letter type, a user's cost would have to be determined using a complex formula to account for factors like distance, speed, weight, size, transport method, route traveled, importance of package, value of contents, delivery time, current gas price, etc.
- e. FERC, under the Federal Power Act, provides utility companies recourse in the event that they are unreasonably charged for electricity. Thus, in the unlikely event that MVP projects are found not to generate benefits that are roughly commensurate with costs paid, FERC can at that time order corrective action to be taken.

See “Allocating the Costs of New Transmission Projects” on page 19.

*4. Michigan will receive many benefits from the proposed MVP projects in return for sharing in the costs.*

- a. The cost to consumers of the starter MVP portfolio is estimated to be just more than one-tenth of a percent (\$0.00116) per kilowatt hour. For this, Michigan will receive a number of benefits, including improved access to electricity markets in western-MISO states where electricity prices are 20 to 30 percent less (~\$0.020 to \$0.030/kWh) than current Michigan prices.
- b. Michigan will be the site of the first MVP project in the MISO region. The \$510 million Thumb Loop Extension will provide users with access to electricity generated on windfarms in the Thumb, and increase the reliability of the grid throughout the region.
- c. MISO has estimated that quantifiable benefits attributable to the 18 initial MVP projects will yield annual benefits ranging from \$1.28 billion to \$2.42 billion. The benefits will come from lower production costs, less transmission loss, and lowered reserved margins. Further, the benefits will be spread across the region, with the eastern area of MISO (comprised primarily of Michigan’s Lower Peninsula, along with Gary, Indiana) benefiting most.<sup>4</sup>
- d. The MVPs promise to generate further value for Michigan in ways that are difficult to quantify. These benefits include:

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4. MISO Technical Studies Task Force April Meeting, “2011 Candidate MVP Portfolio,” April 25, 2011, Slide 59, MISO Sub-regional Benefit Spread by Future.

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- Reductions in electricity price due to greater access to supplies in states like Iowa, North Dakota, and South Dakota where current electrical prices are notably lower than Michigan prices.
  - Access to new markets for Michigan generators to sell power, including wind power that may have to be curtailed should wind generation be high during times of lower demand.
  - Improved environmental quality, both in Michigan and “upwind” of Michigan in western MISO states.
  - Preparedness for a national energy policy or other event that requires greater usage of alternative energies.
  - Increased opportunities for Michigan businesses, like wind turbine and photovoltaic cell manufacturers, that serve the nation’s renewable energy sector.
  - Strengthened economic position of the region and state.
- e. Michigan's economy, relative to the country as a whole, is more reliant on electricity usage for producing economic outputs, as measured by GDP. Thus, a reliable energy system and a strong regional grid with access to the most cost-efficient sources of energy are very important to the Michigan economy.
- f. Relative to the MISO region, Michigan’s commercial and industrial businesses use less electricity to produce a unit of GDP. As such, the allocation of a fixed charge per unit of electricity used is less burdensome to Michigan’s productive capacity than it is to states that use more electricity to generate an equal amount of GDP.

See “Benefits to Michigan from MVPs” on page 24 and Figure 2, “Non-Residential Electricity Sales Per Unit of GDP from 1997 to 2009,” on page 27.

*5. There is no compelling evidence that Michigan’s Lower Peninsula, or Michigan as a whole, will be unfairly burdened by the approved cost allocation method.*

- a. The postage-stamp-to-load cost allocation methodology has a strong practical and theoretical basis, and is widely used in other areas of infrastructure. Furthermore, it was adopted by MISO itself, and approved by an independent federal agency as consistent with the principle that beneficiaries of grid improvements should pay a proportionate share of the costs.
- b. Among the handful of written criticisms either submitted to FERC or publicly circulated, there has been scant evidence of any unfairness to Michigan’s Lower Peninsula, or Michigan as a whole, of the approved cost-sharing method. Furthermore, no alternative cost-allocation method has been proposed that would clearly benefit Michigan’s Lower Peninsula without adding to the burden of the Upper Peninsula and other states, risking rejection by the other parts of the MISO region, or both.
- c. Our analysis shows that an allocation based on load is fair considering Michigan’s overall place in the MISO territory. For example, Michigan is home to about 21.7% of MISO’s population, 18.9% of MISO’s GDP, and

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18.3% of MISO's total electricity sales, the latter being representative of load.<sup>5</sup>

See Table 7, "Michigan's Share of MISO Region in the United States," on page 22.

*6. Modifying the structure of MISO's approved cost allocation methodology for MVPs, by segregating Michigan's Lower Peninsula or by abandoning the load-based charge, threatens to needlessly delay grid improvements and bring about other unintended consequences.*

- a. MISO and other RTOs have developed frameworks for involving all stakeholders in the process of modernizing the grid. If FERC substantially modifies the order approving the structure of the MVP cost allocation methodology, the integrity of this industry-led governance structure for regional grid management and planning would be threatened.
- b. If a new methodology is required and provides separate treatment for Michigan's Lower Peninsula in a way that reduced its share of MVP costs, it is likely that ratepayers in Michigan's Upper Peninsula and other states will see their MVP costs increase as a result.
- c. Reopening the discussion on the fundamental structure of the cost allocation methodology will not guarantee a desirable outcome for Michigan. Developing a new methodology could take a year or longer, providing all involved parties the incentive to identify reasons for why they are deserving of a lower cost allocation, and reasons to discount the value of benefits they are assigned under any formula-based methodology.
- d. There are clear costs associated with a delay resulting from any need to redevelop a cost allocation methodology that all MISO members can agree to. As projects designed to improve reliability and reduce congestion are delayed or foregone, the risks of a blackout or other major disturbance grow. One such disturbance, the 2003 Northeast Blackout, resulted in some \$6.4 billion in lost earnings across the economy in just a two-day period.
- e. Project delays will also hinder the ability of electricity users to access more diverse energy sources, the ability of renewable power generators to start their projects, and the ability of states to meet renewable portfolio standards (RPS). All of this could prove costly given the unknown energy future that we face, the value that comes from diversifying fuel sources, and the benefits of successful stakeholder-led frameworks for managing the grid at regional levels.

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5. Other sources, including "The MISO Transmission Cost Allocation Proposal - The Implications for Michigan" (Transeth, June 30, 2010)," have cited 20% as representative of Michigan's share of the MISO load. The 20% figure appears to reflect the departure of Duke and FirstEnergy, where as our figures are based on January 2011 MISO boundaries inclusive of Duke and FirstEnergy.

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See “Risks of Modifying Approved Methodology” on page 30.

*7. MISO should improve the information available to ratepayers on the costs and benefits of its MVP portfolio.*

- a. MISO members, including major utilities and transmission companies, had direct representation in the development of the MVP cost-allocation methodology, and can directly participate in the selection and approval of multi-value projects for which costs will be shared regionally. During this process a set of records on the issue was assembled and made available to every U.S. citizen via the FERC and MISO websites.
- b. While MISO has issued information about MVPs and the adopted cost allocation methodology, most of the information has been contained in voluminous records and is quite technical in nature. This opens the door to confusion over the costs and benefits of regionally shared projects, as well as invites ill-informed speculation on whether any one state is unfairly burdened. MISO should remedy this by making more of its cost-benefit analysis broadly available. MISO should also provide explanatory material on cost allocation and transmission planning that presents the information in a straightforward manner for public consumption and consideration.

**ABOUT ANDERSON  
ECONOMIC GROUP**

Anderson Economic Group, LLC was founded in 1996 and today has offices in East Lansing, Michigan and Chicago, Illinois. AEG is a research and consulting firm that specializes in economics, public policy, business valuation, and market analysis. See “Appendix C: About AEG” on page C-1 for more information about the firm and biographical information on this report’s authors.

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