MCPO Exhibit 1.0 (RH)

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

AMEREN TRANSMISSION COMPANY OF ILLINOIS **Petition for a Certificate of Public Convenience and Necessity, pursuant to Section 8-406.1 of the Illinois Public Utilities Act, and an Order pursuant to Section 8-503 of the Public Utilities Act, to Construct, Operate and Maintain a New High Voltage Electric Service Line and Related Facilities in the Counties of Adams, Brown, Cass, Champaign, Christian, Clark, Coles, Edgar, Fulton, Macon, Montgomery, Morgan, Moultrie, Pike, Sangamon, Schuyler, Scott and Shelby, Illinois**	)	**Docket No. 12-0598 (Rehearing)**

Rebuttal Testimony on Rehearing and Exhibits of

James R. Dauphinais

On behalf of

Moultrie County Property Owners ("MCPO")

December 2, 2013

BRUBAKER & ASSOCIATES, INC.

Project 9837

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

AMEREN TRANSMISSION COMPANY OF ILLINOIS **Petition for a Certificate of Public Convenience and Necessity, pursuant to Section 8-406.1 of the Illinois Public Utilities Act, and an Order pursuant to Section 8-503 of the Public Utilities Act, to Construct, Operate and Maintain a New High Voltage Electric Service Line and Related Facilities in the Counties of Adams, Brown, Cass, Champaign, Christian, Clark, Coles, Edgar, Fulton, Macon, Montgomery, Morgan, Moultrie, Pike, Sangamon, Schuyler, Scott and Shelby, Illinois**	)	**Docket No. 12-0598** **(Rehearing)**

Table of Contents for the
<u>Rebuttal Testimony on Rehearing of James R. Dauphinais</u>

I. Introduction 1

II. Location of Mt. Zion Substation 4

III. Connections to Mt. Zion
345/138 kV Substation from Pana or Kincaid 8

IV. Analysis of Route Alternatives for the
Mt. Zion to Kansas Portion of the Illinois Rivers Project 10

V. Response to Specific Direct Testimony
on Rehearing Comments of PDM/CFT Witness Mary Burns 20

VI. Conclusions and Recommendations 24

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

AMEREN TRANSMISSION COMPANY OF ILLINOIS **Petition for a Certificate of Public Convenience and Necessity, pursuant to Section 8-406.1 of the Illinois Public Utilities Act, and an Order pursuant to Section 8-503 of the Public Utilities Act, to Construct, Operate and Maintain a New High Voltage Electric Service Line and Related Facilities in the Counties of Adams, Brown, Cass, Champaign, Christian, Clark, Coles, Edgar, Fulton, Macon, Montgomery, Morgan, Moultrie, Pike, Sangamon, Schuyler, Scott and Shelby, Illinois**	)	**Docket No. 12-0598 (Rehearing)**

Rebuttal Testimony on Rehearing of James R. Dauphinais

I. Introduction

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A James R. Dauphinais. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q ON WHOSE BEHALF ARE YOU APPEARING FOR REHEARING IN THIS PROCEEDING?

A I am testifying on rehearing on behalf of the Moultrie County Property Owners ("MCPO").

Q ARE YOU THE SAME JAMES R. DAUPHINAIS WHO FILED DIRECT TESTIMONY AND REBUTTAL TESTIMONY IN THIS PROCEEDING ON BEHALF OF MCPO?

A Yes. My educational background and experience was summarized in my direct testimony (MCPO Exhibit 1.0 at pages 1 and 2).

Q PLEASE BRIEFLY OUTLINE THE CURRENT STATUS IN THIS PROCEEDING OF THE PANA TO MT. ZION TO KANSAS PORTION OF THE ILLINOIS RIVERS PROJECT ("IRP").

A ATXI and MCPO have stipulated to the need for ATXI's proposed Mt. Zion substation, ATXI's proposed Sulphur Spring Road location for ATXI's proposed Mt. Zion substation, ATXI's proposed primary route from Pana substation to Mt. Zion substation and MCPO's proposed route from Mt. Zion substation to Kansas substation. In my direct testimony, I referred to this combined route from Pana to Mt. Zion to Kansas as "Route MCPO-P-MZK." I referred to the Mt. Zion to Kansas portion of the route as "Route Segment MCPO MZK." MCPO still supports its stipulation with ATXI.

The Commission's August 20, 2013 Order in this proceeding found Mt. Zion substation is needed and approved the Mt. Zion to Kansas portion of IRP route, referred to as Route Segment MCPO MZK, from the Macon County line to Kansas substation. The August 20, 2013 order did not approve ATXI's proposed Sulphur Spring Road site as the location for the Mt. Zion substation, a route for the proposed transmission line from Pana substation to Mt. Zion substation or a route for the proposed transmission line from Mt. Zion substation to where Route Segment MCPO MZK crosses the Macon County line.

On October 2, 2013, I understand the Commission granted rehearing with regard to the selection of a transmission line route from Pana (or, alternatively, Kincaid) substation to Mt. Zion substation, the location of Mt. Zion substation and the selection of a transmission line route from Mt. Zion substation to Kansas substation.

Q WHAT IS THE SUBJECT MATTER OF YOUR REBUTTAL TESTIMONY?

A ATXI, the Illinois Commerce Commission ("ICC" or "Commission") Staff and various intervenors have put forth direct testimony on rehearing with regard to the location of Mt. Zion substation and transmission line route options between Mt. Zion substation and Kansas substation. My testimony responds to this direct testimony on rehearing. Specifically, my testimony herein addresses proposals made in direct testimony on rehearing regarding (i) the location options for Mt. Zion substation and (ii) the transmission line routing options between Mt. Zion substation and Kansas substation.

MCPO witness Mr. Rudolph "Rudi" Reinecke is also presenting rebuttal testimony on rehearing on behalf of MCPO. The environmental and routing factor data I analyze in my testimony herein were compiled by Mr. Reinecke from information provided in discovery by ATXI and other sources available to Mr. Reinecke.

Finally, my silence with regard to any other portion of the direct testimonies on rehearing of ATXI, ICC Staff or other intervenors in this proceeding, should not be taken as an endorsement of any position that ATXI, ICC Staff or other intervenors have taken in this proceeding.

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A I conclude the following:

- ATXI's proposed Sulphur Spring Road site is still the best proposed site for Mt. Zion substation.

- ICC Staff's proposed Option #1 and Option #2 sites may be viable alternatives to ATXI's proposed Sulphur Spring Road site for the proposed Mt. Zion substation.

- From a reliability standpoint, ICC Staff's proposed Option #3 site is not likely a viable alternative to ATXI's proposed Sulphur Spring Road site for the proposed Mt. Zion substation.

- Regardless of whether the Mt. Zion substation is located at the ATXI Sulphur Spring Road site, the ICC Staff Option #1 site or the ICC Staff Option #2 site, MCPO's proposed route from Mt. Zion substation to Kansas substation has significantly less adverse impact to the public than either ATXI's Alternate Route or the Channon Family Trust's ("CFT") proposed Route from Mt. Zion substation to Kansas substation.

I recommend the Commission select ATXI's proposed Sulphur Spring Road site for Mt. Zion substation. In addition, regardless of the site for Mt. Zion substation chosen by the Commission, I recommend the Commission select MCPO's proposed route from Mt. Zion substation to Kansas substation.

II. Location of Mt. Zion Substation

Q PLEASE IDENTIFY THE PROPOSED SITES FOR MT. ZION SUBSTATION THAT HAVE BEEN PUT FORTH IN DIRECT TESTIMONY ON REHEARING.

A Four sites have been proposed. These are as follows:

- ATXI's original proposed Sulphur Spring Road site;

- ICC Staff's Option #1 site located southeast of the intersection of E. Andrews Street and Henry Road;

- ICC Staff's Option #2 site that was suggested as a site by the Village of Mt. Zion and is located north of E. Andrews Street and west of Henry Road; and

- ICC Staff's Option #3 site located in Macon County north of W. Hilvety Road (CR 2100 N) and east of Rosedale Road.

The ICC Staff Option #1 and Option #2 sites are located just north of the intersection of ICC Staff's proposed Kincaid substation to Mt. Zion substation transmission line route and ATXI's proposed Primary transmission line route from ATXI's proposed Mt. Zion substation site to Kansas substation. ICC Staff Option #3 site is located near the intersection of ICC Staff's proposed Kincaid substation to Mt. Zion substation transmission line route and ATXI's proposed Primary transmission line route from Pana substation to ATXI's proposed Mt. Zion substation site. MCPO Exhibit 1.1 (RH) provides an overview map of the four substation sites, the Decatur area and the portion of proposed transmission line routes in the vicinity of the substation sites that are at issue in rehearing. It also shows the location of the existing Mt. Zion PPG 138 kV substation. ATXI proposes to ultimately interconnect its proposed Mt. Zion 345/138 kV substation to the existing Mt. Zion PPG 138 kV substation with one or more new 138 kV transmission lines.

Q WHAT IS THE PRIMARY ISSUE BEING ADDRESSED BY THE PROPOSED MT. ZION SUBSTATION?

A As I discussed in my direct testimony, the primary issue being addressed by Mt. Zion substation is a post-contingency low voltage reliability issue in the Decatur area. My own powerflow analysis of the issue in my direct testimony confirmed that the non-Mt. Zion portions of the IRP cannot address the low voltage issue unless 345 kV and/or 138 kV reinforcements are added that are sufficient to adequately address the low voltage problem (MCPO Exhibit 1.0 at pages 50 through 52). Furthermore, my powerflow analysis confirmed the Mt. Zion portion of the IRP, with Mt. Zion substation

located at ATXI's proposed site for that substation, is sufficient to address the low voltage issue (*Id.*).

I also explained in my direct testimony that post-contingency (a/k/a post-event) voltage drops in the Decatur area are driven by reactive power needs and reactive power cannot be practically transmitted very far from its source (MCPO Exhibit 1.0 at page 55). In addition, I noted that one of the largest reactive power needs is in the substations in northeastern Decatur and that as you move any new 345 kV source added to address the low voltage issue (such as the proposed Mt. Zion 345/138 kV substation) further away from northeastern Decatur, the new source becomes less effective at addressing the low voltage issue (*Id.*). As I reported in my direct testimony, I found adding a new 345 kV source at the existing Latham 345/138 kV substation, which is located approximately 17 straight line miles west-northwest of northeastern Decatur (as shown on MCPO Exhibit 1.1 (RH)), instead of at ATXI's proposed Mt. Zion substation was not sufficient to address the low voltage issue in the Decatur area (MCPO Exhibit 1.0 at page 61). ICC Staff Option #3 site is also approximately 17 straight line miles from northeastern Decatur.

Q BASED ON YOUR TRANSMISSION PLANNING EXPERIENCE AND THE POWERFLOW ANALYSIS YOU PERFORMED FOR YOUR DIRECT TESTIMONY, PLEASE COMMENT ON THE VIABILITY OF THE FOUR SUBSTATION SITE ALTERNATIVES FROM A RELIABILITY STANDPOINT.

A As discussed above, I found in my direct testimony that the addition of a new Mt. Zion 345 kV source at ATXI's proposed site for the Mt. Zion substation is sufficient to resolve the low voltage reliability issue in the Decatur area.

In addition, I believe ICC Staff's Option #1 and Option #2 sites for Mt. Zion substation may be electrically close enough to northeastern Decatur such that these two sites could be sufficient to address the low voltage reliability issue in the Decatur area. However, a powerflow analysis has not been performed to verify their sufficiency. In addition, I would note that an additional 4.3 to 4.8 miles of 138 kV transmission lines between the new Mt. Zion 345/138 kV substation and the existing Mt. Zion PPG 138 kV substation would be needed if ICC Staff Option #1 or Option #2 is utilized for the new Mt. Zion substation. This would increase the cost of these 138 kV lines by approximately $4.3 million to $19.2 million (assuming one or two 138 kV transmission lines and an estimated cost of $1 million to $2 million per mile for 138 kV construction with steel single-circuit monopoles) and increase the other adverse impacts to the public from those 138 kV lines. In my opinion, the additional distance and corresponding right-of-way needed for these 138 kV transmission lines will largely offset any reduced cost and impact from reduced 345 kV transmission line length that might be associated with using the ICC Staff Option #1 or Option #2 site for Mt. Zion substation rather than ATXI's Sulphur Spring Road site.

Finally, I believe it is unlikely the ICC Staff Option #3 site for Mt. Zion substation would be sufficient to address the low voltage reliability issue in the Decatur area. The Option #3 site is approximately 17 transmission line miles from the existing Mt. Zion PPG 138 kV substation (ICC Staff Exhibit 2.0 at page 12) and approximately 17 straight line miles from northeastern Decatur. Based on my experience and the powerflow analysis I previously performed regarding the addition of a new 345 kV source at Latham substation (which is also approximately 17 straight line miles from northeastern Decatur) rather than at ATXI's proposed Sulphur Spring Road Mt. Zion substation site, I believe that the Option #3 site would place the new

345 kV source needed for the Decatur area too far away from the area of greatest reactive power need (northeastern Decatur) for it to be sufficient to address the low voltage reliability issue in the Decatur area. Therefore, I believe it is very unlikely, from a reliability perspective, the ICC Staff Option #3 site is a viable location for the proposed Mt. Zion 345/138 kV substation. The ICC Staff Option #3 site should not be considered a viable option for the location of the proposed Mt. Zion substation unless a powerflow analysis is completed that reasonably demonstrates that the Option #3 site is a viable option. The ICC Staff has not performed such an analysis (*Id.*).

In summary, for the reasons stated above, ATXI's Sulphur Spring Road site is still the best choice for the proposed Mt. Zion 345/138 kV substation.

III. Connections to Mt. Zion 345/138 kV Substation from Pana or Kincaid

Q PLEASE OUTLINE HOW THE ATXI SULPHUR SPRING ROAD SITE, THE ICC STAFF OPTION #1 SITE AND THE ICC STAFF OPTION #2 SITE COULD EACH BE SERVED FROM PANA OR KINCAID AT 345 KV BASED ON THE TRANSMISSION LINE ROUTES PROPOSED BY ATXI FROM PANA AND BY ICC STAFF FROM KINCAID.

A ATXI's proposed Sulphur Spring Road site for Mt. Zion substation could be served from Pana or Kincaid as follows:

- From Pana using ATXI's Pana to Mt. Zion Primary Route;
- From Pana using ATXI's Pana to Mt. Zion Alternate Route;
- From Kincaid using ICC Staff's Kincaid to Mt. Zion route to its junction with ATXI's Pana to Mt. Zion Primary Route and then ATXI's Pana to Mt. Zion Primary Route from the junction to ATXI's Mt. Zion substation site; or

- From Kincaid using ICC Staff's Kincaid to Mt. Zion route to its junction with ATXI Pana to Mt. Zion Alternate Route and then ATXI's Pana to Mt. Zion Alternate Route from the junction to ATXI's Mt. Zion substation site.

ICC Staff's Option #1 and Option #2 sites can be served from Pana or Kincaid as follows:

- From Pana using ATXI's Pana to Mt. Zion Primary Route to its junction with ICC Staff's Kincaid to Mt. Zion route and then ICC Staff's Kincaid to Mt. Zion route from the junction to ICC Staff's Option #1 or Option #2 Mt. Zion substation sites;

- From Pana using ATXI's Pana to Mt. Zion Primary Route to its junction with ATXI's Pana to Mt. Zion Alternate Route, then south on ATXI's Pana to Mt. Zion Alternate Route to its junction with ICC Staff's Kincaid to Mt. Zion route and then east on ICC Staff's Kincaid to Mt. Zion route to ICC Staff's Option #1 and Option #2 Mt. Zion substation sites;

- From Pana using ATXI's Pana to Mt. Zion Alternate Route to its junction with ICC Staff's Kincaid to Mt. Zion route and then ICC Staff's Kincaid to Mt. Zion route from the junction to ICC Staff's Option #1 and Option #2 Mt. Zion substation sites; or

- From Kincaid using ICC Staff's Kincaid to Mt. Zion route.

Q DOES MCPO SUPPORT A PARTICULAR ROUTE FROM PANA (OR, ALTERNATIVELY, KINCAID) TO MT. ZION SUBSTATION?

A Yes. MCPO has stipulated to the use of ATXI's Pana to Mt. Zion Primary Route and ATXI's Sulphur Spring Road substation site. In addition, as discussed in my direct testimony, ATXI's Pana to Mt. Zion Primary Route has less overall adverse impact to the public than ATXI's Pana to Mt. Zion Alternate Route (MCPO Exhibit 1.0 at pages 9 through 10 Company Route MCPO-P-MZK to Route MCPO-A-MZK). However, the other configurations I have identified above could potentially be used to serve the proposed Mt. Zion substation from Pana or Kincaid, if the Commission, despite ATXI and MCPO recommendations, does not select ATXI's Pana to Mt. Zion Primary route and/or ATXI's Sulphur Spring Road Mt. Zion substation site.

IV. Analysis of Route Alternatives for the Mt. Zion to Kansas Portion of the Illinois Rivers Project

Q BASED ON WHAT WAS OFFERED BY ATXI, ICC STAFF AND INTERVENORS IN THEIR DIRECT TESTIMONY ON REHEARING, WHAT ROUTES HAVE YOU ANALYZED FROM MT. ZION SUBSTATION TO KANSAS?

A I have analyzed three transmission line routes from Mt. Zion to Kansas for each of the three Mt. Zion substation sites that are, or might be, viable. The routes are as follows:

- Using ATXI's Sulphur Spring Road Mt. Zion substation location:
  - Route MZK – MCPO's Mt. Zion to Kansas route.
  - Route CFT – ATXI's Mt. Zion to Kansas route from ATXI's Sulphur Spring Road Mt. Zion substation site to the junction with ATXI's Mt. Zion to Kansas Alternate Route in East Nelson Township and then ATXI's Mt. Zion to Kansas Alternate Route from the junction to Kansas substation.
  - Route ATXIA – ATXI's Mt. Zion to Kansas Alternate Route.
- Using ICC Staff's Option #1 Mt. Zion substation location:
  - Route MZK-1 – ATXI's Mt. Zion to Kansas Primary Route from ICC Staff's Option #1 Mt. Zion substation site <u>north</u> to the junction with MCPO's Mt. Zion to Kansas route and then MCPO's Mt. Zion to Kansas route from the junction <u>east</u> to Kansas substation.
  - Route CFT-1 – ATXI's Mt. Zion to Kansas Primary Route from ICC Staff's Option #1 Mt. Zion substation site to the junction with ATXI's Mt. Zion to Kansas Alternate Route in East Nelson Township and then ATXI's Mt. Zion to Kansas Alternate Route from the junction to Kansas substation.
  - Route ATXIA-1 – ATXI's Mt. Zion to Kansas Primary Route from ICC Staff's Option #1 Mt. Zion substation site <u>north</u> to its junction with ATXI's Mt. Zion to Kansas Alternate Route and then ATXI's Mt. Zion to Kansas Alternate Route from the junction <u>east</u> to Kansas substation.
- Using ICC Staff's Option #2 Mt. Zion substation location:

- Route MZK-2 – ATXI's Mt. Zion to Kansas Primary Route from ICC Staff's Option #2 Mt. Zion substation site north to the junction with MCPO's Mt. Zion to Kansas route and then MCPO's Mt. Zion to Kansas route from the junction east to Kansas substation.

- Route CFT-2 – ATXI's Mt. Zion to Kansas Primary Route from ICC Staff's Option #2 Mt. Zion substation site to the junction with ATXI's Mt. Zion to Kansas Alternate Route in East Nelson Township and then ATXI's Mt. Zion to Kansas Alternate Route from the junction to Kansas substation.

- Route ATXIA-2 – ATXI's Mt. Zion to Kansas Primary Route from ICC Staff's Option #2 Mt. Zion substation site north to its junction with ATXI's Mt. Zion to Kansas Alternate Route and then ATXI's Mt. Zion to Kansas Alternate Route from the junction east to Kansas substation.

Maps for each of these nine route options from Mt. Zion to Kansas are provided in Mr. Reinecke's Exhibit 2.1 (RH). Routing factors and paralleling information for all nine routes are provided in Mr. Reinecke's MCPO Exhibits 2.2 (RH) and 2.3 (RH).

Q PLEASE EXPLAIN HOW YOU HAVE ANALYZED THESE NINE ROUTE OPTIONS FOR THE MT. ZION TO KANSAS PORTION OF THE IRP.

A I have analyzed them with respect to the ATXI Phase I public meeting high sensitivity routing factors, the ATXI Phase II public meeting high sensitivity routing factors, cost and paralleling of existing linear features using the same methodology I used in my direct testimony (MCPO Exhibit 1.0 at pages 25 through 44). In doing so, I applied route selection principles I outlined in my direct testimony (MCPO Exhibit 1.0 at pages 18 through 22).

Q PLEASE EXPLAIN WHAT YOUR ATXI PHASE I HIGH SENSITIVITY ROUTING FACTOR ANALYSIS ENTAILS.

A As discussed in detail in my direct testimony (MCPO Exhibit 1.0 at pages 25 through 28), it entails scoring the six environmental factors that a majority of the attendees to the ATXI Phase I public meetings identified as highly sensitive. The factors include cemeteries, churches, existing drainage features, prime farmland,[1] residential use areas and schools. As I noted in my direct testimony, while I do not believe route analysis can be reduced to a mathematical exercise, scoring or other mathematical techniques can be useful for initial screening and evaluation.

MCPO Exhibit 1.2 (RH) presents the results of my scoring for the six Phase I high sensitivity routing factors along with the estimated baseline cost of the nine route options. The routing factor data was drawn from Mr. Reinecke's MCPO Exhibit 2.2 (RH). The cost information was provided by ATXI in ATXI Exhibit 16.3 (Rev.) and in response to Data Request MCPO-ATXI 17.01R. A copy of ATXI's response to Data Request MCPO-ATXI 17.01R is provided in MCPO Exhibit 1.5 (RH).

Q WHAT ARE YOUR CONCLUSIONS WITH REGARD TO YOUR REVIEW OF THE NINE ROUTE OPTIONS FROM MT. ZION TO KANSAS IN RELATION TO THE SIX PHASE I HIGH SENSITIVITY ROUTING FACTORS AND COST?

A Routes MZK, MZK-1 and MZK-2 scored better than the other six route options with respect to these six routing factors. Routes MZK, MZK-1 and MZK-2 place approximately 90 (5.3%) to 108 (6.4%) more acres of Prime Farmland within the

[1] I continue to use the Prime Farmland definition utilized by ATXI. Mr. Reinecke in his rebuttal testimony in rehearing (MCPO Exhibit 2.0 (RH)) addresses why the ATXI Prime Farmland definition should continue to be used.

500 foot analysis corridor than the best performing route for this one factor -- Route CFT-1. However, Routes MZK, MZK-1 and MZK-2 place:

- 15 (48.4%) to 19 (61.3%) fewer residences within 500 feet of the centerline of the route than Route CFT-1;
- 14 (66.7%) to 16 (76.2%) fewer residences within 300 feet of the centerline of the route than Route CFT-1; and
- 7 (77.8%) fewer residences within 150 feet of the centerline of the route than Route CFT-1.

Thus, while the scores in MCPO Exhibit 1.2 (RH) for Routes MZK, MZK-1 and MZK-2 are close to that of Route CFT-1, a closer examination of the six routing factors shows a greater degree of superior performance by Routes MZK, MZK-1 and MZK-2 over Route CFT-1.

Q PLEASE EXPLAIN WHAT YOUR ATXI PHASE II HIGH SENSITIVITY ROUTING FACTOR ANALYSIS ENTAILS.

A As discussed in detail in my direct testimony (MCPO Exhibit 1.0 at pages 31 through 33), it entails scoring the environmental factors that the attendees to the ATXI Phase II public meetings identified as most sensitive. Unlike with the Phase I high sensitivity routing factors, percentage ratings were identified for these routing factors. The factors include Agricultural Use Areas (rated by 47% as most sensitive), Existing Residences (rated by 35% as most sensitive), Wooded Areas (rated by 6% as most sensitive), Protected Species Habitat/Location (rated by 3% as most sensitive), Wetlands and Waterways (rated by 2% as most sensitive), Cultural Resources (rated by 2% as most sensitive), Recreational Use Areas (rated by 1% as most sensitive), Sensitive Management Areas (rated by 1% as most sensitive) and Other Areas (rated by 3% as most sensitive) (ATXI Exhibit 4.3 (Part 1 of 5), Page 8 of 12 and ATXI

Exhibit 4.3, Appendix C (Part 8 of 9) at Page 5 of 6). MCPO Exhibit 1.3 (RH) presents the results of my scoring for the Phase II high sensitivity routing factors along with the estimated baseline cost of the nine route options.

Q WHAT ARE YOUR CONCLUSIONS WITH REGARD TO YOUR REVIEW OF THE NINE ROUTE OPTIONS FROM MT. ZION TO KANSAS IN RELATION TO THE PHASE II HIGH SENSITIVITY ROUTING FACTORS AND COST?

A Like with the Phase I high sensitivity routing factor scoring, Routes MZK, MZK-1 and MZK-2 scored better than the other six route options with respect to Phase II high sensitivity routing factor scoring using the same scoring methodology I used in my direct testimony.

Q IN MCPO EXHIBITS 1.2 (RH) AND 1.3 (RH) YOU PROVIDED THE BASELINE ESTIMATED COSTS FOR EACH OF THE NINE ROUTE OPTIONS FOR MT. ZION TO KANSAS. HOW DO THESE ESTIMATED COSTS COMPARE?

With respect to cost, Routes MZK, MZK-1 and MZK-2 have an estimated cost that is $8.3 million (7.1%) to $17.8 million (15.0%) greater than the lowest estimated cost route of the nine -- Route CFT-1.

Q WHAT DOES YOUR ANALYSIS OF OPPORTUNITIES FOR PARALLELING EXISTING LINEAR FEATURES ENTAIL?

A Using the same methodology I discussed in my direct testimony (MCPO Exhibit 1.0 at pages 36 through 39), I analyzed the length of each of the nine route options for Mt. Zion to Kansas that does <u>not</u> closely parallel existing linear features and by working from the most significant type of existing linear features to the least significant type of

existing linear features. MCPO Exhibit 1.4 (RH) presents the results of my paralleling analysis of the nine route options.

Q PLEASE EXPLAIN WHY YOU USE THE LENGTH OF A ROUTE NOT CLOSELY PARALLELING EXISTING LINEAR FEATURES TO MEASURE PERFORMANCE IN REGARD TO THE USE OF SUCH PARALLELING OPPORTUNITIES.

A As I previously explained in my direct testimony, using the length of a route closely paralleling a particular type of linear feature or the percentage of the total length of a route closely paralleling a particular type of linear feature can be misleading because the alternative routes under consideration may be significantly different in regard to total length. For example, if we had a route of 200 miles that closely paralleled existing transmission lines for 50% of its length and another alternative route of 100 miles that closely paralleled existing transmission lines for only 25% of its length, it would not be appropriate to say the 200 mile line outperforms the 100 mile line in regard to paralleling existing transmission lines because the 200 mile route would have 100 miles of length that does not parallel existing transmission lines while the 100 mile route would only have 75 miles of length that does not parallel existing transmission lines. By measuring existing linear feature paralleling performance by miles that do not parallel that particular type of linear feature, total line length is removed from the measure and, instead, the focus is appropriately placed on minimizing the total amount of new transmission line route miles that do not parallel the particular type of linear feature in question.

Q PLEASE EXPLAIN WHY YOU WORKED FROM THE MOST SIGNIFICANT TYPE OF EXISTING LINEAR FEATURE PARALLELING OPPORTUNITY TO THE LEAST SIGNIFICANT LINEAR FEATURE PARALLELING OPPORTUNITY.

A As I previously explained in my direct testimony, the primary purpose of routing closely parallel to existing linear features is to take advantage of existing significant visual impact, noise impact, environmental fragmentation and/or agricultural fragmentation in order to avoid the introduction of new such impacts where they do not already exist. A secondary purpose is to take advantage of collocation of the proposed transmission line with existing significant linear infrastructure, such as existing transmission lines, in order to mitigate the visual impact of the proposed transmission line.

Not all existing linear features are the same with regard to their degree of visual impact, noise impact, environmental fragmentation and/or agricultural fragmentation. For example, a section line may potentially reflect a cultivation boundary. While there is existing agricultural fragmentation present if the section line in fact reflects a cultivation boundary, that section line does not necessarily have any significant existing visual impact, noise impact or environmental fragmentation unless there are other linear features also present where the section line is located. On the other hand, an existing transmission line of the same size or greater than the proposed transmission line provides very significant existing amount of visual impact (from the vertical size and horizontal length of the existing transmission line), noise impact (from corona) and environmental fragmentation (from vegetation management within the existing transmission line's easement). This makes it an ideal opportunity for close paralleling provided it does not introduce a valid reliability issue. Furthermore, in the right circumstances, an existing transmission line may also

provide an opportunity to collocate the transmission circuits of the new transmission line on the structures of the existing transmission line, or vice-versa, to further mitigate the visual impact of the proposed transmission line by eliminating the need for two separate transmission lines.

For these reasons, not all linear feature paralleling provides the same benefits, and it is important to work from examining the most significant linear features to examining the least significant linear features when examining how well a proposed transmission line route takes advantage of opportunities to closely parallel existing linear features.

Q WHAT ARE YOUR CONCLUSIONS WITH REGARD TO YOUR REVIEW OF THE NINE ROUTE OPTIONS FROM MT. ZION TO KANSAS IN RELATION TO THE PARALLELING OF EXISTING LINEAR FEATURES?

A Routes MZK, MZK-1 and MZK-2 have better paralleling performance. As shown in MCPO Exhibit 1.4 (RH), of the nine route options for Mt. Zion to Kansas, only Routes MZK, MZK-1 and MZK-2 exhibit relatively superior performance with regard to: (i) minimizing the portion of their length that does not parallel existing transmission lines and (ii) minimizing the portion of their length that does not parallel existing transmission lines, Major Roads or Railroads. When paralleling of Minor Roads and other utility right-of-way is added in, Routes MZK, MZK-1 and MZK-2 perform similar to Routes CFT, CFT-1, and CFT-2, but underperform Routes AXIA, AXIA-1 and AXIA-2. When paralleling of Section Lines is added in, Routes MZK, MZK-1 and MZK-2 underperform the remaining six routes. However, given that existing transmission lines, Major Road and Railroads represent existing linear infrastructure with much more significant visual impact, noise impact, environmental fragmentation

than Minor Roads, other utility right-of-way or Section Lines, the clear winners with regard to paralleling performance among the nine route options for Mt. Zion to Kansas are Routes MZK, MZK-1 and MZK-2.

Q IN HER DIRECT TESTIMONY ON REHEARING, MS. BURNS INTRODUCES NEW DATA ON THE PARALLELING OF "1/2-SECTION LINES" AND "PROPERTY LINES" (PDM EXHIBIT 6.0 AT PAGES 13 THROUGH 15). PLEASE EXPLAIN WHY YOUR PARALLELING OPPORTUNITIES ANALYSIS DOES NOT CONSIDER THIS ADDITIONAL DATA.

A I have not included them for the reasons detailed in Mr. Reinecke's rebuttal testimony on rehearing (MCPO Exhibit 2.0 (RH)). These items are even less likely than Section Lines to be indicative of existing visual impact, noise impact, environmental fragmentation and agricultural fragmentation.

Q PLEASE SUMMARIZE THE COMBINED RESULTS OF YOUR ANALYSIS OF PHASE I HIGH SENSITIVITY ROUTING FACTORS, PHASE II HIGH SENSITIVITY ROUTING FACTORS, COST ESTIMATES AND PARALLELING OPPORTUNITIES.

A The combined results of these analyses show that Routes MZK, MZK-1 and MZK-2 are the least adverse impact route alternatives available for the Mt. Zion to Kansas portion of the IRP. They have the best performance with regard to the Phase I high sensitivity factor routing factors, Phase II high sensitivity routing factors and opportunities to parallel existing linear features. While these three routes have a $8.3 million (7.1%) to $17.8 million (15.0%) greater baseline estimated cost than the Route CFT-1, they place 15 (48.4%) to 19 (61.3%) fewer residences within 500 feet of the centerline of the route than Route CFT-1. As discussed in my direct testimony

(MCPO Exhibit 1.0 at page 21), the Commission in the past has selected a route for a proposed transmission line that has a greater estimated dollar cost when it places fewer residences within 500 feet of the centerline of that transmission line (e.g., Commission's May 16, 2007 order in Docket No. 06-0179).

While Routes MZK, MZK-1 and MZK-2 place approximately 90 (5.3%) to 108 (6.4%) more acres of Prime Farmland within the 500 foot analysis corridor than the best performing route for this factor -- Route CFT-1, it is important to recognize the limited nature of such impact. Specifically, the placement of a new transmission line in cultivated lands or pasture land (even where there is Prime Farmland) only removes from production the land at, and very close to, the foundation of the structures. The foundation of the structures proposed for this transmission line will be no more than 10 feet wide (ATXI Exhibits 7.1 and 7.2) and each foundation will be typically placed 700 to 1,000 feet apart from each other. The overhead wires between the structures neither remove land from production nor introduce any significant agricultural fragmentation. This fact is further substantiated by ATXI witness Rick D. Trelz. In his direct testimony (ATXI Exhibit 5.0 lines 198-204), in discussing the impact of the entire IRP (using ATXI's proposed Primary route) on agricultural land taken out of production, he states:

> "Of the proposed Primary Route easement area at approximately 4,489 agricultural acres, 1.55 acres of actual farmland will be taken out of production. This total represents the agriculture acres within the required 150-foot wide easements. The construction of single shaft steel poles with no down guys and anchors will help reduce the amount of land removed from cultivation. The majority of the easement area will only have overhanging wires."

For all of these reasons, I conclude from my routing analysis, using the same methodology that I used in my direct testimony, that Routes MZK, MZK-1 and MZK-2

have the least adverse impact to the public of the nine route options for the Mt. Zion to Kansas portion of the IRP.

Q HAVE YOU REVIEWED ALL OF THE ROUTING FACTORS PRESENTED IN MCPO EXHIBIT 2.2 (RH) FOR THE NINE ROUTE ALTERNATIVE AVAILABLE FOR THE PANA TO KANSAS PORTION OF THE IRP?

A Yes.

Q DOES YOUR REVIEW OF THOSE ROUTING FACTORS GIVE YOU ANY REASON TO CHANGE THE CONCLUSIONS YOU HAVE JUST GIVEN?

A No. My review of all of the MCPO Exhibit 2.2 (RH) routing factors does not lead me to any different conclusions than the ones I have just given.

V. Response to Specific Direct Testimony on Rehearing Comments of PDM/CFT Witness Mary Burns

Q PDM/CFT WITNESS MS. BURNS TAKES ISSUE WITH THE EXTRA ROUTE LENGTH ASSOCIATED WITH ROUTES MZK, MZK-1 AND MZK-2 DUE TO WHAT SHE REFERS TO AS "OFF-COURSE" ROUTING (PDM EXHIBIT 6.0 AT PAGE 6). HOW DO YOU RESPOND?

A Deviation from a straight line course is a common practice in transmission line routing when the adverse impacts to the public are avoided by that deviation outweigh the incremental adverse impacts associated with that deviation. With regard to the "off-course" routing that Ms. Burns is specifically decrying, significant residence and non-residential structure impacts are being avoided by Routes MZK, MZK-1 and MZK-2 compared to any of the other six route options for Mt. Zion to Kansas in

exchange for a limited addition of length, estimated dollar cost and adverse agricultural impact. The principal incremental adverse impacts of Routes MZK, MZK-1 and MZK-2 compared to Route CFT-1 (the best performing of the six CFT and ATXIA route options) are as follows:

- 8.2 miles (13.4%) to 9.7 miles (15.9%) of additional route length (MCPO Exhibit 2.2 (RH) at page 1);
- $8.3 million (7.1%) to $17.8 million (15.0%) of greater estimated baseline construction cost (MCPO Exhibit 1.2 (RH)); and
- 90 (5.3%) to 108 (6.4%) more acres of Prime Farmland within the 500 foot analysis corridor (*Id.*).

In exchange, versus Route CFT-1, Routes MZK, MZK-1 and MZK-2 have:

- 15 (48.4%) to 19 (61.3%) fewer residences within 500 feet of the centerline of the route (MCPO Exhibit 1.2 (RH));
- 14 (66.7%) to 16 (76.2%) fewer residences within 300 feet of the centerline of the route (*Id.*);
- 7 (77.8%) fewer residences within 150 feet of the centerline of the route (*Id.*);
- 1 (33.3%) to 2 (66.7%) fewer schools within the 500 foot analysis corridor (*Id.*);
- 77 (60.0%) to 78 (60.5%) fewer non-residential structures within 500 feet of the centerline of the route (MCPO Exhibit 2.2 (RH) at page 4);
- 46 (71.9%) to 54 (84.4%) fewer non-residential structures within 300 feet of the centerline of the route (*Id.*);
- 19 (79.2%) to 22 (91.7%) fewer non-residential structures within 150 feet of the centerline of the route (*Id.*);
- 6 fewer non-residential structures within the 150 foot easement of the route that might have to be removed (*Id.*);[2] and
- 11.7 (8.2%) to 32.6 (22.8%) fewer acres of wooded areas within the 500 foot analysis corridor (MCPO Exhibit 1.3 (RH)).

[2]There are no non-residential structures within the 150 foot easement of Routes MZK, MZK-1 and MZK-2.

In addition, while 8.2 to 9.7 miles of additional length is needed for Routes MZK, MZK-1 and MZK-2 versus Route CFT-1, <u>all of that additional length</u>, plus an additional 4.0 to 5.5 miles of existing length is closely parallel to existing electric transmission lines, which helps to mitigate the visual, noise and environmental fragmentation of the new transmission line by placing it where similar such visual, noise and environmental fragmentation already exits.

Finally, as I noted earlier, it is important to recognize the limited adverse nature of Prime Farmland being placed within the 500 foot analysis corridor. Specifically, as I noted earlier, the placement of a new transmission line in cultivated lands or pasture land (even where there is Prime Farmland) only removes from production the land at, and very close to, the foundation of the structures. In addition, the overhead wires between the structures neither remove land from production nor introduce any significant agricultural fragmentation.

In sum, the adverse impacts avoided by the "off-course" routing by Routes MZK, MZK-1 and MZK-2 that Mr. Burns decries far exceed the incremental adverse impacts incurred by that "off-course" routing.

Q MS. BURNS TAKES ISSUE WITH THE CLAIMED BENEFITS OF PARALLELING EXISTING TRANSMISSION LINES VERSUS THE ADDITIONAL FARMLAND AND LENGTH IMPACTS OF ROUTES MZK, MZK-1 AND MZK-2 (PDM EXHIBIT 6.0 AT PAGES 7 THROUGH 9). HOW DO YOU RESPOND?

A Ms. Burns fails to consider the issue from a holistic standpoint. As outlined above, the benefits provided by the additional length, baseline estimated cost and farmland impacts incurred by Routes MZK, MZK-1 and MZK-2 versus Route CFT-1 are far beyond visual impact mitigation. In particular, Ms. Burns is completely ignoring the

very significant residential and non-residential structure impacts that are also avoided. Furthermore, she continues to overemphasize the severity of the farmland impacts.

Q MS. BURNS RAISES AN ISSUE WITH REGARD TO "SEVERE TURNS" NEGATIVELY AFFECTING FARMLAND (PDM EXHIBIT 6.0 AT PAGES 16 THROUGH 17). HOW DO YOU RESPOND?

A This is essentially the same issue she raised in her direct testimony affidavit in this proceeding with regard to the subject of "short spans" (PDM Exhibit 1.0 at pages 3 through 4). Specifically, she is claiming that the use of "severe turns," which would include the use of right angle turns, increases the number of structures utilized on a transmission route such that it would place more structures within the boundaries of a single tract. As I discussed in detail in my rebuttal testimony (MCPO Exhibit 3.0 at pages 2 through 3), only one of the eight route segments on Routes MZK, MKZK-1 and MZK-2 where she identified alleged issues due to right angle turns creating "short spans" would require an additional structure beyond that which would be required without the right angle turns. Thus, the concern is overstated and not sufficiently significant for it to be a factor is selecting one Mt. Zion to Kansas route versus another.

Q MS. BURNS CONCLUDES THE CFT ROUTES (ROUTES CFT, CFT-1 AND CFT-2) PROVIDE A "NET REDUCTION" IN IMPACT WHILE THE MCPO ROUTES (ROUTES MZK, MZK-1 AND MZK-2) RESULT IN AN INCREASE IN IMPACT (PDM EXHIBIT 6.0 AT PAGES 19 THROUGH 20). HOW DO YOU RESPOND?

A This is simply inaccurate. She does not perform a "net reduction" analysis at all because she overemphasizes the severity of farmland impacts and completely ignores the very significant adverse impacts on residences and nonresidential structures that are avoided by Routes MZK, MZK-1 and MZK-2 versus Routes CFT, CFT-1 and CFT-2. As I have illustrated above, when a holistic view is taken, it is clear the adverse impacts avoided by the MCPO routes versus the CFT routes outweigh adverse impacts incurred by the MCPO routes versus the CFT routes.

VI. Conclusions and Recommendations

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A I conclude the following:

- ATXI's proposed Sulphur Spring Road site is still the best proposed site for Mt. Zion substation.
- ICC Staff's proposed Option #1 and Option #2 sites may be viable alternatives to ATXI's proposed Sulphur Spring Road site for the proposed Mt. Zion substation.
- From a reliability standpoint, ICC Staff's proposed Option #3 site is not likely a viable alternative to ATXI's proposed Sulphur Spring Road site for the proposed Mt. Zion substation.
- Regardless of whether the Mt. Zion substation is located at the ATXI Sulphur Spring Road site, the ICC Staff Option #1 site or the ICC Staff Option #2 site, MCPO's proposed route from Mt. Zion substation to Kansas substation has significantly less adverse impact to the public than either ATXI's Alternate Route or Channon Family Trust's ("CFT") proposed Route from Mt. Zion substation to Kansas substation.

I recommend the Commission select ATXI's proposed Sulphur Spring Road site for Mt. Zion substation. In addition, regardless of the site for Mt. Zion substation chosen by the Commission, I recommend the Commission select MCPO's proposed route from Mt. Zion substation to Kansas substation.

Q DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A Yes, it does.

\\Doc\Shares\ProlawDocs\MED\9837\Testimony-BAI\249038.docx