

Exhibit No.: \_\_\_\_\_  
Issue: Public Interest  
Transmission Planning  
Witness: Jameson T. Smith  
Type of Exhibit: Surrebuttal Testimony  
Sponsoring Party: Midcontinent Independent System  
Operator, Inc.  
Case No: EA-2015-0146  
Date Testimony Prepared: November 16, 2015

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO. EA-2015-0146**

**SURREBUTTAL TESTIMONY**

**OF**

**JAMESON T. SMITH**

**SUBMITTED ON BEHALF**

**of**

**MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC. (MISO)**

**Kansas City, Missouri  
November 16, 2015**

1 **I. INTRODUCTION AND WITNESS QUALIFICATIONS**

2 **Q. Please state your name, business address, and present position.**

3 A. My name is Jameson Smith. I am employed by the Midcontinent Independent  
4 System Operator, Inc. ("MISO") as the Director of Policy Studies. My business  
5 address is Two Lakeway, 3860 N. Causeway Boulevard, Suite 442, Metairie,  
6 Louisiana 70002.

7 **Q. What is MISO?**

8 A. MISO is a not-for-profit, member-based, regional transmission organization ("RTO")  
9 providing reliability and market services over 65,700 miles of transmission lines in  
10 fifteen states and one Canadian province. MISO's regional area of operations  
11 stretches from the Ohio-Indiana line in the east to eastern Montana in the west, and  
12 south to New Orleans. MISO is governed by an independent Board of Directors.

13  
14 MISO's responsibilities include the development of the MISO Transmission  
15 Expansion Plan ("MTEP") in collaboration with transmission owners and  
16 stakeholders. MISO adheres to the nine planning principles outlined in FERC Order  
17 No. 890.<sup>1</sup> In so doing, MISO provides an open and transparent regional planning  
18 process. FERC Order No. 1000 furthered the planning principles outlined in FERC

---

<sup>1</sup> *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241, *order on reh'g*, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g and clarification*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228 (2009), *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009). "The Transmission Provider's planning process shall satisfy the following nine principles, as defined in the Final Rule in Docket No. RM05-25-000: coordination, openness, transparency, information exchange, comparability, dispute resolution, regional participation, economic planning studies, and cost allocation for new projects." Order 890-B, Attachment K.

1 Order No. 890, and included the requirements to plan for public policy and for  
2 coordinated inter-regional planning and cost allocation.<sup>2</sup> The MTEP process (i)  
3 identifies transmission system expansions that will ensure the reliability of the  
4 transmission system that is under the operational and planning control of MISO, (ii)  
5 identifies expansion that is critically needed to support the reliable and competitive  
6 supply of electric power by this system, and (iii) identifies expansion that is necessary  
7 to support energy policy mandates.

8 **Q. What are MISO’s responsibilities?**

9 A. As an RTO, MISO is responsible for operational oversight and control, market  
10 operations, and for coordination of the planning and expansion of the transmission  
11 systems that are under its control. Among many other responsibilities, MISO  
12 monitors and calculates Available Flowgate Capability and provides tariff  
13 administration for its Open Access Transmission, Energy and Operating Reserve  
14 Markets Tariff (“Tariff”),<sup>3</sup> which has been accepted by the Federal Energy  
15 Regulatory Commission.<sup>4</sup> MISO is the Reliability Coordinator for its regional area of  
16 operations, providing real-time operational monitoring and control of the transmission  
17 system. MISO operates real-time and a day-ahead energy markets based on

---

<sup>2</sup> *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, 136 FERC ¶ 66,051 (2011), *order on reh’g*, Order No. 1000-A, 139 FERC ¶ 61,132 (2012), *order on reh’g and clarification*, Order No. 1000-B, 141 FERC ¶ 61,044 (2012).

<sup>3</sup> MISO Tariff, available at: <https://www.misoenergy.org/Library/Tariff/Pages/Tariff.aspx>

<sup>4</sup> MISO’s Tariff was initially accepted by FERC in 1998, but was suspended until subsequently adopted in 2001. *See Midwest Indep. Transmission Sys. Operator, Inc.*, 97 FERC ¶ 61,326 (2001); *Midwest Indep. Transmission Sys. Operator, Inc.*, 97 FERC ¶ 61,033 (2001), *order on reh’g*, 98 FERC ¶ 61,141 (2002). MISO began providing transmission service under its Tariff in 2002.

1 Locational Marginal Prices (“LMPs”) in which each market participant’s offer to  
2 supply energy is matched to demand and is cleared based on a security constrained  
3 economic dispatch process – resources on the system are dispatched to minimize the  
4 cost of energy production while respecting the reliability limitations of the system. In  
5 addition, MISO operates a market for Financial Transmission Rights, which are used  
6 by market participants to hedge against congestion costs, and an ancillary services  
7 market, which provides for the services necessary to support transmission of capacity  
8 and energy from resources to load.

9

10 MISO is responsible for approving transmission service, new generation  
11 interconnections, and new transmission interconnections within the MISO’s regional  
12 area of operations, and for ensuring that the system is planned to reliably and  
13 efficiently provide for existing and forecasted usage of the transmission system.  
14 MISO is the Planning Coordinator for its regional area of operations, which includes  
15 portions of Missouri, and performs planning functions collaboratively with  
16 transmission owners with stakeholder input – state regulatory authorities (the  
17 Organization of MISO States as well as individual authorities), public consumer  
18 advocates, environmental representatives, end-use customers, independent power  
19 producers, and others – throughout the process. MISO provides an independent  
20 assessment and perspective of the needs of the overall transmission system.

21 **Q. What is your educational background?**

22 A. I graduated from Mississippi State University with a Bachelor of Science degree in  
23 Electrical Engineering. I received a Master of Business Administration degree from  
24 Oklahoma State University.

1 **Q. Are you a professional engineer?**

2 A. Yes. I am a registered professional engineer in the State of Oklahoma, License No.  
3 PE22110.

4 **Q. What is your professional experience?**

5 A. In January 2001, I was employed by American Electric Power as a transmission  
6 planning engineer for its holdings located in the Southwest Power Pool. I performed  
7 transmission planning studies for four states, and conducted analyses for annual  
8 forward planning, generation interconnection, load interconnection, and voltage  
9 stability.

10

11 I have been employed by MISO since January 2006 when I became a resource  
12 forecasting engineer in MISO's Transmission Asset Management Division ("TAM").  
13 In this role, I participated in the development of the economic planning processes  
14 performed today, and have run the resource expansion and production cost models  
15 utilized in that process. During my time in this group, I was also the project manager  
16 for the study that identified the candidate Multi Value Projects ("MVPs"), the final  
17 results from which are discussed in my testimony, for the MISO footprint as it existed  
18 in 2010.

19

20 In September 2010, I transitioned to the role of Manager of Policy Studies within  
21 TAM. My team was responsible for working with stakeholders to evaluate  
22 emerging economic and policy trends and their impacts on the bulk electric system.  
23 Most of these studies focus on the impact of renewable portfolio standard  
24 ("RPS")/renewable energy standard ("RES") and environmental rulemakings.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

In August 2014, I undertook my current position as the Director of Policy Studies at MISO.

**Q. What are your duties and responsibilities in your present position as Director of Policy Studies?**

A. My current duties involve providing corporate direction to the Policy Studies management and team where the objective is to evaluate macroeconomic and public policy impacts on the bulk electric system. I am directly involved in MISO’s review of the recent Clean Power Plan (“CPP”) final rule recently adopted by the United States Environmental Protection Agency and the impacts of greater dependence on natural gas within areas where MISO operates. I am involved in execution of the economic planning processes connected with the annual evaluation of MISO Transmission Expansion Plan (“MTEP”) projects.

**Q. What is MTEP?**

A. MISO reviews the local planning activities of individual transmission owners with stakeholders regarding the adequacy and appropriateness of the local plans in a coordinated fashion with all other local plans. MISO seeks to ensure that all of the needs are met cost effectively. MISO considers, together with stakeholders, opportunities for improvements and expansions that would reduce costs by providing electric suppliers access to new, low cost resources that are consistent with and required by legislative energy policies. MISO’s planning process examines transmission congestion that may limit access to the most efficient resources, and considers improvements that are needed to meet forecasted energy requirements. Stakeholders from each MISO member sector – state regulatory authorities, public

1 consumer advocates, environmental representatives, end-use customers, independent  
2 power producers, and others – are engaged to develop future system scenarios from  
3 assessments of possible future state and federal energy policy decisions.  
4

5 **II. PURPOSE AND SCOPE**

6 **Q. Are you familiar with the transmission project proposed in the Application filed**  
7 **by Ameren Transmission Company of Illinois (“ATXI”)?**

8 A. Yes. ATXI filed an Application in this docket seeking a certificate of public  
9 convenience and necessity. ATXI seeks authorization to construct, operate, and  
10 maintain the Mark Twain facilities (also referred to as the “Project”). The Mark  
11 Twain facilities include 95 miles of high voltage electric transmission lines and  
12 related facilities. The Project generally contains the following elements: high voltage  
13 345 kV transmission facilities running generally from Palmyra, Missouri and  
14 extending westward to a new substation located near Kirksville, Missouri as well as a  
15 345-kV transmission line running from the new substation north to the Iowa border.

16 **Q. Have you reviewed the pre-filed rebuttal testimony of Neighbors United Against**  
17 **Ameren’s Power Line (“Neighbors”) witness William E. Powers?**

18 A. Yes. I have reviewed the rebuttal testimony submitted by Neighbors witness Powers,  
19 as well as related testimony filed by Staff witnesses.

20 **Q. What is the purpose of your testimony?**

21 A. I respond to matters raised in the rebuttal testimony of Neighbors witness Powers. I  
22 address issues regarding the role played by renewables in MISO’s transmission  
23 planning process as well as issues involving that process as it specifically relates to  
24 the MVP portfolio and the Mark Twain portion of that portfolio.

1 **Q. Please elaborate on any special terminology that you will use in this testimony.**

2 A. I will refer to the “MISO footprint” in my testimony. Unless otherwise specified, this  
3 footprint refers to MISO’s regional area of operations at the time of the approval of  
4 the MVP portfolio in 2011.

5 **Q. What analyses form the basis of your testimony?**

6 A. The Mark Twain project is part of a MVP portfolio, a report concerning which  
7 (“Multi Value Portfolio Report”) is attached as Schedule JTS-S-1 of my  
8 testimony in this case.<sup>5</sup> The portfolio was approved by the MISO Board of Directors  
9 on December 8, 2011 as part of MISO’s MTEP 11.<sup>6</sup> This approval was based on a set  
10 of reliability, economic, and public policy analyses conducted in 2011 that  
11 documented the reliability benefits of the Mark Twain project and the combined  
12 reliability, economic, and public policy benefits of the full MVP portfolio. My  
13 testimony also includes as Schedule JTS-S-2 the results of the MTEP 14 MVP  
14 Triennial Review (“Triennial Review”) of the economic and public policy benefits of  
15 the MVP portfolio that was conducted in 2014.<sup>7</sup> The Triennial Review was

---

<sup>5</sup> As examples, page 14 of the Powers rebuttal testimony cites the report, as does the rebuttal testimonies of Staff members Stahlman (page 3), and Lange (pages 6-8). A copy of the report is publicly available at:  
<https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf>.

<sup>6</sup> See MTEP 2011 Report, publicly available at:  
<https://www.misoenergy.org/Library/Repository/Study/MTEP/MTEP11/MTEP11%20Report.pdf>.

<sup>7</sup> A copy of MISO’s publicly available MTEP 14 MVP Triennial Review (August 2014) (“Triennial Review”) is also available at:  
[https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/DRAFT\\_MTEP14%20MVP%20Triennial%20Review%20Report.docx](https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/DRAFT_MTEP14%20MVP%20Triennial%20Review%20Report.docx).



1 conducted according to a Tariff requirement to conduct a full review of the MVP  
2 portfolio benefits on a triennial basis.

3

4 **III. MISO REGIONAL TRANSMISSION PLANNING**

5 **A. Wind Development in the MISO Footprint**

6 **Q. Page 10 of Mr. Powers’ rebuttal testimony contains a section entitled, “No Wind  
7 Projects Proposed in Northeast Missouri, that Have Completed the MISO  
8 Interconnection Study Process, Have Been Stalled by Lack of Transmission  
9 Capacity.” Do you agree with this heading?**

10 A. Not necessarily. At a bare minimum, the heading reflects an incomplete treatment of  
11 the topic

12 **Q. Do you agree with the overall content of that same section (Section V., pages 10  
13 through 13) of Mr. Powers’ rebuttal testimony?**

14 A. No. The overall message of that Section V. in Mr. Powers’ rebuttal testimony seems  
15 to be that the Project is not needed to facilitate and deliver regionally-based, wind-  
16 powered renewable energy. That message conflicts with the basic purpose of the  
17 collaborative effort that developed the MVP portfolio of transmission projects.

18 **Q. What was the goal underlying the MVP portfolio?**

19 A. The overall purpose of the MVP analysis was to design a transmission portfolio to  
20 promote public policy goals by taking advantage of the linkages between local and  
21 regional economic and reliability benefits and by promoting a competitive and  
22 efficient electric market within MISO. The portfolio was designed using economic  
23 and reliability analyses, applying several future scenarios concerning such matters as  
24 future environmental restrictions on the generation of electricity to assist in the

1 development of a portfolio of transmission projects that would be robust under a  
2 number of potential energy policies.

3 **Q. Were wind power projects, the subject of Section V. of the Powers rebuttal**  
4 **testimony, important to MISO's MVP analyses?**

5 A. Yes. The MVP portfolio is a group of transmission projects distributed across  
6 the MISO footprint that enable the reliable delivery of the requirements of  
7 state policies regarding renewable energy (oftentimes referred to as RPS or  
8 RES mandates). The MVP portfolio was planned to provide economic  
9 benefits in excess of costs to the MISO footprint, primarily by reducing  
10 generator production costs.

11 **Q. Was an approximately 300 MW wind project located in Northeastern**  
12 **Missouri part of the MISO interconnection queue in 2007, as stated on**  
13 **page 10 of the Powers rebuttal testimony?**

14 A. Yes.

15 **Q. Did the Missouri wind project go into production?**

16 A. No. This final result is correctly stated on page 12 of the Powers rebuttal  
17 testimony.

18 **Q. How does this result compare with other experiences during the same time**  
19 **period for wind projects in the MISO footprint?**

20 A. Unfortunately, this result was typical of the results for wind projects in the  
21 period before development of the MVP portfolio of transmission projects.  
22 Wind projects were proposed and entered the interconnection queue, only to  
23 be cancelled when faced with the interconnection and other costs mentioned  
24 on page 11 of the Powers rebuttal testimony. This includes approximately

1 1,200 MW of wind in Northeast Missouri. MISO studied this problem in  
2 collaboration with stakeholders from each MISO member sector, including  
3 state regulatory authorities, public consumer advocates, environmental  
4 representatives, end use customers, and independent power producers.

5 **Q. What were the results of this collaboration?**

6 A. MISO undertook a multi-year planning process aimed at addressing the  
7 regional transmission plans necessary to enable RPS mandates to be met at the  
8 lowest delivered wholesale energy cost. This effort was known as the  
9 Regional Generation Outlet Study (“RGOS”), and was conducted between  
10 2008 and 2010.<sup>8</sup> The RGOS identified energy production zones in which  
11 mandated (renewable) energy production could locate, and indicative  
12 transmission options that would provide sufficient transmission capacity  
13 needed for the efficient and reliable delivery of new generation capacity to  
14 meet the combined renewable portfolio standards of the MISO region while  
15 providing value across the MISO footprint.

16  
17 Zone selection involved MISO staff and extensive stakeholder interaction,  
18 including discussions with various state and regulatory agencies within the  
19 MISO footprint. These included the Midwest Governors Association, the  
20 Organization of MISO States, and the Upper Midwest Transmission  
21 Development Initiative. The indicative plans were further consolidated into a

---

<sup>8</sup> See MISO’s Regional Generation Outlet Study, publicly available at:  
<https://www.misoenergy.org/Planning/Pages/RegionalGenerationOutletStudy.aspx>.

1 candidate MVP portfolio and evaluated for effectiveness in meeting the  
2 RGOS objectives. The analysis balanced relative wind capacities with  
3 distances from natural gas pipelines and interconnection with the existing  
4 transmission infrastructure.

5 **Q. Are the wind zones identified in the RGOS shown in Mr. Powers’**  
6 **testimony on page 14 the only areas from where wind generation could be**  
7 **sourced to bring renewable energy to Missouri?**

8 A. No. MISO identified a number of zones throughout the MISO footprint that  
9 could be utilized to meet the energy requirements of the various renewable  
10 portfolio regulations. The MVP portfolio is designed to enable the utilization  
11 of regional and/or local renewable resources to mitigate total costs for meeting  
12 the policy requirements.

13 **Q. Will the Mark Twain Project assist Missouri in meeting its renewable**  
14 **obligations, even if no wind generation is developed in the areas in**  
15 **Missouri shown on the RGOS map?**

16 A. Yes. The Mark Twain Project, as part of the MVP portfolio, plays an  
17 important role in meeting the Missouri obligations. The Project allows for the  
18 development of local wind to take advantage of in-state incentives and for  
19 access to remote regions to take advantage of resources whose capacity  
20 factors are significantly higher than those in Missouri in order to reduce the  
21 overall cost for compliance with the portfolio requirement.

22 **Q. What would be the impact on the MISO regional plan if the Mark Twain**  
23 **facilities are not constructed as planned?**

1 A. The MTEP designs a complex system that will serve both short- and long-term needs  
2 of the bulk electrical grid in a coordinated manner. The inability to construct a key  
3 element of the regional expansion plan, especially a “backbone” element such as the  
4 one proposed in the Application that is designed for both reliability and its economic  
5 attributes, will result in the loss of the economic benefits provided by the project and  
6 the need to develop less optimal solutions to reliability concerns. A revised plan  
7 would not provide the same positive economic opportunities for customers in  
8 Missouri and elsewhere that are provided by the plan that includes the Mark Twain  
9 facilities.

10 **B. Reliability Benefits**

11 **Q. Page 24 of Mr. Powers’ rebuttal testimony states that “MISO assumes that the**  
12 **Adair-to-Novelty line has a rating of 167 MW” and Mr. Powers also states that**  
13 **“ATXI confirm[ed] that the rated capacity . . . is 285, or approximately 285**  
14 **MW . . . .” Do these figures conflict with one another?**

15 A. No, I have no reason to doubt either figure since they were stated for different time  
16 periods that are approximately five years apart from one another. The line rating  
17 from ATXI in discovery during this case appears to reflect the current (2015) rating  
18 for the line. The MISO studies were earlier in time, during the planning stage for the  
19 MVPs.

20 **Q. Does your response mean that the Adair-to-Novelty line will not be overloaded**  
21 **as previously projected?**

22 A. Not necessarily. The overload condition depends upon a number of factors, including  
23 the amount of generation that injects into the transmission system. Withdrawal of a  
24 single project from the interconnection queue in 2007, mentioned on pages 10-13 of

1 Mr. Powers' rebuttal testimony, does not mean that wind development will not occur  
2 in proximity of the Mark Twain facilities. MVP projects increase the attractiveness  
3 and feasibility of locating generation projects nearby. The MVP portfolio, including  
4 the Mark Twain project, enables 1,347 MW of potential resources in the Northeast  
5 Missouri region.

6 **Q. What effect would elimination of the benefits discussed by MISO related to the**  
7 **potential overload on the Adair-to-Novelty line have on the benefits computed by**  
8 **MISO for the MVP portfolio?**

9 A. The ATXI testimony supports reliability-related benefits for the Mark Twain  
10 facilities. One effect of the MVP upgrades is to support local transmission reliability.  
11 This effect pushes out the timing of reliability-based transmission projects. The  
12 reliability benefit is quantified in MISO's MVP studies under the category of deferred  
13 future transmission investment. However, as stated earlier in my testimony, the  
14 largest category of benefits from the MVP portfolio of projects is generator  
15 production cost reductions. The benefit from deferred transmission investment is a  
16 small portion of the quantified benefits of the MVP projects – \$226-\$794 million out  
17 of \$15,540-\$49,204 million from the Multi Value Project Portfolio Report in 2012  
18 (page 49, 2011 constant dollars) and \$377-\$1,223 million out of \$21,451-\$66,816  
19 million from the Triennial Review (page 25, 2014 constant dollars). Aside from the  
20 reliability benefits for the Project, the Mark Twain facilities are important to the  
21 delivery of net benefits by the entire MVP portfolio of transmission projects.

22 **Q. Do you agree with Mr. Powers' assessment on page 25 of his rebuttal testimony**  
23 **that “[r]econductoring the AECI Adair-to-Novelty 161 kV line segment with**

1 **ACCC or ACCR conductor,” rather than reliance upon the Mark Twain**  
2 **facilities, is a sound approach?**

3 A. No. The problem with Mr. Powers’ approach is that it is narrowly focused on a  
4 particular reliability situation. The Mark Twain facilities were planned differently,  
5 fundamentally justified as a backbone system to provide net benefits well in excess of  
6 costs,<sup>9</sup> and designed to serve public policy goals in the development of renewable  
7 generation resources while also being tied to local systems to serve local reliability  
8 needs. The MVP portfolio represents the holistic solution for delivering transmission  
9 improvements considering generation, transmission, and other factors under a range  
10 of future conditions.

11 **Q. Would Mr. Powers’ assessment of reliability situations in Northeastern Missouri**  
12 **sacrifice any benefits that are associated with the Mark Twain Project?**

13 A. Yes. Mr. Powers’ narrow focus on reliability does not recognize the MVP benefits  
14 obtained from the portfolio. MISO’s Triennial Review identified benefits of \$21,451-  
15 \$66,816 million associated with the cost of \$8,303-\$17,192 million for the MVP  
16 portfolio (page 25, 2014 constant dollars). The majority of the benefits are found in  
17 reducing congestion-driven production costs, providing for more efficient dispatch of  
18 generators by using lowest cost generation throughout the MISO footprint. The Mark  
19 Twain project provides Missouri access to the regional, zero production cost of the

---

<sup>9</sup> The costs considered in MISO’s studies included compensation for the acquisition of land rights associated with transmission line routes. Staff witness Stahlman states that MISO’s economic analysis did not “consider any offset for limitations in land use.” Rebuttal Testimony of Michael L. Stahlman, page 4. MISO’s economic analysis did consider such an offset.

1 renewable energy, and takes advantage of the efficiencies of participation in the  
2 multi-state energy trading construct

3

4 Additionally, the increase of transfer capability between states allows for Missouri  
5 residents to benefit from a broader resource pool for resource adequacy, reducing the  
6 need for investment in future generating resources through the management of  
7 resource reserve targets and reductions in losses on the system. The optionality  
8 produced by the MVP portfolio provides for balancing the cost of renewable resource  
9 investment by allowing states to develop resources locally or take advantage of higher  
10 capacity factor regions that reduce the capital investment necessary to meet the  
11 energy requirements of most renewable policy regulations, such as those in Missouri.

12

13 The MVP portfolio also allows for the deferral of other transmission investments such  
14 as those suggested by Mr. Powers that would be required for the reliability of the  
15 system in the absence of the Mark Twain and other MVP projects. In all, the MVP  
16 portfolio creates benefit to cost ratios of 1.8 to 3.0 as identified under MTEP 2011  
17 assumptions, and 2.6 to 3.9 as identified under Triennial Review assumptions. The  
18 Missouri ratios are 2.0 to 2.9 and 2.3 to 3.3, respectively.

19 **Q. Page 9 of Mr. Powers’ rebuttal testimony states that “[p]eak load is forecast to**  
20 **remain relatively constant . . ., 10 percent below the historic peak in 2007, until**  
21 **2024.” Does this statement concerning load growth argue against the benefits of**  
22 **the Project?**

23 A. No. As stated previously in this testimony, the MVP project type and portfolio  
24 investigated the regional transmission required to support the renewable energy



1 mandates of the states in the MISO footprint, and was not driven by load growth and  
2 any related reliability concerns. The ATXI testimony supports reliability-related  
3 benefits for the Project, but the benefits provided by the Mark Twain facilities and the  
4 MVP portfolio are only minimally affected by even the absence of such reliability  
5 benefits that might be linked with growth in peak load.

6 **C. The Source of Renewable Power**

7 **Q. Mr. Powers’ rebuttal testimony on page 34 is critical of MISO’s studies that he**  
8 **states are based upon “an article of faith that the overwhelming majority of RPS**  
9 **targets . . . will be met with remote wind power.” Do you agree?**

10 A. No. As stated earlier in this testimony, MISO undertook a multi-year planning  
11 process aimed at meeting RPS mandates. The RGOS effort, noted on page 34 of Mr.  
12 Powers’ rebuttal testimony, was a collaborative effort by a variety of stakeholders  
13 who identified wind power as the source that would most economically meet the  
14 majority of renewable energy needs in the MISO footprint. In some instances, such  
15 as in Missouri,<sup>10</sup> a “carve out” was created for solar generation to require its use to  
16 satisfy renewable portfolio requirements in recognition of the difficulty in developing  
17 solar power against the more favorable economics for wind power.

18 **Q. Do you agree with the economic comparison between wind and solar power that**  
19 **is stated on pages 34-38 of Mr. Powers’ rebuttal testimony?**

20 A. No. Mr. Powers’ comparison between renewable resources mixes reports from  
21 different sources and different years. For example, page 36 of Mr. Powers’ rebuttal

---

<sup>10</sup> Mo. Rev. Stat. § 393.1030.1 (“At least two percent of each portfolio requirement shall be derived from solar energy.”).

1 testimony uses a projection from a 2014 report by the U.S. Department of Energy for  
2 the 2016 capital cost of solar power in a comparison with wind power costs in  
3 MISO's 2014 Triennial Review.

4

5 Mr. Powers refers to the U.S. Energy Information Administration's Assumptions to  
6 the Annual Energy Outlook 2015 on page 35 of his testimony. Of the three  
7 references for cost of renewable resources cited in Mr. Powers rebuttal testimony, this  
8 source is the only one that includes both a wind and solar capital cost. In Table 8.2  
9 on page 106 of the document (attached as Schedule JTS-S-3), overnight construction  
10 costs in 2013 dollars for wind and photovoltaic are \$1,980/kW and \$3,279/kW,  
11 respectively. So even this source that is cited by Mr. Powers' conflicts with his  
12 conclusion on page 37 of his rebuttal testimony that the cost of production for wind  
13 and solar projects is currently about the same.

14

15 Regardless of the relative costs of the renewable resources, the MVPs benefits are  
16 driven overwhelmingly by the portfolio enhancing market access to the low cost  
17 production of the renewable energy. The benefits driven by optimizing renewable  
18 resource location build, which is dependent on the capital cost of the new renewable  
19 resource, are approximately 6.9 percent of the quantifiable benefits identified.

20 **Q. What has been the experience of wind power versus solar power since**  
21 **completion of MISO's original studies?**

22 A. There continues to be little interest in solar generation in the MISO footprint above  
23 the levels mandated in state RPS mandates. The ratio of wind to solar generation  
24 entering the most advanced stage of MISO's interconnection queue (the Definitive

1 Planning Phase) or has a generation interconnection agreement in progress as of the  
2 last week of October 2015 was 17 to 1, evidencing that it is wind power that is likely  
3 to meet RPS mandates and to facilitate compliance with the CPP.

4 **Q. In its MVP process, what did MISO plan for that is related to the development**  
5 **of renewable generation sources?**

6 A. MISO's transmission planning process provides a robust system that is able to  
7 accommodate changes in generation and generation dispatch patterns as well as  
8 changes in the level and pattern of customer demands without causing equipment to  
9 perform outside of its design capabilities. MISO's MVP planning process considered  
10 this need for robustness in its planning for the increased presence of renewable  
11 generation resources in the generation mix. For instance, MISO's sensitivity analyses  
12 considered scenarios where public policy would focus more on carbon emission  
13 control.

14  
15 Since development of the MVP portfolio, Federal environmental regulatory efforts  
16 have become more refined regarding the treatment of carbon emissions, which may  
17 lead to the retirement of some coal-fired plants and the expansion of low carbon  
18 dioxide emitting generation resources (*e.g.* natural gas powered) and zero emitting  
19 generation resources (*e.g.* renewables). On August 3, 2015, the United States  
20 Environmental Protection Agency Administrator signed final CPP rules under the  
21 Clean Air Act Section 111 regarding the release of carbon dioxide. These rules  
22 include the use of building blocks to facilitate state compliance with lower carbon  
23 emission rates, such as the additional development of renewable generation. The  
24 MVP portfolio supports the development of renewable generation, and the proximity

1 of the energy zones to natural gas pipelines allows for the potential utilization of the  
2 energy zones by new natural gas fired units.

3

4 The MVP portfolio, including the Mark Twain project, provides a robust transmission  
5 supply that will be available to provide needed support to maintain reliable service  
6 under changing needs.

7

8 **IV. CONCLUSION**

9 **Q. Based upon the results of MISO planning studies, as well as your review and**  
10 **analyses, how would you summarize your response to Mr. Powers' rebuttal**  
11 **testimony in opposition to construction of the facilities contained in the ATXI**  
12 **Application?**

13 A. The Mark Twain facilities proposed by ATXI would provide substantial benefits to  
14 Missouri as part of the MVP portfolio that serves the MISO footprint. Mr. Powers'  
15 opposition to the Project in the areas addressed by my testimony fails to recognize the  
16 broad scope of the MISO transmission planning process, and therefore fails to  
17 recognize the broad benefits that will result from construction and operation of the  
18 Mark Twain Project.

19 **Q. Does this conclude your prepared testimony?**

20 A. Yes, it does.

21

22

23

24

