ATXI Exhibit 8.0 (RH)

ILLINOIS COMMERCE COMMISSION

DOCKET No. 12-0598

SURREBUTTAL TESTIMONY ON REHEARING

OF

DENNIS D. KRAMER

Submitted On Behalf

Of

AMEREN TRANSMISSION COMPANY OF ILLINOIS

December 10, 2013

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I. INTRODUCTION

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

A. My name is Dennis D. Kramer, and my business address is One Ameren Plaza 1901 Chouteau Avenue, St. Louis, Missouri 63103. I am currently the Senior Director of Transmission Policy and Planning at Ameren Services Company (Ameren Services).

Q. Are you the same Dennis D. Kramer who sponsored direct and rebuttal testimony in the initial phase of this proceeding and direct and rebuttal testimony on rehearing?

A. Yes, I am.

II. PURPOSE, SCOPE AND IDENTIFICATION OF EXHIBITS

Q. What is the purpose of your surrebuttal testimony on rehearing?

A. My testimony addresses certain sections of the rebuttal testimonies on rehearing of Illinois Commerce Commission (Commission) Staff witness Mr. Greg Rockrohr and Intervenor witnesses Mr. Ramey and Mr. Long.

Q. Are you sponsoring any exhibits in support of your testimony?

A. Yes, I sponsor the following:

- Exhibit 8.1 (RH) – ICC attendance at 3/2/08 MISO Planning Advisory Committee
- Exhibit 8.2 (RH) – ICC attendance at 9/28/11 MISO Planning Advisory Committee
- Exhibit 8.3 (RH) – ICC attendance at 5/27/09 MISO RECB TF
- Exhibit 8.4 (RH) – ICC attendance at 10/27/11 MISO RECB TF
- Exhibit 8.5 (RH) – Comparison of Pana connection cost and Ramey Pawnee-Mt. Zion proposal cost.

III. RESPONSE TO STAFF WITNESS MR. ROCKROHR

Q. What is Mr. Rockrohr's response to your direct testimony discussion of the concerns with a Kincaid connection?

A. He appears to accept that in order to accomplish a Kincaid connection, system modifications or additions at the Kincaid Substation would likely be required, and that overloads could occur at the Mt. Zion area substation transformer because of an unplanned opening of circuit breakers at the Kincaid ring bus. He also appears to agree that a Pana connection would do more to improve stability at the Coffeen power plant. Mr. Rockrohr acknowledges he has not conducted any independent power flow analyses in support of the Kincaid proposal. Nevertheless, he continues to believe the Kincaid connection is *potentially* a lower cost route and that the Kincaid connection should be studied further to determine if it is.

Q. Do you agree with Mr. Rockrohr's suggestion "that modifications/at or near Kincaid Substation would likely be required"?

A. Yes. There is no question that if a connection to the Kincaid 345 kV bus is approved, then physical and electrical modifications and additions will be necessary to the Kincaid 345 kV substation. These include both the modifications that I discussed in my rehearing direct testimony and other modifications that would likely be identified if a Kincaid connection was approved and was subjected to further study.

Q. Mr. Rockrohr suggests that ATXI has not "fully vetted" a Kincaid connection. Do you agree?

A. No. ATXI has "vetted" a Kincaid connection as part of the rehearing in this case. Mr. Rockrohr misinterprets my testimony that further study would be needed if a Kincaid connection was approved as indicating that further study is needed to know if Kincaid is the least cost option. That is not the case. The analysis I describe in my rehearing direct testimony would only be needed *if* the Kincaid connection is approved for implementation. The level of analysis I describe is not needed to answer the question of whether the Kincaid connection results in a lower cost to the Ameren Illinois area customers, as compared to the Pana connection. That question is answered in ATXI Exhibit 1.6 (RH), which compares the Kincaid connection and Pana connection project scopes, total costs and costs to the Ameren Illinois area customers. The analysis documented in ATXI Exhibit 1.6 (RH), along with the rest of my rehearing direct testimony, shows that the Pana connection will provide more benefits at a lower cost to the Ameren Illinois area customers than the Kincaid connection. Moreover, Mr. Rockrohr, particularly when claiming the analysis of a Kincaid connection is "insufficient" because of the

time limitations of the expedited certificate process, overlooks the lengthy system analysis process that preceded the finalization and MISO Board of Director approval of the MVP Portfolio and the Project. As explained in my direct testimony, the MVPs that make up the Illinois Rivers Project are the product of a process that stretches back over 5 years – beginning with the Midcontinental Independent System Operator, Inc. (MISO) Regional Generation Outlet Study (RGOS) in 2008 to investigate how best to fulfill various state Renewable Portfolio Standard (RPS) requirements or targets reliably and efficiently by accessing wind resources located across the MISO footprint. The RGOS study was the first step in the very lengthy and detailed analysis of the transmission system that eventually led to the identification and subsequent MISO Board of Director's approval of the transmission projects identified as MVPs in the MISO MTEP11 Appendix A. Ameren Services participated in the MISO RGOS and MVP studies over the 2008-2011 timeframe helping guide the optimum transmission development to integrate the renewable energy resources necessary to meet the MISO states' renewable energy portfolio standards, improve access to lower cost energy, and, where possible, address local reliability issues.

Q. Were the Kincaid generation facility and substation included as part of the region that was studied during the RGOS process?

A. Yes. The "MISO Regional Generation Outlet Study" dated November 19, 2010, states, "The study region consists of Midwest ISO and neighboring facilities including MAPP, Commonwealth Edison, and American Electric Power." The ComEd transmission system was included in the scope of the study. The RGOS analysis used models which were a representation of the Eastern Interconnection. The "MISO Regional Generation Outlet Study" dated November

19, 2010, states the sources of transmission system information that were included in the RGOS models included, "External transmission system representation in the MTEP series models was provided by the Eastern Interconnection Reliability Assessment Group (ERAG) Multi-Regional Modeling Working Group (MMWG) North American Electric Reliability Corporation (NERC) models, except for the non-Midwest ISO MRO members, where the latest Midwest Reliability Organization (MRO) models were used. Commonwealth Edison and American Electric Power (AEP) supplied system updates directly to the RGOS study effort for their respective transmission systems." The RGOS Report analyses provided multiple single line system diagrams with potential transmission lines in MISO, ComEd and AEP territories. Therefore, the Kincaid substation and its operational parameters were included in the models that were used to develop the RGOS set of potential projects, which were then further analyzed and refined to develop the final MVP Portfolio of projects. The results of the RGOS analysis and MVP development process did not identify a connection through Kincaid substation as being necessary.

Additionally, the RGOS study process was open to the public and stakeholders reviewed and contributed to RGOS throughout the study process. A Technical Review Group (TRG), composed of regulators, transmission owners, renewable energy developers, and market participants, met monthly with Midwest ISO engineers to provide input, feedback, and guidance. Ample opportunity was provided for stakeholders to propose various transmission projects during the RGOS process.

Q. Did the Commission participate in the RGOS and MVP process?

A. Yes. The Commission had the opportunity to participate in the RGOS and MVP processes, and in fact Commission representatives attended the MISO Planning Advisory Committee (PAC) meetings as early as 2008 and also in 2011 prior to the MVP Portfolio approval as documented in ATXI Exhibits 8.1 (RH) and 8.2 (RH). The Commission also had the opportunity and did participate in the MISO Regional Expansion Criteria and Benefits (RECB) Task Force meetings in 2009 and 2011 as documented in Exhibits 8.3 (RH) and 8.4 (RH). I have attended many of the MISO PAC and RECB TF meetings over the past 8 years and frequently the Commission participates via phone and occasionally in person. The MVP portfolio of projects were discussed in the meetings of these committees on numerous occasions with stakeholders proposing alternatives and providing feedback on the analysis.

Q. Do you believe the results of the studies that Mr. Rockrohr refers to in your rehearing direct testimony at lines 332 to 356 would change your conclusion that Kincaid is not the least cost option?

No. As explained in my rehearing direct testimony, based on what we already know, a Kincaid connection will be more costly to Ameren Illinois area customers than a Pana connection. Additional analysis and evaluation of the Kincaid connection will not result in reductions in its total cost. Instead, further analysis will identify additional system reinforcements that may be needed on the ATXI, AIC, ComEd, PJM and MISO transmission systems. These will add to the Kincaid connection cost making the Kincaid connection even more costly than as indicated on ATXI Exhibit 1.6 (RH).

Q. So does the Commission have enough information to make a decision on the Kincaid connection?

A. Yes. As shown in ATXI Exhibit 1.6 (RH), the analysis and cost estimates that ATXI has already developed show that a Kincaid connection will not be least cost to the Ameren Illinois area customers. Mr. Rockrohr suggests that there is uncertainty about the need for AIC to relocate its Pana substation equipment, but there is no uncertainty. The Pana substation and associated transmission facilities need to be relocated and rebuilt, as discussed by ATXI witness Mr. Jeffrey Hackman. A Kincaid connection will not include the Pana relocation and rebuild as part of the MVP Portfolio, and therefore the Ameren Illinois area customers would pay the full cost of this activity. No witness has otherwise claimed that the Kincaid connection cost estimates as shown on ATXI Exhibit 1.6 (RH) are inaccurate. The additional analysis that Mr. Rockrohr seeks will identify additional cost items that will increase the Kincaid cost estimate. But even without these additional system reinforcements that will be needed due to a Kincaid connection, ATXI Ex.1.6 (RH) clearly shows that the Kincaid connection will result in the Ameren Illinois area customers paying more if the Kincaid connection is implemented than if the Pana connection is implemented.

Q. Would there be a benefit to additional analysis of the Kincaid connection in the context of this case?

A. No. The MVP Portfolio was developed through extensive analysis and a lengthy series of stakeholder meetings in order to address a range of transmission system issues including access to renewable resources, reductions is system congestion and addressing local reliability issues. The Project is an integral part of the MVP Portfolio. The Kincaid substation was

included in the system models and the scope of the study that developed the RGOS set of potential projects that were used as input to the process to develop the MVP Portfolio. Therefore, the limitations placed upon the system by the Kincaid 345 kV substation were incorporated into the analysis. In light of the fact that the Kincaid substation was included in the RGOS and MVP analysis process and a connection to Kincaid was not included in the final recommendations of either process, it is unnecessary to delay the Project, which has been approved as a part of the regional MVP Portfolio, in order to further study Kincaid's long standing operational issues. The additional analysis that Mr. Rockrohr suggests is not necessary to move forward with the Project.

Q. You stated in direct testimony that completion of needed studies for a Kincaid connection would take 12-15 months. Could a Pawnee to Kincaid to Mt. Zion connection be completed more quickly if necessary studies were given priority?

A. No. Ameren Services has recent experience with requesting ComEd and PJM to perform impact studies for simple "tap" connections to the ComEd 138 kV system. These studies are much simpler and smaller in scope than a new connection to the Kincaid 345 kV bus. These much simpler studies were given "high priority" and still took at least nine months to complete. For example, Ameren Services requested ComEd to modify its existing 138 kV transmission line to accommodate the connection of a new Ameren owned 138/34.5 kV substation. Reaching agreement on the final system study agreement required approximately six months of discussion. The resultant system impact study is expected to require three months to complete. Therefore it will require nine months from the day the decision was made to move forward with the project to determine the system upgrades necessary to safely and reliably connect a simple 138/34.5 kV

substation to an existing 138 kV line. The Kincaid connection is much more complicated and will require a more detailed system study agreement and more time to complete the actual study.

Q. Could ATXI modify the sequence of route segment construction to address Decatur area reliability by some connection other than Kincaid or Pana in 2016 -2018?

A. Possibly, but an additional analysis would need to be performed to determine if accelerating the in-service date of the Kansas to Mt. Zion area substation 345 kV line can be accommodated without exposing the existing transmission system to excessive congestion or creating system overloads. During the construction of any major transmission project, there are circumstances that require portions of the existing transmission system to be removed from service in order to safely perform the construction activities. This removal of transmission equipment from service subjects the remaining transmission system to temporary conditions that can result in increased system congestion and even potential equipment overloads.

The in-service dates shown on ATXI Exhibit. 2.4 are the end result of a joint MISO and ATXI analysis to determine the sequence that minimized the number of temporary system conditions that would cause system congestion and system overloads. The current sequence minimizes the potential need for these types of reinforcements that are driven by the MVP construction activities. Accelerating the in-service date of the Kansas to Mt. Zion area substation 345 kV line would require this sequence to be revaluated. It is also possible that accelerating the Kansas to Mt. Zion area substation 345 kV line may result in system overloads that can only be mitigated by implementing other new system reinforcements.

Q. Would the Mt. Zion to Kansas segment address Decatur area reliability if it were accelerated to be in service by 2016?

A. Possibly, but the ability of the Mt. Zion to Kansas 345 kV line to address the Decatur area reliability issues is highly dependent upon which Mt. Zion substation location is approved. Assuming the ATXI Mt. Zion substation location is used, then power flow analyses indicate the post-contingency voltage recovery in the Decatur area is 94.2%. Using the Staff's alternative Mt. Zion substation locations, Options 1 or 2 results in the Decatur area post-contingency voltage recovery as being 93.7%. Using Mr. Rockrohr's Moweaqua substation location, as described in his rehearing direct testimony, results in substantially lower Decatur area post-contingency voltage recovery of 92.2%. A Pana connection provides a higher level of post-contingency voltage recovery at every substation compared to supplying the Mt. Zion area substation only from a 345 kV line from Kansas.

Q. Do you agree that ATXI's proposed new 345/138 kV substation in the Decatur area, regardless of its exact location, will not provide the planned reliability improvement to the Decatur area without AIC's 138 kV transmission line connections?

A. Yes. In my direct and rebuttal testimony I explain the 138 kV interconnections between ATXI's Project and the AIC 138 kV system are part of the scope of MISO MVPs # 9, 10, and 11 and therefore, these interconnections will be constructed. Mr. Rockrohr is concerned that these 138 kV connections are not part of this proceeding. But the question of where to locate the Mt. Zion substation now before the Commission on rehearing demonstrates exactly why it is not necessary or appropriate to include the 138 kV connections in this proceeding. There are currently four proposed locations for the Mt. Zion substation. The 138 kV connections cannot be

designed until ATXI knows where the substations are to be located, as explained by Mr. Hackman.

Q. Could the 138 kV connections be in-service by 2016 to meet Decatur needs?

A. Yes. As explained by Mr. Hackman, if the Commission approves either ATXI's proposed Mt. Zion area substation location or Staff Options 1 or 2 Mt. Zion sites, the length of 138 kV line needed to connect the approved substation to Decatur, would be modest – approximately 3-8 miles, and design, approval and construction would be straightforward. However, the ATXI proposed Mt. Zion substation site is the preferred location for the reasons previously expressed.

Q. Mr. Rockrohr argues his proposed Moweaqua substation would intercept existing 138 kV lines that supply the Decatur area so that additional 138 kV lines would not be immediately necessary. Is this correct?

A. No. As I explained in my rehearing rebuttal, using the existing AIC 138 kV system with no new 138 kV connections to the Decatur area, the Moweaqua substation site is greatly inferior to the ATXI proposed Mt. Zion substation site and even Staff's proposed Mt. Zion sites. Even with an additional 138 kV connection to the Decatur area as described by Mr. Rockrohr as a future option, the proposed Moweaqua substation site is still inferior to the ATXI proposed Mt. Zion substation site and even Staff's proposed Options 1 and 2 Mt. Zion sites. The proposed Moweaqua substation site does not provide an opportunity to address the Decatur area reliability issues without additional new 138 kV connections to the Decatur area.

Q. Would modifications to the existing 345 kV configuration at the Kincaid Substation alleviate the concern with the Mt. Zion area substation 345/138 kV transformer overloads?

A. Possibly, though modifications to the Kincaid 345 kV substation will be a challenge due to physical space limitations and other obstacles, as discussed by Mr. Hackman. The ability to address the Mt. Zion area substation overload condition will be dependent upon what type of line and equipment connection reconfigurations can be accommodated by the Kincaid 345 kV bus and substation. It should be noted that a full study of the Kincaid connection may identify additional overloaded equipment on the ATXI, AIC, ComEd, PJM or MISO systems that would need to be addressed and would increase the cost of the Kincaid connection.

Q. Do you believe the Kincaid connection would provide stability improvement adequate to eliminate MISO's concerns about the Coffeen power plant?

A. No. As explained in my direct testimony, the Pana connection improves the ability of the Coffeen power plant to withstand certain transmission system disturbances and remain connected to the grid by 10%. In contrast, the Kincaid connection provides no improvement in the ability of the Coffeen power plant to withstand these same transmission system disturbances and remain connected to the grid. Because the Kincaid connection provides no improvement in Coffeen stability, I do not believe it would address MISO's concerns with Coffeen stability.

Q. Would the Staff Option 3 substation site (Moweaqua) potentially further improve stability of the power plants, especially Coffeen?

A. It is highly unlikely to improve the stability of Coffeen. The system configuration to supply Staff's Option 3 substation site (Moweaqua) described in Mr. Rockrohr's rehearing direct and rebuttal testimony connects Staff's Kincaid route to a new Moweaqua substation and then to

the existing Pana to Decatur area 138 kV line. Connecting this existing138 kV line to Moweaqua substation would at best provide minimal if any improvement in the stability of the Coffeen power plant and provides less improvement than the Pana connections additional 345 kV connections would provide.

Additionally, as I explained in my rehearing rebuttal testimony, Staff's Option 3 substation site (Moweaqua) is far inferior to other proposed Mt. Zion substation sites in terms of addressing reliability concerns in the Decatur area. Therefore, irrespective of its impact on Coffeen stability, the Moweaqua substation represents a greatly inferior option.

Q. Do you have any other issues to address in response to Mr. Rockrohr?

A. Yes, the question of the equipment configuration at Ipava substation.

Q. What is Mr. Rockrohr's position?

A. He believes ATXI could position a less costly 4-position ring bus in the available buildable space in and adjacent to AIC's existing Ipava Substation. This, in his view, would allow for three initial connections (Duck Creek, Meredosia, and the existing 345/138 kV transformer) but still provide a spare 345 kV termination position for future use.

Q. What is your response?

A. Mr. Rockrohr is correct that Ipava substation will initially have three connections to its 345 kV bus. As I explained in my rehearing direct testimony, it is acceptable to implement a ring bus configuration initially at Ipava. However, ATXI also determined that a number of future additional connections could be expected to be made at Ipava due to its location near the MISO-PJM seam, potential system upgrades needed due to generation retirements or other

needs. These future developments could result in the total number of potential connections being more than four; therefore ATXI should plan the ring bus configuration at Ipava to be easily expandable to BAAH. This expandability would not be possible at the original AIC site, as Mr. Hackman explained.

IV. RESPONSE TO MR. RAMEY

Q. What is the position of the Ramey's on the Project's connections to Mt. Zion?

A. They support the Staff proposed route from Pawnee to Mt. Zion via Kincaid. They also propose a connection between Pawnee and Mt. Zion directly, without using the Kincaid substation, based on a recognition of the concerns I raised about Kincaid substation.

Q. Is there a major inaccuracy in Ramey's understanding of the transmission system configuration?

A. Yes. On several occasions he incorrectly states that there is an existing 345 kV line between Pawnee and Pana. There is no 345 kV line directly between the Pawnee and Pana substations.

Q. Do you have other concerns about the Ramey proposal?

A. Yes. I would begin by noting that Mr. Ramey does not state he is an engineer or otherwise explain his qualifications to evaluate the electrical connections and configuration of the Project. His proposal to connect Pawnee to Mt. Zion directly is by his own admission hypothetical, and it is unsupported by any analysis or even expert opinion.

Q. Are there other deficiencies in Ramey's proposal?

A. Yes. The Ramey proposal is deficient compared to the Pana connection in the following areas.

- It would not address the need for relocation and rebuilding of the Pana substation at another site. This would result in the Ameren Illinois customers paying the full cost of this necessary activity instead of approximately 9% of the cost if it was performed as part of the MVP Portfolio.
- It would not provide the benefit of additional 345 kV supplies to Pana substation.
- It would produce much less if any improvement in Coffeen stability

Q. Did you examine the cost of the Ramey proposal compared to the Pana connection cost?

A. Yes, ATXI Exhibit 8.5 (RH) is a comparison of the cost of the Ramey proposal and the Pana connection. The estimated 46.2 miles of 345 kV line between Pawnee and a Mt. Zion area substation is from Ramey's testimony. I also removed any line item costs associated with connections to the Kincaid substation. The cost analysis clearly shows that the Ramey proposal is not the least cost option for the Ameren Illinois area customers. The Ameren Illinois area customers will pay $43.6 million for the Ramey proposal and pay only $18.3 million for the Pana connection. Therefore the Ramey proposal will cost more and provide less benefit to the Ameren Illinois area customers.

Q. Are there other inaccuracies in his analysis?

A. Yes. Mr. Ramey argues that the desire for sharing the Pana substation construction expense cost is the reason for the 345 kV lines to Pana substation and inclusion of the Pana

substation as part of the MVP Portfolio. He is incorrect. Additional 345 kV connections to the Pana substation were examined and identified as being needed as part of the MVP Portfolio development process. The Project's additional 345 kV lines to Pana substation are justified based upon the benefits they provide, as described in my direct and rehearing direct testimony. Therefore, the reasoning expressed in the Ramey testimony is exactly backwards. The Pana substation is part of the MVP Portfolio and for this reason the relocation and rebuilding expense will be cost shared.

V. RESPONSE TO MR. LONG

Q. Does Mr. Long raise a concern you wish to respond to?

A. Yes. He mischaracterizes the discussion of increased generator stability as a "red herring" while he admits to not being an expert in generator or system stability analysis. He appears most concerned about Coffeen power plant stability.

Q. Can you help Mr. Long understand how generator stability can be put at risk?

A. From the Glossary of Terms Used in NERC Reliability Standards, updated November 21, 2013 a fault is defined as "An event occurring on an electric system such as a short circuit, a broken wire, or an intermittent connection." There are numerous ways that a short circuit can occur on the power system, including but not limited to: internal failures of power equipment (such as a breaker or transformer), a broken conductor, failure of an insulator, an object such as a tree or other debris (such as is blown into a line during a storm), etc.

As I explained in my rehearing direct testimony, both the Kincaid and Coffeen power plants are synchronous generators, which means they are connected to the electric grid in such a way that the rotors of both generators are in synchronized rotation. The transmission system and

generators are designed to maintain this steady-state synchronized condition. The steady-state condition can be upset by sudden changes in load, system faults that lead to de-energization of transmission lines, or other events that occur on the electric grid.

Faults which occur electrically near a power plant can cause a disruption sufficiently large to cause the power plant to disconnect from the grid. Therefore improving the stability of a power plant is important because it increases the plant's ability to withstand the major disturbances created by short circuits, de-energization of transmission lines, and similar system events, and remain connected to the electric grid. Sudden disconnecting of power plants from the electric grid can intensify and expand the major disturbance that was the initial cause of the power plant disconnecting from the electric grid. Therefore, an increase in the ability for a power plant to withstand a system disturbance and remain connected to the grid is a desirable benefit from any transmission system improvement

Q. What is the source of potential faults at Coffeen?

A. A fault would be caused by an event as described above and could occur today or at some time in the future (i.e. during projected future system conditions).

Q. Mr. Long also questions the severity of the fault and why the fault would be near the generator versus farther away where other relay schemes would isolate the fault. Can you explain the severity and location of faults that would be considered in a stability analysis?

A. By severity of the fault, I assume he is referring to the amount of instantaneous electrical current that flows as a result of a short circuit (fault current). The amount of fault current is determined by the location of the fault, the type of fault (phase-to-phase, three-phase, single-phase-to-ground or three-phase-to-ground) and the electrical configuration of the transmission

system at the time the fault occurs. It is impossible to predict the exact location where a fault will occur or the system electrical configuration when the fault occurs. Therefore, a stability analysis investigates several different types of faults at various locations assuming different future system conditions to determine if the power plant being analyzed is able to withstand the disturbance caused by the fault and remain connected to the grid. ATXI's analysis indicated the Pana connection will improve stability of the Coffeen power plant and the Kincaid power plant.

Q. Mr. Long agrees that the ATXI proposal provides additional capability to deliver output from Coffeen through new outlets at Pana but argues that this is not a stability issue. Can additional outlet lines provide additional capacity and improve stability?

A. Yes, providing additional outlet paths and increased power plant stability are directly related. ATXI's stability study indicated that additional outlet lines from the Pana connection improved stability for the Coffeen and Kincaid power plant while also providing additional paths for energy to flow from the Coffeen power plant through the system and to the load. Mr. Long has not offered a stability study of his own.

Q. Mr. Long also complains ATXI has not provided the numerical values that are being improved.

A. These percentages are based upon ATXI's analysis of the amount of improvement in stability the Pana connection would provide to the Coffeen and Kincaid power plants. The analysis examined the "clearing times" for various types of faults at or near the Coffeen and Kincaid power plants. In the case of a system fault on a transmission line, sensors at both ends of the line detect the presence of the problem and initiate the sequence for the circuit breakers on both ends of the line to open. The time required to sense the presence of the fault, send a signal

to the circuit breakers to open, and for the circuit breakers to then disconnect the transmission line is referred to as the "clearing time."

The maximum time that can be taken to remove a system fault and have a generating units remain synchronized to the grid is called the "critical clearing time" for that particular generator. Increasing a generator's critical clearing time is beneficial because it allows the generator to withstand larger system disturbances and still remain connected to the grid. Therefore, system reinforcements that increase the critical clearing time are beneficial to the stability of the grid.

The values provided in my rehearing direct testimony are the percent improvements in critical clearing time for the Coffeen and Kincaid power plants. An increase in the ability for a power plant to withstand a system disturbance and remain connected to the grid is a desirable benefit from any transmission system improvement.

VI. CONCLUSION

Q. Does this conclude your surrebuttal testimony on rehearing?

A. Yes, it does.