

**Planning Advisory Committee**  
**Summary of Review and Advice to Advisory Committee and Board of Directors**  
**MISO Transmission Expansion Plan (MTEP18)**  
**October 26, 2018**

The Planning Advisory Committee, through its Sector representatives, has reviewed the draft MTEP18 report and provides the following summary advice to the Advisory Committee and the MISO Board of Directors with respect to the following aspects of the MTEP report.

This document contains a summary of all the substantive comments received by MISO. Respondents were given the option of providing no comment, and/or providing written comments.

The comments received address the following areas:

- ITCM Walters project
- Straits cable replacement project
- Rochester to Wabaco rebuild project
- Report content

This summary includes substantive written comments from the following stakeholders:

- Cloverland Electric Cooperative
- Dairyland Power Cooperative (DPC)
- Great River Energy (GRE)
- Madison Gas & Electric Company (MGE)
- Michigan Agency for Energy (MAE)
- Midwest Industrial Customers (MIC)
- Minnesota Power
- WEC Energy Group
- Wolverine Power Cooperative
- WPPI Energy
- Xcel Energy

In addition, editorial comments were received from stakeholders during the review process. These comments, where applicable, were incorporated into the draft report and sent to the Board of Directors.

The following stakeholders sent editorial comments:

- WPPI Energy
- Great River Energy
- Vectren
- American Transmission Company
- LS Power
- Entergy
- City Water Light & Power (CWLP)
- NMPP Energy

## **Written Comments and MISO Responses**

### **Comment - ITCM Walters project**

GRE provided feedback regarding this \$1.4M reliability project. Specifically: Stakeholders in the Huntley-Hayward area of Minnesota are still determining the most reliable, most cost-effective project to address issues that appear on the local 69 kV system. Several alternatives have been proposed to MTEP Project 13888 that are still being studied and vetted by the stakeholders in the area. Stakeholders are working diligently on those, but sufficient time needs to be provided in order make the best decision and a project should not be rushed in the MTEP18 if more time is required.

### **MISO Response**

MISO appreciates these comments and participation of GRE in reviewing the MTEP project 13888 proposed by ITC Midwest and its alternatives. After MISO received these comments from GRE on October 2nd, 2018, MISO continued working with the Transmission Owners and stakeholders in the Huntley-Hayward area and determined with stakeholder agreement that installation of a new reactive device at the Winnebago 69kV bus is the most cost effective solution for inclusion in MTEP18 Appendix A to address near term low voltage issues on the 69kV system near the Walters area. That alternative is now included in Appendix A. Long-term 161/69kV reinforcements in the Huntley-Hayward area will continue to be evaluated in the MTEP19 planning cycle.

## Comments: Straits cable replacement project

Stakeholders provided several comments related to the \$105 million Straits cable replacement project. The received comments are focused on concerns about project cost estimates, options for installation of the cables under the Straits, requests for negotiated joint ownership options and other considerations, and seeking further opportunities to provide input. Please refer to the attached written verbatim comments on this project from [WPPI Energy](#), [Midwest Industrial Customers](#), [Wolverine Power Cooperative](#), and [Cloverland Electric Cooperative](#).

### MISO Response:

MISO appreciates these comments and participation of stakeholders in reviewing the various proposals associated with the ATC proposed Straits cable replacement. Consistent with tariff provisions, MISO thoroughly reviewed the ATC proposed project and alternative proposals with all interested stakeholders in multiple MTEP18 Subregional Planning Meetings. Two additional West regional Technical Study Task Force Meetings were scheduled to further discuss the Straits replacement project and alternatives evaluation at length.

MISO analysis concluded that expeditious replacement of the cables by the facilities owner is needed so as to limit exposure of load loss risks in the Eastern Upper Peninsula to contingent events, as well as to ensure bidirectional flow capability across the two peninsulas is maintained to support reliability. Based on the current existing reliability risks and review of expected system performance, MISO recommends the replacement of these two submarine circuits as soon as practical by the facilities owner, consistent with state regulatory siting requirements, including any requirements to install the replaced cables in the recently announced under water tunnel across the Straits, to ensure continued reliable service to Michigan electric customers.

MISO fully considered other proposals provided, and has studied this area in the past for long term solutions. We have identified no preferred alternative to protect the reliability of this area other than the recommended cable replacement project. MISO fully supports efforts by both Wolverine and Cloverland that may provide interim non-transmission support to the area, should the replacement cable construction be delayed significantly, and encourage these parties to continue to work with the state on this matter, should they wish to pursue it.

As part of the replacement project evaluation, MISO also evaluated a proposal to reconfigure the overhead portions of these cable ties on the Lower Peninsula side of the Straits. MISO will further evaluate this reconfiguration in the MTEP19 planning cycle to establish its need and effectiveness.

With respect to ATC's cost estimates of the cable replacement project, ATC has continued refining its schedule and cost estimates associated with this project through the MTEP18 planning cycle, by actively working with its external material vendors, marine constructors and consultants experienced in submarine cable projects. \$170 million in 2021 dollars was an initial estimate prior to engagement and detailed discussions ATC had with marine constructors, vendors and other consultants. Refinement of ATC's estimated costs reflects maturation of the project as ATC continued working with various parties. MTEP18 Subregional Planning Meetings captured the progression of ATC cost estimate refinement and provided opportunities for stakeholder inputs.

## Comments - Rochester to Wabaco rebuild project

Stakeholders provided several comments related to the \$11 million Rochester to Wabaco rebuild project. The comments received requested deferral of project approval and focused on concerns regarding:

1. Insufficient coordination across MISO planning processes
2. Incomplete project justification
3. Lack of stakeholder coordination on alternatives and cost estimates
4. Cost shifts from the generation interconnection process.

Please refer to the attached written verbatim comments from [Xcel Energy](#) and [Dairyland Power Cooperative](#).

### MISO Response:

1. **Insufficient coordination across planning processes** - Multiple study processes are employed by MISO to identify system needs and develop solutions. The Market Congestion Planning Study (MCPS) focuses on identifying sub-regional and regional market efficiency issues and developing robust transmission solutions to address these issues. The issues and solutions identified in the MCPS process are generally in the time frame of five to fifteen years. Other shorter term planning processes such as baseline reliability planning and generation interconnection studies address reliability and local system issues with solutions in the time frame of one to ten years. The MCPS process is not intended to address all system issues in a given area. However, MISO staff works to coordinate appropriately across studies when solutions are being recommended.

The Market Congestion Planning Study employs a scenario based approach which considers a range of potential public policies, economic conditions, and industry trends. A project must provide benefits in excess of costs under multiple scenarios considering multiple drivers for it to be deemed robust and ultimately recommended for the purposes of market efficiency.

In addition, MISO will review a project from the other side of the coin and exclude issues from the Market Congestion Planning Study which are narrow and cannot yield a robust solution. The following are examples of issues which were excluded from the MTEP18 Market Congestion Planning Studies:

- Constraint driven by a singular unit assumption (addition or retirement) – confirmed with sensitivity analysis
- Constraint identified in one future – confirmed with sensitivity analysis
- Constraint caused by an external region’s future assumption– confirmed with sensitivity analysis
- Existing constraints with approved transmission plans in place to resolve the issue

The excluded issues and the drivers for the exclusion in the MTEP18 MCPS study for North/Central region can be found in the Appendices of the presentation in the link below:

<https://cdn.misoenergy.org/20180212%20%20MCPS%20TSTF%20Meeting%20Item%2004%20MCPS%20North%20and%20Central%20Need%20Identification139032.pdf>

- 2. Incomplete Project Justification** - MISO analyzed many data inputs and sensitivity scenarios throughout the process. Much of this information is contained in the MTEP, and expanded analysis is included here.

The Rochester - Wabaco 161kV line currently has high historical binding in both Day-ahead (DA) and Real-time (RT) markets. Without mitigation this will continue. Table 1 below shows that the Rochester – Wabaco line is a historically congested facility. Table 2 shows that this congestion is projected to continue into the future.

Table 1 Historical Congestion on Rochester - Wabaco line

Year	Day-ahead Market		Real-time Market	
	Binding Hours(Hour)	Total Shadow Price (k\$/MW-year)	Binding Hours(Hour)	Total Shadow Price (k\$/MW-year)
2015	1,515	55	227	54
2016	538	16	156	10
2017	566	18	250	17
2018*	700	26	244	20

\*Data through July 13th, 2018

Data source: Day-ahead and real-time binding constraint reports from MISO Market

This line segment also shows projected congestion in the MTEP18 MCPS.

Table 2 Projected Congestion on Rochester - Wabaco line

ID	Monitored Element	Contingency Element(s)	Area	2027 Total Annual Shadow Price (k\$/MW-year)			
				AFC	CFC	DET	LFC
N-C	Rochester - Wabaco 161kV	North Rochester - Briggs 345kV; North Rochester - Byron 345kV; AS King - Eau Claire 345kV, etc.	DPC	549.5	72.4	161.8	51.8

Additional sensitivity study results, such as those shown in Table 3, demonstrate that the Rochester - Wabaco 161kV rebuild project is a robust and “no-regret” project for MTEP18 approval.

MISO ran a range of sensitivity cases to ensure the robustness and “no-regret” nature of the Rochester-Wabaco project:

- Project provides 2.0 B/C ratio to MISO after removing all forecasted wind in southern Minnesota, Iowa and Wisconsin. By relieving only the existing congestion, the project can still provide significant benefit to MISO.
- Project provides 7.9 B/C ratio to MISO when replacing all forecasted wind in southern Minnesota, Iowa and Wisconsin with wind capacity identified in the MISO Generator Interconnection Definitive Planning Phase studies. With the current queue projection, the project can still fully relieve the congestion on the line and provide even higher benefits to MISO and local TO.
- Project provides 3.1 B/C ratio to MISO when assuming the proposed Generation Interconnection (GI) backbone projects (i.e. 345kV projects to address MWEX interface reliability issues) were in place. Project is shown to be a necessary element to an overall transmission solution.
- All other 345kV solutions tested (including 345kV solutions provided by Xcel) still left considerable congestion on the Rochester-Wabaco line and didn't provide sufficient benefit compared to cost, even with lower estimated cost submitted by stakeholders. The leftover congestion from the 345kV proposals still makes the proposed Rochester-Wabaco project a necessary piece of potential best fit high voltage solutions. For example, in conjunction with the Adams-North Rochester-Tremval 345kV proposal the project has a Benefit to Cost ratio of 2.5.

Table 3 Sensitivity run results for Rochester-Wabaco project

Scenarios evaluated for Rochester-Wabaco project	Benefit to Cost Ratios of Rochester - Wabaco Project to MISO under several sensitivities					PV Benefit (M\$-Real) to MISO
	AFC	CFC	DET	LFC	Weighted	
Rochester-Wabaco project	20.8	3.5	4.6	1.7	6.8	88
No forecasted wind test	2.7	2.3	1.5	1.6	2.0	26
DPP wind test	14.3	6.1	7.9	5.0	7.9	102
GI backbone projects test	9.6	2.0	1.7	0.6	3.1	40
Adams - North Rochester - Tremval 345kV (Xcel submittal) in base	10.5	0.8	0.5	0.0	2.5	32

- 3. Lack of stakeholder coordination on alternatives and cost estimates** – The MTEP18 futures were developed through a highly transparent and interactive MISO stakeholder process. Both the regional resource forecast generation and generation retirement are future assumptions that have been thoroughly vetted through the stakeholder process and then applied to the MTEP18 PROMOD model for MCPS purposes. During the MTEP18 MCPS evaluation process, the PROMOD model was again vetted through the stakeholder process to ensure the nearby limiting elements were appropriately monitored. For example, the MWEX interface limit and other monitored elements in this area have been reviewed by all stakeholders including ATC and other local transmission owners to ensure the appropriate local planning criteria have been applied to the PROMOD model.

MISO engaged with Xcel on studying the three alternative projects that they proposed and found that the projects did not meet the criteria to be recommended for approval to our Board of Directors.

MISO was also highly engaged with Xcel Energy with respect to developing project cost estimates for their solutions. Ultimately using Xcel Energy's own estimates for their solutions, they still do not pass a 1.0 B/C ratio.

1. Xcel Energy suggests their three (3) 345kV solutions for MTEP18 North/Central MCPS did not proceed in the planning process because of MISO's overstated planning cost estimates. MISO reviewed each of the projects' Benefit/Cost ratios using the Xcel Energy cost estimates, and the best performing project had a benefit to cost ratio of 0.77, well below 1.0 to proceed for further analysis.
  2. Xcel Energy states MISO failed to consider the most likely route. MISO used and followed its MTEP18 Cost Estimation Guide to develop the planning level cost estimates. A planning level cost estimate is straight line plus a 30% adder and results in a longer line length than Xcel Energy used for their estimate. A desktop analysis to determine a potential likely route is used for a scoping level estimate once a project is determined to be an alternative. In this case, the solutions were not determined to be alternatives because they had benefit to cost ratios well below 1.0.
  3. Xcel stated MISO failed to incorporate the open second 345 kV circuit position and river crossing on an existing transmission line. MISO did consider and used Xcel Energy's input for their assumption to develop the planning-level cost estimate for the two solutions (N15 and N16) that crossed the river.
- 4. Cost shifts from the generation interconnection process** - MISO recognizes Dairyland's concerns regarding inclusion of the Rochester-Wabaco project as an "Economic Other" project in Appendix A of MTEP18. MISO acknowledges that the Rochester-Wabaco project was initially identified in the generator interconnection process for requests in MISO's DPP Aug 2015 West group based on existing Tariff & BPM practices at that time (March 2017).

However, in Oct 2017, when one of the projects in MISO’s DPP Aug 2015 West group withdrew, MISO had to perform a restudy for that group to comply with the “but for” cost causation principle. That restudy was performed based on then existing Tariff & BPM practices. It used a more realistic dispatch that was vetted through the MISO stakeholder process in Summer 2017, and is consistent with the dispatch used in our baseline reliability planning process. Based on the restudy, MISO determined that the Rochester - Wabaco line was not a valid constraint for any project in the DPP Aug 2015 West group. Assigning Network Upgrade cost of the R-W project to the DPP Aug 2015 West group would be against the “but for” cost causation principle.

**Conclusion:**

MISO staff has completed a rigorous analysis with stakeholder input throughout. The Rochester-Wabaco project is identified as the best-fit, no regrets solution to address the historical and forecasted congestion issue on the Rochester - Wabaco line. The rebuild can fully address congestion, improve reliability, and provide economic benefits to the Dairyland Power Cooperative and the MISO system as a whole.

## Comments: ATC overall project investment

The Midwest Industrial Customers provided a comment related to the ATC project investment proposed in MTEP18. Midwest Industrial Customers expressed concerns relative to ATC increased investment in local area projects, and MISO review of these projects for reasonableness. Please refer to the attached written verbatim comment from [Midwest Industrial Customers](#) for more details.

### MISO Response:

MISO appreciates these comments and participation of stakeholders in the MTEP18 planning process. With regard to the increase of MTEP18 transmission investment in the ATC footprint, MISO agrees ATC's total project investment in MTEP18 is higher than the level of investment in the past MTEP planning cycles, and notes that transmission investments, in project types and costs, can vary from cycle to cycle driven by reliability, economic and policy needs and local TO needs identified at that given cycle.

The vast majority of the ATC's project investment increase in MTEP18 is contributed to by:

- Expedited project review request to accommodate large Foxconn industrial load interconnection at Mount Pleasant with an estimated cost of \$140 million
- Straits cable replacement project due to recent cable damage event, at a cost of approximately \$105 million
- Several age and condition related upgrades anticipated to be needed over the next 4-7 years at an estimated cost of \$240 million. ATC has explained these age and condition planned upgrades have been a part of its plans to address aging infrastructure but have not previously been identified until closer to construction dates. However, based on recent FERC requirements, ATC must seek MISO's Board of Directors' approval of such projects prior to incurring engineering costs.
- Inclusion of additional program projects previously not included in MTEP at a total cost of approximately \$200 million, encompassing various small capital and asset renewal projects, communications projects, line clearance mitigation projects, physical security and load interconnection support projects

As for the Other Projects that satisfy local needs of Transmission Owners, and do not address specific reliability criteria violations of NERC and regional reliability standards or MISO regional economic criteria to be classified as BRP, MEP or MVPs, MISO reviews and ensures TOs provide sufficient information to demonstrate the appropriateness of these projects in meeting their local needs without causing reliability issues to the transmission system. Over the course of the MTEP18 planning cycle, MISO presented detailed project information on ATC proposed projects and sought stakeholder inputs on these proposed projects, in the same manner as for all other TO proposed projects, at multiple public MTEP18 West region SPMs and West TSTFs, without concerns from stakeholders. In addition to MISO's MTEP open stakeholder process, ATC has its own open local stakeholder planning process for all the facilities that they plan for to meet the needs of the ATC system, pursuant to its FERC Order 890 requirements. The list of MTEP18 ATC proposed projects have been vetted through ATC's own local stakeholder process and included in the MISO MTEP planning process for increased stakeholder transparency and coordination.

### **Comments: Independent Load Forecasting (ILF)**

Stakeholders provided comments related to the ILF section in the MTEP18 report. The received comments are: MISO merged proposal is under discussion with stakeholders, and ILF is not directly relevant to transmission planning in either the MTEP18 or MTEP19 process. Please refer to verbatim comments attached from [Minnesota Power, Madison Gas & Electric Company, WEC Energy Group, WPPI](#), and [Midwest Industrial Customers](#).

### **MISO Response:**

MISO appreciates these comments and participation of stakeholders in reviewing the Independent Load Forecasting Section in the MTEP18 Report.

Because the section on the Independent Load Forecast contains statements about future application of the data and because the Load Shape and Energy Forecasting discussions are ongoing with stakeholders, MISO will not include the section on the Independent Load Forecast in this year's report.

## **Verbatim Substantive Comments of Stakeholders**

### Great River Energy (GRE)

Stakeholders in the Huntley-Hayward area of Minnesota are still determining the most reliable, most cost-effective project to address issues that appear on the local 69 kV system. Several alternatives have been proposed to MTEP Project 13888 that are still being studied and vetted by the stakeholders in the area. Stakeholders are working diligently on those, but sufficient time needs to be provided in order make the best decision and a project should not be rushed in the MTEP18 if more time is required.

## Dairyland Power Cooperative (DPC)



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October 17, 2018

**VIA EMAIL ONLY**

Mr. Jeff Webb ([webb@misoenergy.org](mailto:webb@misoenergy.org))  
Liaison  
Midcontinent Independent System Operator, Inc.  
P.O. Box 4202  
Carmel, IN 46082-4202

Dear Mr. Webb:

I am writing on behalf of Dairyland Power Cooperative (Dairyland) to express its opposition to the inclusion of a Rochester-Wabaco 161 kV rebuild project (ROC-WBC) as an "Economic Other" project in Appendix A of MTEP18. Modeling changes in the MISO generation interconnection study process have masked the true cause of impacts to ROC-WBC, that being the addition of new generation on the area transmission system. As explained in greater detail below, the inclusion in MTEP18 of a project to rebuild ROC-WBC would be a departure from cost causation principles.

MISO has conducted a Market Congestion Planning Study ("MCPS") in conjunction with the preparation of MTEP18. The MTEP18 MCPS North/Central Need Identification process identified numerous flowgates that met the selection threshold for consideration, but the vast majority of the identified flowgates were excluded from adoption in MTEP18 Appendix A for other reasons. A number of flowgates were excluded on the basis of cost causation because the flowgate issues were driven by future wind siting. In a significant departure from this principle, MISO has recommended the inclusion of the ROC-WBC rebuild in MTEP18 Appendix A as an "Economic Other" project for approval by the MISO Board of Directors this year.

ROC-WBC has an estimated 15 years of useful life remaining, and its capacity is adequate to serve the area loads. System reliability concerns do not drive the need for a rebuild of ROC-WBC. Instead, any need to rebuild ROC-WBC is caused by the ongoing addition of new generation to the area transmission system.

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On July 18, 2017, Dairyland, MISO, and Turtle Creek Wind Farm LLC (“Interconnection Customer”) entered into a Facility Construction Agreement (FCA) pursuant to which Dairyland undertook to construct and install Network Upgrades and System Protection Facilities on its transmission system identified in MISO’s Generator Interconnection Study as being required to accommodate the interconnection of the Interconnection Customer’s 202 MW generating facility to the transmission system of ITC Midwest (Project No. J449). That interconnection required Dairyland to “rebuild the Rochester to Wabaco 161 kV line with 795 ACSS to a minimum summer emergency rating of 322 MVA.”

Subsequently, however, a generator in the group of wind generators withdrew from Project No. J449. On November 21, 2017, MISO posted the final results of the Definitive Planning Phase August 2015 West group restudy, which MISO advised showed that the Network Upgrades (the ROC-WBC rebuild) memorialized under the FCA were no longer necessary. Dairyland, MISO, and the Interconnection Customer therefore agreed to terminate the FCA.

Dairyland’s understanding, though, is that MISO’s restudy excluding the wind generator withdrawn from the queue was modeled differently from the modeling originally performed for Project No. J449. In particular, the generator dispatch assumptions were changed in the new modeling, with the result being that the modeled congestion was partially removed from the generator interconnection studies and shifted congestion to be operational and real-time congestion issues. These new dispatch assumptions have in effect caused a cost shift from the generation interconnection process to the Transmission Owners.

Dairyland recognizes that ROC-WBC is at risk for possible overload scenarios, but evidence indicates that this risk has arisen from the accommodation of new generation interconnections with the area transmission system. Dairyland load is not driving the need for an upgrade of ROC-WBC. The FCA requiring the rebuilding of ROC-WBC for Project No. J449 demonstrates that interconnecting new generators is the driver of the need to rebuilding ROC-WBC. And in fact, the preliminary results of the August 2016 DPP cycle did show the potential for overload on ROC-WBC.

Dairyland is a not-for-profit cooperative owned by its members. Shifting the costs of rebuilding ROC-WBC from new generators to Dairyland members would violate cost causation principles. Dairyland requests that ROC-WBC be treated comparably with other flowgates that met the selection threshold for consideration in MTEP18 Appendix A but were excluded from adoption in MTEP18 Appendix A for other reasons that explicitly included the need to address those flowgate issues driven by future wind siting.

Whether intentional or unintentional, a change in modeling methodology should not shift costs from the generation interconnection process to a category of “economic” upgrades. The issue should be fully disclosed and discussed in the Planning Advisory Committee or in another appropriate committee. Also, Dairyland understands that MISO is currently studying two generation interconnections that could affect the need to rebuild ROC-WBC: 2016 AUG & 2017FEB DPP cycles. Dairyland requests that, as it has done for other flowgates, MISO waive

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the rebuild of ROC-WBC from the MCPS at least until the in-process generator interconnection study results of DPP2016 AUG & DPP2017FEB are finalized.

Thank you for your consideration.

Respectfully submitted,

WHEELER, VAN SICKLE & ANDERSON, S.C.



Jeffrey L. Landsman

cc: Ben Porath, Vice President, Power Delivery  
Steven Porter

## Xcel Energy

### **Rochester – Wabaco 161 kV Rebuild**

#### **Xcel Energy Position**

#### **MISO Recommended Project:**

Rebuilding the existing 161 kV transmission line between the Rochester and Wabaco substation in southeastern Minnesota.

#### **Desired Outcome:**

Xcel Energy recommends that MISO retract their recommendation for approval of the Rochester – Wabaco 161 kV rebuild project. Given the use of the same model set in the MTEP19 MCPS, with updated assumptions, Xcel Energy feels that additional time to reanalyze the underlying issues to develop a cost effect and long term solution to the underlying issues and avoiding duplicative costs. This will also allow for the development of a solution that would also ease the burdens present in several MISO processes.

#### **Identified Constraint:**

Thermal constraint on the existing Rochester – Wabaco 161 kV transmission line for the loss of the North Rochester – Briggs Road 345 kV transmission line.

#### **Underlying Constraint:**

Transfer limitation between Minnesota and Wisconsin due to high transfers over long transmission lines. This constraint results in system voltage and stability issues, which cannot be accurately modeled in production cost models.

#### **Issue:**

On Wednesday, September 26, MISO presented their recommendations from the MTEP18 Market Congestion Planning Study (MCPS). As part of this recommendation, MISO is moving forward to approve the estimated \$11 million rebuild of an existing 161 kV in southeastern Minnesota (Known as the Rochester - Wabaco 161 kV rebuild project). Xcel Energy feels that this project is a partial solution at best because of the limited benefit to future wind transfers over the Mississippi River and the loss of millions of additional dollars of benefits for MISO. MISO, and the MISO Stakeholders would be better served by removing the recommendation of this project in lieu of additional analysis to be undertaken during the MTEP19 cycle.

#### **Minnesota –Wisconsin Transfer Limitations:**

The main cause at the root of the system inefficiency has been noted by MISO as the low rating on the existing Rochester – Wabaco 161 kV transmission line, which is limiting the amount of transfers that can be scheduled between Minnesota and Wisconsin. Xcel Energy wholeheartedly disagrees with this assertion. We do agree that the existing Rochester – Wabaco 161 kV transmission line is the first limiting element, but the MISO analysis fails to correctly capture the second limitation. This limitation is the lack of support for system voltages and stability with high transfers over long lines in western Wisconsin.

Since the MISO production cost analysis, which is the main analysis performed in the MCPS, relies on a DC system model, it cannot accurately account for issues in system voltages or stability. As such, Xcel Energy feels that the benefit projections for the recommended Rochester – Wabaco 161 kV rebuild project are vastly overstated due to the inability of the projected levels of renewable interconnections without addressing this transfer limitation. MISO also failed to fully account for operational solutions to the identified constrained that could mitigate this first limitation at little to no cost during stakeholder discussions.

**Xcel Energy Efforts:**

Xcel Energy has been working closely with MISO economic planning staff to analyze several different solutions which address both the first limitation, noted above, as well as the underlying issue of transfer limitations between Minnesota and Wisconsin. We acknowledge that several of the individual projects failed to meet the requirements for recommendation as an economically justified project in the MISO process, but failures in the process and unreasonable time restrictions in a single MTEP cycle did not allow for adequate analysis of different project configurations to adequately address the root issue.

In addition to working with MISO on project development, Xcel Energy staff met with MISO early in 2018 to discuss some special circumstances in southeast Minnesota and western Wisconsin that impact transmission costs and viability of development. The MCPS process failed to incorporate this information, including the availability of an open second 345 kV circuit position and river crossing on an existing transmission line in the area. Because of this, the MISO cost estimates are consistently over \$100 million higher than the Xcel Energy developed cost estimates. MISO's failure to incorporate efficiencies such as the availability of open second circuit capabilities along the most likely route led to a significant over-estimation of estimated project costs, and in turn, a lower benefit to cost ratio for those solutions.

**MISO Process Failures:**

Historically, the MISO planning process had no need to analyze Generator Interconnection network upgrades in the MCPS process. During the MTEP18 MCPS, a project was identified in the DPP August 2016 West interconnection study which had a high correlation with the constraint identified for the Rochester – Wabaco 161 kV rebuild project. The inability for the MISO process to have a path to analyze a project with such a high correlation to a significant regional constraint represents a catastrophic failure in the MISO planning process and deviates significantly from MISO stated position of favoring long-term solutions to encourage a more efficient and cost effective transmission system.

In addition, the MTEP18 economic models do not incorporate significant generation retirements that have been announced and have the potential of drastically changing the congestion patterns in the MISO footprint. For example, the retirement of Duane Arnold Energy Center and the projected retirement of Prairie Island in the MTEP19 models will increase congestion costs in the area of the recommended project. An approval of the Rochester – Wabaco 161 kV rebuild project would likely result in additional costs to address the same constraint that could be incurred before the 161 kV solution is placed in service.

**Xcel Energy Requests Additional Project Justification and Development:**

Xcel Energy understands that MISO’s position is the recommended 161 kV project represents a no-regrets project based on their internal analysis. Xcel Energy requests additional time to fully vet these internal analyses performed by MISO to determine whether or not the recommended project retains a sufficient business case to move forward toward approval and construction. Without this additional business case development and robustness testing, MISO is obligating the local transmission owner to perform those analyses. Since PROMOD is costly analytics tool and is not widely used by all MISO facility owners, this additional justification effort can create undue burden on those companies that do not currently run production cost modeling software.

To better develop the business case for the recommended project Xcel Energy requests MISO provide technical analysis to answer the following questions:

**Secondary System Limitations and the Application of Local Planning Criteria and Operations:**

The current MISO analysis discussed during the MCPS stakeholder discussions fails to account for significant system limitations in the area of the recommended project. As noted above, a significant power transfer limitation existing on transfers from Minnesota to Wisconsin that reduces the ability for new generation interconnections to meet the projected levels assumed in the MTEP18 Futures. The February and August 2016 West DPP reports as well as the August 2017 East ATC DPP Phase I report detail this transfer limitation. Xcel Energy requests additional analysis to show that this project can maintain sufficient benefits to retain a recommendation for approval. This should include:

- Analysis of projected benefits and benefit to cost ratio of the recommended project if the transfer limitation is not addressed, and in turn, new generation expansion is not possible.
  - Including all RRF units, not just renewables
- Analysis showing the incremental benefit to cost ratio of the recommended project if the transfer limitation is addressed by a 345 kV or larger project in the area of the recommended project.
  - Including alternatives identified in generator interconnection studies
- Analysis showing the cumulative benefit and benefit to cost ratio of a new 345 kV transmission line addressing the transfer limitation in addition to the recommended 161 kV project and facilitation of discussion to determine if this combination is a more efficient or cost effective solution.
  - Including alternative identified in the referenced generator interconnection studies
- Ensuring all local planning criteria is applied and validate that no additional upgrades are needed.
  - For example, ATC Local Planning Criteria requires a 10% margin above the point at which voltage collapse occurs with respect to the Minnesota – Wisconsin transfer limitation.

- For example, the PROMOD dispatch of the JPM generator located immediately on the Wisconsin side of the identified congested flowgate should mirror how that unit has performed in historical time of congestion on the identified element. Since counter-flows can relieve overloads, the operation of this plant during times of congestion can reduce the cost of that congestion.

#### Additional Rigor in Cost Estimation:

As stated above, Xcel Energy has presented MISO with several system conditions that impact project cost estimates in the area of the recommended project. We recommended re-analyzing the benefit to cost ratio in all analyses and all project alternatives utilizing the cost saving efficiencies that are available in the project area. This could result in an alternative project being more efficient or cost effective.

#### Recent System Changes Impacting System Congestion:

Since the development of the MTEP18 Futures, there have been several system changes that can have significant impacts on the identified system congestion being mitigated by the recommended projects. Xcel Energy recommends additional analysis to show that these impacts do not change which project alternative is the most cost effective.

- Re-analyzing the benefits incorporating system changes as base case assumptions such as:
  - Retirement of nuclear generator in Iowa that has been publicly announced
  - Retirement of fossil fuel generation that has been publicly announced in eastern Wisconsin, if not already included
  - Inclusion of large load interconnections in eastern Wisconsin, if not already included

#### Determination of policy driven cost shifts:

As identified in previous MISO interconnection studies, the recommended project has been identified and included in an unexecuted Facility Construction Agreement as a required network upgrade in that process. Xcel Energy recommends a review of recent generator interconnection studies to determine if the policy thresholds for assigning network upgrades have resulted in this project recommendation to be shifted from the responsibility of the interconnection customers to the responsibility of the customers located in the Dairyland Pricing Zone in an unjust or unreasonable fashion.

#### Estimation of non-MISO beneficiaries:

Relieving the congestion on the identified flowgate will increase the availability of lower wholesale energy prices on a direct path to companies outside of the MISO footprint, relief of this constraint could also increase the availability of low cost generation in the opposite direction, benefitting non-MISO companies in the SPP footprint. MISO should monitor these areas to determine if any solution would be eligible for interregional project consideration.

## WPPI Energy

WPPI understands that MISO continues to evaluate the proposed Straits of Mackinac cable replacement project (Project\_ID 15145) against alternatives and, in particular, against an alternate cable replacement project proposed by lower Michigan parties.

WPPI recommends MISO explore with interested parties the potential for a joint-ownership solution that may satisfy the proponents of both the proposed Straits of Mackinac cable replacement project (Project\_ID 15145) and the alternate cable replacement project proposed by lower Michigan parties (e.g., install two new 3-phase 230 kV cables in lakebed consistent with ATC-proposed timeline, ATC owning one cable, lower Michigan parties owning the second).

Section 5.4 of the report describes the Independent Load Forecast (ILF). We believe this section was first included in the MTEP report Book 1 version posted October 12, and that the posted Full Report did not include this section until October 16. Both of these were described as final postings of the MTEP18 report

The description in Section 5.4 appears to not reflect the most recent load-forecasting approach under discussion between MISO and stakeholders, despite the fact that this discussion began prior to the posting dates above.

While we do not agree with a number of characterizations in the Section 5.4 description of the ILF, there appears to no longer be an opportunity to propose revisions to the language in this section. Given this, and the fact that the ILF is not directly relevant to transmission planning in either the MTEP18 or MTEP19 process, we request that MISO simply remove this Section 5.4 from the MTEP18 report.

## Midwest Industrial Customers (MIC)

### A. ATC Straits Project (Project ID 15145)

1. We request that a detailed explanation be provided regarding ATC's cost estimates for this project going from \$170 million to \$94 million. Related to this issue, we would like to better understand the repercussions if ATC's actual costs are higher than this projection particularly when MISO is evaluating two project alternatives from two different transmission owners and one of the important factors being considered is cost.

2. Based on the October 12th MISO presentation, it is our understanding that the Wolverine short term solution of relocating up to 3 generators (80 MW in the winter) was not enough because 135 MW would be at risk certain times of the year. In this regard, we recommend that MISO provide load duration curve analysis so we can better understand the number of hours in a year that the load is expected to be at 135 MW as well as the amount of time the 80 MW of generation would be adequate.

3. Notwithstanding the Transmission Owners Agreement (TOA), MIC believes that nothing precludes the transmission owners in Michigan's Upper Peninsula (UP) and Lower Peninsula (LP) from negotiating a joint project solution and cost allocation that is different for this unique project. There are important policy level issues involved here and stakeholders must be provided the opportunity to have open and transparent discussions regarding this matter. However, at the Western Technical Study Task Force (WTSTF) meeting on October 12th, MISO indicated that policy level discussions need to be held in a forum other than the WTSTF and no alternative forum was identified to help facilitate these discussions.

4. Alternative solutions are in the process of being evaluated. Once feedback is provided to MISO by October 26th, it appears that stakeholders will be foreclosed from the opportunity to comment on the chosen solution before the project is submitted to the MISO Board of Directors. Stakeholders should be given this opportunity especially because of the policy issues involved with this project.

Given that (a) there are important unanswered questions, (b) alternative solutions are still being evaluated and (c) policy level issues need to be discussed in an open and transparent forum, it is premature to include the ATC's Straits project in MTEP18's Appendix A. Therefore, MIC recommends that this project be placed in Appendix B to allow for fuller vetting of the technical and policy issues and enable an optimal solution in the UP/LP.

## B. ATC Projects in MTEP18

MIC represents industrial customers in Wisconsin who are ultimately responsible for paying the transmission costs. From an overall perspective and specific to ATC, our members are very concerned regarding the extraordinarily high amount of investment slated for approval in MTEP18 for ATC projects (\$987 million including the Straits project). ATC project investment in MTEP18 accounts for 70% and 30% of the investment in the West Planning Region (\$1.4 billion) and MISO (\$3.3 billion) respectively. There are no baseline reliability projects and aside from generation interconnection, all projects are in the “Other” category. In the past MTEP reports, ATC project investment has been between approximately \$250 million to \$300 million (\$302 million in MTEP15, \$282 million in MTEP16, \$241 million in MTEP17).[1]

While we understand that certain unique projects are currently included in MTEP 18 such as the Foxconn interconnection project and the Straits project, it does not explain the extraordinary and wide differences between the level of investment in past MTEPs and the current one. In this regard, we recommend the following being addressed in the current and future MTEPs:

- What steps does MISO undertake and what criteria does it use to ensure that the bottom up projects are needed, necessary and appropriate? In other words, how is it being ensured that these projects are “must haves” and not “nice to have”?
- What are the differences between ATC’s local planning criteria and MISO/NERC and what is the justification for these differences?
- What factors are resulting in the ATC footprint requiring significantly more investment relative to other transmission owning entities in the MISO footprint? We are not aware of any other transmission owner whose proposed investment is such a significant portion of the total MISO proposed project investment as ATC in MTEP18.

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[1] The sources of the dollar amounts are from the West Subregional Planning Meetings – July 27, 2015, August 22, 2016 and August 31, 2017

### Independent Load Forecast

The MTEP’18 Draft Report includes a description regarding the Independent Load Forecast, which is neither consistent with MISO’s current merged proposal nor does it reflect that stakeholders are in the process of evaluating MISO’s proposal. In fact, feedback on the merged proposal is due on October 31, 2018. Furthermore, it is not clear to us as to why MISO needs to include this section at all in the MTEP18 report considering that any changes to the status quo approach are being proposed for MTEP20. We recommend that this section be removed from the MTEP18 report.

## Minnesota Power

Minnesota Power is concerned with MISO’s assertions in Section 5.4 of the MTEP18 report regarding the Independent Load Forecast and respectfully requests that MISO reword the section to recognize the concerns that have been expressed by Stakeholders regarding the SUFG’s methodology for modeling EE, DR, and DG. MISO’s assertion in the report that the “ILF can consistently account for Energy Efficiency (EE), Demand Response (DR), and Distributed Generation (DG) in long-term load forecasts” is a subjective assessment of the SUFG’s modeling approach that runs contrary to the view of many stakeholders.

## WEC Energy Group

WEC Energy Group does not support inclusion of Section 5.4, Independent Load Forecasting within the MTEP18 report. Section 5.4 does not support any of the projects identified within MTEP18, is not relevant to any of the planning initiatives within MTEP18, and it is unnecessary. Even more concerning, Section 5.4 fails to recognize the extraordinary work and effort that stakeholders have put forth to compromise with MISO on the use of an Independent Load Forecast (ILF) within future MTEP cycles.

In a nearly unprecedented process, load serving stakeholders from multiple sectors developed a load forecast proposal that would fulfill MISO’s need for greater granularity. This group, known as the Coalition of Utilities with Obligation to Serve (CUOS), then worked diligently with MISO to develop a compromise solution. Section 5.4, although unnecessary to support the MTEP18 process, fails to even mention this work and instead states that “MISO will begin the use of ILF to develop Futures specific load and energy forecasts in MTEP20 and beyond”. This proclamation directly contradicts statements made by MISO within the load forecasting workshops and its inclusion within the MTEP18 report can be viewed as an apparent “bait and switch” in the hopes of receiving Board approval for the proclamation. WEC Energy Group requests removal of Section 5.4, in its entirety, from the MTEP18 report.

## Madison Gas & Electric Company (MGE)

MGE does not agree with all the characterizations in Section 5.4 concerning the Independent Load Forecast (ILF). This section should be removed entirely. It does not reflect the most recent developments on the ILF issue and is not now a topic directly relevant to transmission planning.

## Michigan Agency for Energy (MAE)

To: MISO Planning

From: The Michigan Agency for Energy

The Michigan Agency for Energy (MAE) thanks MISO for its thorough evaluation of MTEP Project No. 15145 and the submitted alternatives at the West Technical Study Task Force (TSTF) meeting held on October 12, 2018. MAE also thanks MISO for its commitment to continue to work with the State of Michigan and stakeholders to find the best and most feasible solutions to ensure short-term and long-term electric reliability in Michigan’s Eastern Upper Peninsula (UP).

MAE is responsible for coordinating energy policy for the State of Michigan. As the MISO tariff precludes MISO from “requiring that projects be undertaken where it is expected that the necessary regulatory approvals for construction will not be obtained”, MAE would like to provide MISO, ATC and other stakeholders its view as it pertains to infrastructure and construction permitting in the Straits of Mackinac. As MISO and other stakeholders are aware, a tunnel beneath the Straits of Mackinac is currently being explored to house future utility infrastructure crossing the Straits. MAE expects that it could be problematic to permit infrastructure traversing the Straits bottomlands once this feasible and prudent alternative is underway. However, because of Michigan’s concern over short-term reliability, MAE’s preference is that a functional replacement for ATC’s damaged 138 kV circuit in the Straits should be placed in service as soon as possible.

It is MAE’s belief that state permits may be difficult to obtain for any infrastructure work in the Straits beyond replacing the three cables damaged and rendered inoperable by the April 1, 2018 anchor strike, given the option of a less-disruptive environmental alternative and the lack of an immediate violation of electrical reliability rules. (State law prohibits administrative agency authorization of conduct that may pollute, impair, or destroy the environment if there is a feasible and prudent alternative. MCL 324.1705(2).) For this reason, MAE encourages MISO and ATC to evaluate removing and replacing only the three damaged and inoperable cables with a submarine cable similar to what are proposed in MTEP Project No. 15145. Replacement of the remaining 1970’s vintage circuit should be separately evaluated for later construction inside the utility tunnel. Furthermore, MAE suggests that environmentally disruptive work to trench, hydro-plow, or excavate in the Straits may not be permitted by the state, especially given the expectation that infrastructure in the Straits will be removed at the end of its useful life.

To mitigate environmental disturbance in the Straits region, MAE expects the state will require that ATC and Consumers Energy coordinate their exposed line removal work and the installation of the new ATC submarine cable as a single initiative, which should result in lower costs. Permits will likely be amended to require the removal of only the exposed (non-trenched) segments of the ATC and Consumers Energy transmission lines traversing the Straits, and not allow additional excavation. MAE also expects the state to require geotechnical testing prior to any work to remove the inoperable ATC and Consumers Energy transmission lines and will likely accept results from currently scheduled geotechnical testing being conducted by Enbridge Energy on adjacent Straits bottomlands. This should also help reduce time and cost of both projects. In the event geotechnical test results would disfavor bottomlands disruption resulting from removal, it is unlikely any portion of the lines will be required to be removed.

MAE appreciates the time and work put in by MISO to help all stakeholders understand the implications of the current system and by all stakeholders who submitted alternative projects to solving this reliability issue for the Eastern UP. These efforts contributed to cost estimate refinement and resulted in substantial savings over initial projections. MAE is hopeful that the above suggestion would result in the best balance of short- and long-term costs, electrical reliability, and environmental stewardship. MAE recognizes the urgency to address the current reliability risk in the Eastern UP and hopes collaboration continues to explore and implement short term reliability solutions until a new, long-term transmission connection between the peninsulas is in service.

## **Comments Pursuant to Final Planning Meeting Regarding Straits Project (Technical Studies Task Force of October 12, 2018)**

### Wolverine Power Cooperative

Although all MTEP projects should be reviewed consistently, some projects require further analysis because of unique variables including:

- location (impacted parties, planning regions, seams, etc.),
- cost (including cost allocation),
- justification,
- benefits, and
- longevity.

#### Uniqueness of this Situation

Project 15145 is located in a region that is unique from numerous perspectives. In particular, the project is located near the tips of two peninsulas, raises environmental protection issues, is located at a seam between two transmission owners, and is in a rural region with only two transmission ties and limited generation. Because transmission project planning has long term, significant, lasting, and, most importantly, directly impact the ratepayer, these myriad issues must be considered closely and carefully.

#### ATC's Proposal and Inconsistent Cost Estimates

Project 15145 was introduced midway through the MTEP18 cycle, shortly after the anchor strike incident permanently retired one of the two circuits in the Straits of Mackinac. Project 15145's submittal documentation contained very few project specifications and a high cost estimate of \$170 million. Shortly thereafter, Wolverine submitted an alternative proposal at a cost of \$113 million. In the weeks that followed Wolverine's submission, the planning level estimate for Project 15145 was reduced several times, ultimately reaching \$105 million (2021 dollars), without any explanation. Even with such reductions, facility specifications remain unavailable. It appears that Project 15145 will use 138kV designed triplex cables located in the same location as the existing cables – but that is the extent of available detail.

#### Wolverine's Alternative and Consistent Cost Estimates

Wolverine's alternative transmission proposal is a long-term solution with many additional benefits, including:

- Located in a tunnel for 24/7 maintenance access and complete protection from anchor strikes (or similar incidents),
- Separately jacketed conductors for reduced likelihood of failure,
- 230kV designed cables and extended transmission for economic growth, increased power flow, and flexibility for future transmission expansion, allowing increased penetration of renewables, future load growth, and overall flexibility, and
- Reliability improvements that positively affect both the UP and LP.

Contrary to Project 15145, Wolverine’s planning level cost estimate, using information from industry experts, has remained constant at \$113 million and breaks down as follows:

	Materials	Labor	Contingency
Tunnel Portion	\$22M	\$55M	\$12M
LP Land Portion		\$8M	\$12M \$4M

#### Arguments Against Wolverine’s Alternative

Arguments against Wolverine’s alternative have included:

1. Its in-service date is after Project 15145; and
2. This later in-service date imperils Eastern UP reliability.

These “urgency” based arguments, however, are without reasonable support. As MISO stated at the August West Sub-regional Planning Meeting, there are no existing reliability issues with the existing single in-service circuit across the Straits. The perception of “urgency” appears to be driven by assuming that the existing circuit between the peninsulas has failed and then compounding that situation with multiple other simultaneously occurring extreme events (a P7 double circuit tower outage and zero hydro generation). The existing single in-service circuit across the Straits is in place today and Wolverine sees no rational reason to expect likely, let alone imminent, failure. While good planning practice suggests elimination of this risk in the long term, “urgent” implementation (to the detriment of more important and longer lasting considerations) of Project 15145, based on this unlikely (n-1-1-1) scenario (that also does not appear to match ATC’s own planning criteria), is unreasonable, at best.

#### Project 15145 Results in No Incremental Reliability Benefit

Also, it is particularly ironic that these incredibly unlikely, but potential, issues assume three separate and distinct failures at the same time, while failing to recognize that ATC’s own HVDC device sets up a single failure point by its mere existence. The replacement of a cable that carries energy to and from

movement over progress. Doing so would be arbitrary and capricious, unduly burdensome, and discriminatory to ratepayers and the system as a whole.

#### Wolverine Provides Another Solution

In order, though, to mitigate this alleged near-term risk, which is present with both transmission solutions, Wolverine also suggested another solution - the relocation of generation. However, the generation proposal was deemed deficient after studying the project under an unreasonably extreme scenario (a 140MW island of the Eastern UP with essentially zero internal generation). In other words, because the alternative did not fix the problem perfectly, it was discredited as being useless. Alternatively, ATC provides no solution at all.

Contrary to the statements of a few, Wolverine’s generation proposal is sufficient to support the Eastern UP when reasonable hydro generation assumptions are used, even if the existing circuit across the Straits of Mackinac has failed and additional extreme contingencies do occur. In any transmission planning environment, NERC standards allow for load shed in these extreme scenarios, especially those that were used to discredit the generation proposal as a viable option. Even with this allowance, it is very unlikely that load shed would ever be necessary, even compounding multiple extreme events, when other operational actions are taken into consideration. These operational actions could include demand response, anchor ice mitigation measures, and/or closing ATC’s Blaney Park line. Even if the unreasonable assumptions are used, reducing the amount of load shed is always better than shedding 100% of the load. Wolverine’s interim generation solution is better than no solution at all. And right now, Wolverine is the only party suggesting a solution.

#### Conclusion

When choosing a project, the best long-term solution for the transmission system and ratepayers is the most important consideration. In determining this, at a minimum, the following must be considered:

- improving and expanding reliability,
- cost effectiveness,
- easy access for long-term maintenance,
- flexibility to accommodate potential economic growth over the life of the asset,
- flexibility to accommodate potential transmission expansion over the life of the asset,
- complete protection from events (anchor strikes or similar incidents) of the past, and
- additional benefits such as:
  - broader access to low cost power (renewables), and
  - fiber optic wires for secure communications, reliability, and enhanced broadband.

Michigan’s two peninsulas need to be connected with robust and reliable transmission and Wolverine’s alternative proposal meets all of these considerations with a the most robust, reliable, and long-term solution.

Wolverine, a Michigan-based transmission owner and MISO LSE, is interested in further discussion, long-term planning, and assurance of maximum definable reliability benefits associated with Project 15145, the alternatives, and all other MTEP projects.

## American Transmission Company

MISO used its MTEP process to solicit, study, facilitate stakeholder discussion and document the project alternatives for ATC’s MTEP project 15145 which replaces the ATC owned submarine cables from Point La Barbe riser to McGulpin riser. At the TSTF held on October 12, 2018, MISO reiterated the urgency and reliability need for a timely, cost effective, and environmentally safe long-term solution across the Straits of Mackinac to maintain reliability to ATC’s transmission customers in the Eastern Upper Peninsula and stakeholders in the ATC pricing zone. The completion of the MISO stakeholder process and recommendation of the project in MTEP18 is crucial to maintain a schedule that reflects the urgency of this submarine cable replacement project.

## Project and Alternative Comparison

To provide stakeholders with a transparent comparison of the urgent submarine cable replacement portion of the alternative to the ATC project, ATC is providing the table below.

	<b>Installation Cost (2018\$)</b>	<b>Removal Cost</b>	<b>Other Cost</b>	<b>Total Cost (2018\$)</b>	<b>Project Schedule</b>	<b>Environmental</b>	<b>Project Development Status</b>
ATC Project	\$86M	\$8M*	None	\$94M	3 years	Resolved	Developed - Project Detail, Scope, and Estimate
Alternative	\$89M	\$10M**	Does not include tunnel costs	\$99M + unknown tunnel costs	7-10 years	Resolved	Conceptual - Project Detail, Scope, and Estimate

\*Removal of existing cables reflect synergies of mobilization for removal and installation

\*\*Removal of existing cables includes total mobilization costs that are not shared with the installation costs

ATC has diligently worked with external material vendors, marine constructors and consultants experienced in submarine cable projects, as well as using internal benchmarks to refine its schedule and project cost estimate.

The project alternative is inherently speculative because the full commitment to construct the tunnel has not occurred and the details of the tunnel, associated tunnel rents, and necessary

operational/maintenance protocols are unknown at this time and not included in the cost. The unknowns represent a significant risk that the project alternative cost and schedule are not complete and are likely to be substantially more expensive and have a longer schedule. ATC's project is superior to the alternative based on cost and most importantly on schedule.

Stakeholders have asked for review of a long-term best value solution utilizing ATC's proposed 138 kV insulated cables compared to 230 kV insulated cables. ATC believes that for the foreseeable planning horizon the 138 kV solution is more than adequate to address all reliability needs. Recent MISO overlay studies have shown that there is a very low benefit-to-cost ratio for higher voltage solutions. ATC believes that the 138 kV solution is the prudent project and in the best interest of ratepayers; therefore, ATC plans to proceed with the 138 kV project.

## Alternative Additional Lower Peninsula Scope

The proposed alternative includes an overhead portion that would yield the same benefits to the Lower Peninsula if combined with ATC's project. However, the reliability issues addressed by the overhead project is not of the same urgency as the submarine cable replacement project. The overhead portion of the alternative proposal should be considered as a stand-alone project and vetted in MTEP19 or later.

## Conclusion

ATC believes MISO has successfully completed the stakeholder process and is ready to move forward with recommendation of MTEP ID 15145 in MTEP18 to provide a timely, cost effective, and environmentally safe long-term solution across the Straits of Mackinac.

## Cloverland Electric Cooperative



November 8, 2018

Lynn Hecker  
Midcontinent Independent System Operator  
720 City Center Drive  
Carmel, IN 46032

Dear Ms. Hecker:

On August 10, 2018, Cloverland Electric Cooperative provided comments regarding two proposals to replace the Straits 138 kV submarine cables due to the damage that occurred on April 1, 2018. At that time, Cloverland indicated that the solution being proposed by Wolverine/ITC did not account for the urgency of the situation and need for immediate action. This comment was based on Wolverine's expected in-service date for the project of December 31, 2024 that extended past the projected in-service date for the competing ATC project of December 31, 2021. However, under either project, Cloverland's membership remains subject to reliability risks in the near-term.

To mitigate the near-term reliability risks caused by the difference in in-service dates, Wolverine Power Cooperative proposed relocating three generators from the lower peninsula to the upper peninsula of Michigan while a long-term solution is implemented. In its presentation at the West Technical Studies Task Force meeting on October 12, 2018, MISO indicated that while the ATC and Wolverine solutions were comparable, the Wolverine transmission solution provided additional connections to the lower peninsula system and therefore provided for better performance in the northern lower peninsula and increases transfer capabilities between the two peninsulas. Cloverland's assessment of MISO's comments is that the MISO studies indicate better long-term system performance under the Wolverine transmission proposal; however, Cloverland is concerned with the longer period of exposure to reliability risks. MISO's comments also claimed that Wolverine's near-term proposal to add generation capacity (70-80MW) in the eastern upper peninsula was insufficient to address the near-term reliability risks under all system conditions MISO studied.

To sufficiently address the near-term reliability risks facing Cloverland, Cloverland offers another generation solution, which will allow sufficient time and analysis to determine the best transmission solution for Michigan. Cloverland proposes to add 100MWs of natural gas and liquid fuel fired generation at two different locations in its footprint at a cost of \$40-\$50 million. Cloverland has access to these generation resources and would be able to place that generation into service in as little as 18 months. Also, in 2019, Cloverland will be making improvements to its hydro facility by adding load governing and true voltage regulation ability to support islanding of our major population centers.

Between Cloverland's 100MW generation proposal, the improvements at its hydro facility, and its existing liquid fuel fired generation, Cloverland believes the near-term reliability risks can be sufficiently mitigated.

Based on the MISO studies completed at the August 17, 2016 request of Michigan Governor Rick Snyder and the Michigan Agency for Energy, MISO determined generation in the eastern upper peninsula provided for the lowest cost over a 20-year period compared to other alternatives.

Therefore, as the entity with load most directly impacted by the current reliability issues, I strongly recommend MISO consider Cloverland's proposal to construct 100MW of generation in the eastern upper peninsula as a solution to address the near term reliability risks and delay any immediate approval of the transmission proposals while further analysis and discussion is completed to determine the best long-term solution for the transmission connection between the peninsulas.

Regards,



Aaron Wallin  
Interim President and CEO

cc: John Bear  
Jeff Webb  
Carmen Clark  
Melissa Seymour  
Clair Moeller