Exhibit No.:	
Issues:	Origin of Project; Need for Line; Benefits of Line
Witness:	Charles E. Mitchell
Sponsoring Party:	Union Electric Company
Type of Exhibit:	Surrebuttal Testimony
Case No.:	EO-2002-351
Date Testimony Prepared:	September 4, 2002

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. EO-2002-351

SURREBUTTAL TESTIMONY

OF

CHARLES E. MITCHELL

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
September, 2002

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

Application of Union Electric Company for Permission and Authority to Construct, Operate, Own and Maintain a 345 kilovolt Transmission Line in Maries, Osage and Pulaski Counties, Missouri ("Callaway-Franks Line")	))))))	Case No. EO-2002-351

AFFIDAVIT OF CHARLES E. MITCHELL

STATE OF MISSOURI)
) **ss**
COUNTY OF ST. LOUIS)

Charles E. Mitchell, being first duly sworn on his oath, states:

1. My name is Charles E. Mitchell. I work in St. Louis, Missouri and I am employed by Ameren Services Company as Consulting Transmission Planning Engineer of the Transmission Planning and Services Group.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 15 pages and Schedules 1 and 2, which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Charles E Mitchell
Charles E. Mitchell

Subscribed and sworn to before me this 4th day of September, 2002.

Mary Hoyt
Notary Public

My commission expires: 4-1-2006

MARY HOYT
Notary Public - Notary Seal
STATE OF MISSOURI
Jefferson County
My Commission Expires: April 1, 2006

16385

TABLE OF CONTENTS

SURREBUTTAL TESTIMONY

OF

CHARLES E. MITCHELL

CASE NO. EO-2002-351

Q. Please state your name and business address.

A. My name is Charles E. Mitchell. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63166-6149.

Q. Are you the same Charles E. Mitchell that filed Direct Testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your Surrebuttal Testimony in this proceeding?

A. I will respond to the testimony submitted by the Concerned Citizens of Family Farms and Heritage. In particular, I will respond to Mr. Doug McDaniel's Rebuttal Testimony.

I. AECI ACQUIRED THE EASEMENTS FOR ESSENTIALLY THE SAME 345 kV LINE.

Q. In your Direct Testimony (at page 23, lines 9-28; page 24, lines 1-15) you indicated that AECI originally planned to build a 345 kV line from Kingdom City to Franks (along the same route as planned for the line under consideration in this case). In his Rebuttal, Mr. McDaniel contends that "this [Callaway-Franks 345 kV line] is a new, unexpected, and unanticipated burden" on the property owners (page 16, lines 18-21). Please respond.

A. Attached to my testimony as Schedule 1 is a letter dated April 25, 1980 (and attachments) from AECI that shows three alternatives for developing a transmission outlet for power generation from AECI's Thomas Hill Plant. One option (called Plan I in the attachment to Schedule 1) was to extend a 345 kV line from Kingdom City to Chamois to Franks Substation. The Chamois-Franks portion of "Plan I" is essentially identical to the proposed AmerenUE Callaway-Franks line starting at Chamois. After joint planning with AmerenUE, AECI decided to go with Plan III (as described in the attachment to Schedule 1) which allowed them to defer the need for the line that we propose to build now. Plan III allowed AECI to purchase one of the two Callaway-Bland 345 kV lines so that they could get a future 345 kV supply for their Chamois load. As Schedule 1 and its attachment indicate, the deferral of building the "Plan I" line created cost savings for AECI that therefore saved money for rural electric cooperative customers. The fact is that had AmerenUE not worked with AECI at that time, AECI would have built the Chamois-Franks line then, using these same easements on the same route. This is evidenced by the statement in the attachment that "Plan I shown in Exhibit III of this Letter, is based on AEC "satisfying its transmission needs independent of UE's electrical system." Plan I shows the same route we are proposing to use for the Callaway-Franks line, and shows that it would have been a 345 kV line. Increased demands on the integrated system over the last 20 years have simply now created a need that we were able, by working together, to defer 20 years ago. In short, this is essentially the same project except UE will build and operate the project and not AECI.

Q. Why is AmerenUE proposing to build this line and not AECI?

A. As I discussed in my Direct Testimony, the Company's Bland-Franks line is being overloaded. The proposed line is therefore designed to solve a problem on

AmerenUE's facilities. As a result, it is appropriate for AmerenUE to construct, own, operate and maintain the proposed line. Based on the joint planning which we have undertaken with AECI, AECI agrees and has committed to support the project as discussed in my Direct Testimony.

Q. Is there other evidence to support the conclusion that this is not a new project?

A. Yes. The easements themselves all refer to the Franks-Kingdom City line on the top left-hand side of the signed easement document. The AmerenUE project under consideration is simply the Franks to Chamois portion of that same route. A copy of a sample easement is attached to my Surrebuttal Testimony as Schedule 2.

Q. How would you then characterize Mr. McDaniel's claim that the line AmerenUE plans to build is a "new, unexpected, and unanticipated burden . . . for an unimaginably large high voltage line"?

A. The facts do not support that statement. In 1979, when the easements were granted, AECI operated a 345 kV system and still operates a 345 kV system today. The lines discussed in the above-referenced April 25, 1980 AECI letter are 345 kV lines. The construction AECI used at that time, and that is used today throughout most of its system, is essentially the same H-Frame, wood pole construction, with poles of similar height, as the construction that AmerenUE proposes for the new Callaway-Franks line.

Q. Is the impact of AmerenUE's line any different from the impact of an AECI line had it been built?

A. No. There is simply no material difference in the impact that AmerenUE's proposed line will have today versus the impact the AECI line would have had if built

20 years ago. The proposed Callaway-Franks line is not new, unexpected, or unanticipated given that landowners over a 43-mile stretch of the proposed 54 mile line were paid for easements to build a nearly identical line.

II. THE NEED FOR THE PROPOSED LINE HAS MISSOURI CAUSES, AND BENEFITS MISSOURIANS.

Q. On page 10 of his Rebuttal Testimony, Mr. McDaniel claims that the need for the new line is entirely unrelated to any cause in Missouri. Do you agree with this statement?

A. No, I do not agree. At a meeting of the "Concerned Citizens of Family Farms and Heritage" held on July 1, 2002, I explained that the transmission system is an integrated transmission system that supports the entire electric transmission grid that serves end users in Missouri, and that also supports the integrated grid outside Missouri as well. That is simply the nature of the Nation's electric transmission grid. If, for example, the grid in Illinois has problems, those problems could impact Missouri customers. That does not mean that improvements to the grid in Illinois do not also benefit residents of Illinois. Also, when improvements to the grid in Missouri benefit those outside Missouri it does not mean that Missourians are not also benefited. The point is that the grid needs improvement for the benefit of all of its users and the proposed line is the best way to do that. Furthermore, based on geography alone, since this proposed facility will be located practically in the middle of Missouri, it would lead one to conclude that Missourians will benefit from it.

Q. What else can you tell us about the electric grid in Missouri?

A. The electric transmission grid in the eastern half of Missouri, including the area at issue, consists of lines owned and operated by AmerenUE, AECI, and Central Electric

Power Cooperative, which is a member of AECI. Most of the landowners along the proposed route are customers of local rural electric distribution cooperatives who receive their power from Central Electric, which in turn receives it from AECI. That power moves on the above-mentioned grid, and the need to move that power contributes to the overloading problems on the Bland-Franks line just as do movements of power from state-to-state. The cause of the problems we are experiencing are caused in part by Missouri uses. We cannot separate those uses from other uses.

Q. On page 6, lines 8, 9, and 10 of Mr. McDaniel's Rebuttal Testimony, he states that the Callaway-Franks 345 kV line provides reliable service to the entire grid system. At lines 16, 17, and 18, he goes on to state that UE provided no evidence that the public in Missouri benefit from this Callaway-Franks 345 kV line. Is Mr. McDaniel's contention correct?

A. As I discussed above, he is correct that the line supports the entire grid. He is incorrect when he alleges that there is no Missouri benefit. By improving the grid, we improve the reliability of service for AmerenUE customers as well as Missouri Rural Electric Cooperative (REC) customers. All of these Missouri customers could be harmed by overloading the Bland-Franks 345 kV line, which will continue to occur if the proposed line is not built. I have previously explained that such overloading can damage the line conductors and the electrical facilities and cause outages. As also noted above, constraints on the Bland-Franks line are causing AECI (and ultimately REC customers) low voltage problems. Missouri customers will benefit from this new line because, as we stated in the meeting with the "Concerned Citizens of Family Farms and Heritage" on July 1, this Callaway-Franks 345 kV line improves the reliability of all customers served from the

transmission system, including the farms along the proposed Callaway-Franks 345 kV line area.

Q. Are there some specific parts of the project in addition to overall improvement of system reliability that will benefit Missourians?

A. Yes. Central Electric is gaining a connection to its future Rich Fountain substation, which will provide service to the local distribution cooperative in the area. UE is establishing a new substation at Loose Creek, which will provide for future UE customer needs in Central Missouri. AECI is investing $ 3.4 million for improvements at the Franks substation, which, as noted above, benefits it, its Missouri members, and their Missouri members (the local REC's).

III. THE PROPOSED LINE IS NEEDED TO CORRECT A DEFICIENCY IN THE SYSTEM AND TO ENHANCE SYSTEM RELIABILITY.

Q. On page 12, lines 5-7 of his Rebuttal Testimony, Mr. McDaniel states that "Nowhere does he [Mr. Mitchell] state that the system has been rendered unreliable, nor does he [Mr. Mitchell] state with any certainty that failure to build a new line will make the current system unreliable and unsafe." Do you have any comment on Mr. McDaniel's statement?

A. Mr. McDaniel mischaracterizes my Direct Testimony. It was clearly stated in my Direct Testimony that the Bland-Franks 345 kV line has been overloaded many times. For example, please see my Direct Testimony starting on page 13, at line 24 through page 17 at line 9. Overloading any facility is not good for that facility nor is it good for a reliable system. Further, it is not consistent with good utility practice. In the case of the Bland-Franks 345 kV line, the line has been operated above the published continuous rating of its

conductor. Operating above a safe conductor temperature means that the line conductor strength can be reduced depending on the conductor temperature, or the conductor splices could weaken with the conductor separating from the splice and fall to the ground. This situation then becomes a safety issue. Also, an overloaded conductor could have reduced ground clearance, thereby reducing the safety margin for objects under the line. These situations are indeed unsafe and the system is not as reliable as when the conductor is operating within its design specifications. Design specifications exist for a reason: to ensure a safe and reliable system. When we have a line that consistently cannot be operated within those design specifications because of overloading, we do not have a safe and reliable system and we have a duty and obligation to correct that problem.

Q. Can you tell us more about those standards and how one determines what is required for a reliable transmission system?

A. AmerenUE uses reliability planning criteria based on the North American Electric Reliability Council (NERC) Planning Standards, which are supported by the Mid-America Interconnected Network (MAIN). Using the NERC planning criteria, the Bland-Franks 345 kV line failed the first and one of the most basic reliability tests. That test requires that no transmission element exceed its normal rating with all transmission elements in service. The criteria also states that no transmission element exceed its emergency rating for the outage of another transmission element. The Bland-Franks 345 kV line also failed this test.

Q. What specific situations can you relate that show the Bland-Franks 345 kV line has been in an unreliable condition?

A. As I stated in my Direct Testimony, many Transmission Loading Relief events (TLR) have been called on the Bland-Franks 345 kV line over the past four to five years. Please note pages 7 starting on line 22 and continuing on through page 8 and onto page 9 up to line 9 for background information on TLRs. The Bland-Franks 345 kV line has experienced many TLRs. Also, as stated in my Direct Testimony, TLRs mean that a facility is overloaded or that if a specific single contingency occurs, the line could be overloaded. These overloads reduce the reliability of the transmission system.

Q. Mr. McDaniel states on page 13, lines 20-22, that AmerenUE should improve the Bland-Franks 345 kV line instead of building the proposed Callaway-Franks 345 kV line. Why is that not a good solution?

A. The Bland-Franks 345 kV line is an important line to the interconnected system. In order to correct the overload problem, the existing Bland-Franks 345 kV line would have to be rebuilt. Such rebuilding would require about a two-year outage of the Bland-Franks line. Taking this line out of service for any time will cause the problems that have been addressed in my Direct Testimony and again herein, and so would not be an acceptable electrical solution. The absence of this Bland-Franks 345 kV line would cause overloads on the transmission system, would cause congestion on the transmission system, and would force many electric systems to dispatch generation uneconomically. Operation in such a manner would have a large negative impact on reliability of the entire interconnected system and, as explained above, would have a negative effect on Missourians as well.

IV. REGULATORY CONSIDERATIONS REQUIRE THE NEW LINE.

Q. On page 14, lines 9-11, Mr. McDaniel states that "AmerenUE is under no obligation to allow access to its transmission system if Ameren chooses not to do so."

He makes similar comments elsewhere, including at page 10, lines 20-22 through page 11, lines 1 – 15. Is he correct?

A. No. First, as I mentioned in my Direct Testimony at page 9, AmerenUE is required by the FERC to allow access to its transmission system. Under the FERC's regulations, if our electric transmission facilities are such that those desiring open access in fact cannot gain such access, AmerenUE is required to expand the transmission system to allow such access. The Bland-Franks 345 kV line is one of those deficiencies that Ameren is required to fix to comply with FERC's open access regulation. It is clear that the Bland-Franks 345 kV line is precluding full and open access to AmerenUE's system as explained in my Direct Testimony at page 14. To summarize what I stated there, the NERC has identified the Bland-Franks 345 kV line as a significant constraint to power transfers to MAIN in their 2002 Summer Assessment. In addition, the Bland-Franks 345 kV line has been identified by the NERC as one of the primary causes of congestion in the entire eastern interconnected transmission system.

Second, as we stated during the "Concerned Citizens of Family Farms and Heritage" meeting on July 1, the transmission system follows the laws of physics. For Ameren to determine the impact of generation increases or decreases, load increases or decreases, line additions, line removals, changes to the impedance of the circuit, etc., highly complex computer programs are needed to model the way the transmission system will respond. Though the operators are receiving information that helps them to operate the transmission system, they still do not always know when a line foreign to their system trips or when a generator trips off line or where such a facility outage is located. The system responds to the resulting conditions according to the laws of physics. As the remaining in-service facilities

load up, there is little that can be done to unload overloaded facilities until these outaged facilities are identified. In short, electricity will flow over Ameren's transmission system whether we want this to happen or not.

V. AECI AND REC CUSTOMERS BENEFIT FROM THE NEW LINE.

Q. On page 12, lines 18-21, Mr. McDaniel suggests that AECI does not benefit from the Callaway-Franks 345 kV line. Is this statement correct?

A. No, the statement is not correct. It should be obvious that AECI would not spend over $4,000,000 on project facilities related to the proposed line (as it plans to do) and then transfer 43 miles of easements to AmerenUE and not get anything in return. AECI knows that the Bland-Franks 345 kV line has been heavily loaded and that such loading produces low voltages on its Franks Substation and also impacts its Maries 138/161 kV transformer facilities during outages of the Bland-Franks 345 kV line. AECI and Central Electric have also obtained from AmerenUE the right to connect a supply for a 345/161 kV transformer to the Callaway-Franks 345 kV line for a future supply for their future Rich Fountain Substation. Such a connection will help increase the reliability of supply in the area and for the REC customers in Linn and the surrounding counties. As discussed in more detail above, relieving the problems we have on the Bland-Franks 345 kV line benefits AmerenUE and AmerenUE retail customers, as well as AECI and the retail REC customers, which is why AECI has invested heavily in this project.

Q. Has Central Electric Cooperative and AECI documented their need for the line and the value it has for them?

A. Yes. Both have sent letters to the Missouri Public Service Commission in support of the line. These have been attached to Mr. Ketter's Rebuttal Testimony.

VI. OUR ANALYSES CONSIDERED BOTH ENGINEERING AND OTHER FACTORS.

Q. On page 7, lines 5-7 of his Rebuttal Testimony, Mr. McDaniel states that you did not consider in your analysis the impact on property owners, communities, and family farms along the chosen route. Is this a correct statement?

A. My responsibility in Transmission Planning was to determine the optimal engineering alternative to relieve the loading on the Bland-Franks 345 kV line through a joint study with AECI. I do not select the route, but AmerenUE certainly does take the considerations Mr. McDaniel mentions into account when choosing a route. Mr. Douglass addresses Mr. McDaniel's contentions in detail in his Surrebuttal Testimony.

Q. Did you follow your normal planning process in this case?

A. Yes. When I develop a conceptual design, there is generally no specific route involved in the analysis. When various routes were considered, including the chosen Callaway-Franks route, I took into consideration which route provided the best engineering solution.

Q. On page 5, lines 16-18 of Mr. McDaniel's Rebuttal Testimony, he states that the analysis did not consider the issue of where to put the transmission line; that is, where to physically locate the transmission line. Is that correct?

A. His statement is correct with regard to our initial analysis of the best engineering solution. The joint study was to determine a conceptual design plan to eliminate the overload conditions experienced on the Bland-Franks 345 kV line. A conceptual design involves identifying the terminal points, and the voltage and capability of the line. As discussed in more detail by Mr. Douglass, and as I discuss below, our final analysis

concluded that from an engineering, electrical performance, and social and environmental impact standpoint, the Callaway-Franks route is superior to all others.

Q. Please explain the engineering approach used in the study.

A. The engineering approach used in the joint study was to determine the best engineering alternative to unload the Bland-Franks 345 kV line. The approach that offered the most reliability, met the reliability criteria, and was the least cost option would be chosen.

Q. In stating the purpose of his Rebuttal Testimony, Mr. McDaniel alleges that the proposed line can be built in another place (page 1, lines 13-16), and throughout his Rebuttal Testimony suggests that routing the line parallel to the existing Bland-Franks line is that other place. Do you have any comments on Mr. McDaniel's allegations?

A. Yes. As I discuss below, Mr. McDaniel's allegations are based upon a fundamental misunderstanding of the facts relating to the proposed line. Contrary to Mr. McDaniel's assertions, including those made at page 15, lines 1-14 of his Rebuttal Testimony, the Joint Study participants did consider other alternative routes, including a possible route from Callaway to Bland to Franks, roughly paralleling the current Bland to Franks line. See Joint Study (attached to my Direct Testimony as Schedule 4) at p. 2, referring to a 2nd Bland-Franks line as Option 2. Ultimately, what started out as Option 4 became the proposed Callaway to Franks line because there was insufficient justification to build from Callaway to Jefferson City to Franks, a route that is about 20 miles greater than the proposed line. After initial power flow simulations were completed on the above-options, the options were further refined to three main options, labeled F00, F01 and F02 at page 4 of the Joint Study. Option F02 was chosen. It is true that one of the reasons a 2nd,

parallel, Bland to Franks line was not chosen was due to the fact that 43 of the 54 miles of right-of-way needed for the project were already owned by AECI, and that fact alone is a legitimate reason to build the line there. As Schedule 1 to my Direct Testimony shows, the Callaway-Franks route is a direct route, covering less ground, and therefore it is reasonable that it will impact less people and fewer properties than a longer route. Furthermore, the owners of land over 80% of the Callaway-Franks line were paid for easements, and knew a transmission line could be built across their land. Those facts alone result in reduced impact on the public as a whole because those property owners are already lawfully impacted by a transmission line easement.

Q. If the Callaway-Franks 345 kV line and the Bland-Franks 345 kV line had the same electrical advantages and the cost were about the same, which line would you recommend for improvement in system reliability?

A. When building a new facility, we look at the advantages of each alternative. If I am comparing two alternatives that have the same electrical advantages and are about the same in cost, I would choose the more reliable alternative. In this case, I would choose the Callaway-Franks 345 kV line because for the majority of the route the Callaway-Franks line is on a right-of-way separate from the right-of-way for Bland-Franks. Separate rights-of-way for lines that reserve each other are important when trying to improve system reliability, because they provide independence that cannot be achieved if we put mutually dependent lines along the same poles, towers, or corridor. For example, if a storm blows down the existing Bland-Franks line it would also likely blow down a second Bland-Franks line. Thus, one of the key problems we are trying to correct (having additional capacity in case of Bland-

Franks outages) is defeated. It is very unlikely that both the existing Bland-Franks line and the new Callaway-Franks line would go down at the same time.

VII. THE CALLAWAY-FRANKS LINE IS BEING PROPOSED FOR RELIABILITY REASONS, NOT PROFIT-MAKING REASONS.

Q. Mr. McDaniel contends that UE is proposing this line because it wants to make money from it (page 11). Please respond.

A. These contentions are not accurate. As I have testified before, my responsibility is to examine and propose engineering solutions to maintain a reliable transmission system. My responsibility is not to create new sources of revenue for UE. The joint study performed that led to the identification of Callaway-Franks 345 kV line was the direct result of actual and forecasted reliability issues. Certainly, the Company expects to recover from users the reasonable costs of the transmission line once it is placed in service based on applicable ratemaking rules and policies. However, the Company is proposing this line for reliability reasons, not financial ones.

VIII. CONCLUSION.

Q. Please summarize your Surrebuttal Testimony.

A. Despite the contentions of the Intervenors, AmerenUE has thoroughly analyzed the need for the proposed line and has selected the best route. The Callaway-Franks 345 kV line will enhance both AmerenUE's and AECI's transmission systems, which in turn will allow AmerenUE and the cooperatives to more reliably serve their customers. Without this project, the Bland-Franks 345 kV line will continue to experience overloads and will thereby adversely impact transmission system reliability, will increase safety related problems, and will also increase the potential to damage transmission system equipment and

other property. The proposed line is the best way to address these problems and is the most feasible and economical of all of the alternatives studied.

Q. Does this conclude your Surrebuttal Testimony?

A. Yes, it does.

AECI ASSOCIATED ELECTRIC COOPERATIVE, INC.

2814 S. GOLDEN, P.O. BOX 754, SPRINGFIELD, MISSOURI 65801
417-881-1204

April 25, 1980

Mr. William R. Herr
Corporate Planning
Union Electric Company
P.O. Box 149
St. Louis, MO 63166

Dear Bill:

In recent conversation, we have discussed alternatives to your tentative proposal transmitted to us on March 21, 1980.

As requested in your letter of April 15, 1980, we are enclosing a re-draft of your tentative proposal. This has not received corporate approval, so it is not submitted as a firm proposal.

During our discussion in Wichita, we expressed our concern about the operating problems presented by the transmission plan (Plan II), proposed in your March 21, 1980, draft. The attached suggests a way to avoid these operating problems and provide what we think is a better operating system by constructing a 345 Kv line from Kingdom City to Callaway, and tapping one of the Callaway-Bland circuits to provide for our future needs at Chamois. We have, however, proposed to make the split-savings calculations based on your proposed Plan II.

We also discussed our need to be able to terminate these interconnections, or at least the Facility Use Charges if these interconnections are no longer needed by Associated. As I told you, we may be in a position sometime in the future where we may be required for other system reasons to construct the facilities (or other similar facilities) that are being eliminated by these interconnections. This termination right that we have suggested is critical to Associated.

Please review the attached draft, and let me have your comments as soon as possible. As I also told you, the contract has been awarded for construction of the Thomas Hill-Kingdom City line, and the construction contract for the Kingdom City Substation must be awarded soon.

Sincerely,

James E. McNabb
Manager, Engineering and Operations

jm
Enclosures

RECEIVED
APR 2 8 1980
COOP. PLANNING

DRAFT
April 22, 1980

Mr. Larry Esswein
Union Electric Company
P.O. Box 149
St. Louis, Missouri 63166

Dear Mr. Esswein:

This Letter, when signed by both Unicn Electric Company (UE) and Associated Electric Cooperative, Inc. (AEC), hereinafter referred to collectively as "Parties" and singularly as "Party", will serve as the basis for establishing three new 345 Kv Interconnections pursuant to the UE-AEC Interchange Agreement dated June 28, 1978.

1.) Background. On January 1, 1982, AEC will require the addition of 345 Kv outlet transmission at its Thomas Hill Plant due to the addition of Thomas Hill Unit No. 3. In addition, for local voltage support and reliability, AEC requires 345 Kv transmission support for its new Kingdom City Substation in 1982. AEC also anticipates need for 345 kv transmission support at its existing Chamois Substation in about 1985. The above described 345 Kv transmission needs of AEC have been jointly studied by the Parties and plans have been agreed upon by the Parties as being viable alternatives for meeting AEC's needs. Plan I shown in Exhibit III of this Letter, is based on AEC's satisfying its transmission needs independent

of UE's electrical system. Plan II, shown in Exhibit IV of this Letter, would be based on AEC establishing two new Interconnections with UE. These two new interconnections are hereinafter referred to as the "Kingdom City Interconnection" and the "Callaway-Chamois Interconnection", the first being located near AEC's Kingdom City Substation and the latter being located near AEC's Chamois Substation. Plan III, shown in Exhibit V of this Letter, is based on AEC and UE establishing new 345 Kv interconnections known as the "Kingdom City Interconnection", the "Callaway Interconnection", and the "Chamois Interconnection". The first being located at AEC's Kingdom City Substation, the second being at Callaway on a line extending from Kingdom City, and the latter being at Chamois on the Callaway-Bland 345 Kv circuit. UE believes that Plan II provides an adequate solution to the transmission problems in the area. AEC believes that Plan III, by providing more operating flexibility and better performance during certain outage conditions is a better long-range solution, although more construction is involved. The compromise agreed to by AEC and UE is to proceed on the basis of Plan III. The split-savings calculation, however, will be based on the estimated cost of Plan II.

These Interconnections will be established pursuant to the terms and conditions set forth in the UE-AEC Interchange Agreement dated June 28, 1978.

2.) Facilities to be provided by UE.

2.1 UE will own, operate, and maintain all necessary relaying additions and modifications at its 345 Kv Overton and Montgomery Substations required to establish the Kingdom City Interconnection.

2.2 UE will own, operate and maintain a 345 Kv breaker position at its Callaway Substation for termination of the 345 Kv Callaway-Kingdom City transmission line.

2.3 UE will own, operate, and maintain the interchange metering and area load control facilities located at its Callaway Substation for the Callaway Interconnection.

2.4 UE will own, operate, and maintain the line tapping structure in its 345 Kv Overton-Montgomery transmission line for connection to AEC's line tap from its Kingdom City Substation.

2.5 UE will own, operate, and maintain the line tapping structure on its Callaway-Bland transmission line for connection to AEC's Chamois Substation.

3.) Facilities to be Provided by AEC.

3.1 AEC will own, operate, and maintain a 345 Kv breaker position at its Thomas Hill Substation

Schedule 1-4

for termination of its 345 Kv Thomas Hill-Kingdom City transmission line.

3.2 AEC will own, operate and maintain a 345 kv single circuit transmission line from its Thomas Hill Substation to its 345 Kv Kingdom City Substation.

3.3 AEC will own, operate, and maintain all facilities at its 345 Kv Kingdom City Substation located in the vicinity of UE's 345 Kv Montgomery-Overton transmission line near Kingdom City, Missouri. Said facilities shall be in accordance with Exhibit V of this Letter, and shall include interchange metering and area load control facilities for the Kingdom City Interconnection, and the 345 Kv line tap to UE's line tapping structure in its 345 Kv Overton-Montgomery transmission line.

3.4 AEC will own, operate, and maintain the 345 Kv single-circuit Callaway-Kingdom City transmission line extending from its Kingdom City Substation to Union's Callaway Switchward.

3.5 AEC will own, operate, and maintain a 345 Kv substation at Chamois and the line tap to the Bland-Callaway 345 Kv line. Said facilities shall be in accordance with Exhibit VII of this Letter.

4.) <u>In-Service Dates.</u>

4.1 AEC's 345 Kv Thomas Hill-Kingdom City transmission line and Kingdom City Substation will

be placed in service by January 1, 1982.

4.2 The Callaway Interconnection and the Chamois Interconnection will be placed in service simultaneously when required by AEC in its sole judgment to be necessary to meet its future transmission requirement. It is estimated at this time to be required in about 1985.

5.) Facility Use Charge.

5.1 In consideration of the capital savings realized by AEC, as discussed in Section 1 of this Letter, AEC will pay to UE a monthly Facility Use Charge based on the calculations set forth in Exhibits I and II of this Letter. Exhibit I pertains to "Period I", which begins January 1, 1982, and ends on the last day of the month in which the Callaway and Chamois Interconnections are in service. Exhibit II pertains to "Period II", which begins the day after Period I ends and continues thereafter.

5.2 The monthly Facility Use Charge calculated in Exhibit I shall be due and payable on the fifteenth day of each calendar month of Period I, defined in Section 5.1 of this Letter. The monthly Facility Use Charge calculated in Exhibit II shall be due and payable on the fifteenth day of each calendar month of Period II, defined in Section 5.1 of this Letter.

5.3 The calculations for the monthly Facility Use Charge for Period I and Period II, set forth in Exhibits I and II, respectively, are based on a split-the-savings approach which estimates the capital savings realized by AEC from interconnecting with the UE electrical system pursuant to Plan II shown in Exhibit IV of this Letter. The calculations also include a facility use charge for the additional facilities described in Sections 2.1, 2.4, and 2.5 of this Letter, which are provided by UE for the benefit of AEC. The calculations set forth in Exhibits I and II are based on estimated costs agreed upon by the Parties.

6.) Termination. Payment of the monthly Facility Use Charge, as described in Section 5.2 of this Letter, will continue until:

(1) the expiration of a thirty-year period beginning January 1, 1982; or

(2) such time that AEC places in service certain future, and presently undefined facilities, which the Parties agree to as being adequate compensation to UE in lieu of said monthly Facility Use Charge payments; or

(3) AEC in its sole judgment determines that the Kingdom City, Callaway and Chamois Interconnections are of no further value or benefit to it. In this event, AEC may discontinue payments as described in

Section 5.2, and will cause the interconnections to be opened. AEC will pay UE a lump sum payment for the unamortized investment made by UE in providing facilities in Sections 2.1, 2.4, and 2.5.

If you are in agreement with this Letter, please sign below, and return one copy to me.

Very truly yours,

Gerald F. Diddle
General Manager

AGREED:

UNION ELECTRIC COMPANY

By _____

Title _____

Date _____

EXHIBIT I

CALCULATION OF MONTHLY FACILITY USE CHARGE - PERIOD I

I. Description of Alternative Plans. Under Plan I, shown in Exhibit III, AEC would construct a single circuit 345 Kv transmission line from its Thomas Hill Substation to its Franks Substation. This line would be placed in service by January 1, 1982, to provide additional outlet capacity for AEC's Thomas Hill Plant. This line would also supply AEC's Chamois Substation. Under Plan II, shown in Exhibit IV, AEC would construct a single circuit 345 Kv transmission line from its Thomas Hill Substation to its Kingdom City Substation, which would be placed in service by January 1, 1982, and interconnected with UE's 345 Kv Overton-Montgomery transmission line as shown in Exhibit V. Plan II also provides for the construction of a 345 Kv Callaway-Chamois transmission line, which is not included in the Period I calculation.

II. Savings Calculation.

	Plan I Cost	Plan II Cost	$125/mi $82
Thomas Hill-Kingdom City 345 Kv Line	$ 7,500,000	$ 7,500,000	$136K/mi
Kingdom City-Franks 345 Kv Line	$10,380,000	$ 0	$136K/mi $180K/R-xing
Franks 345 Kv Terminal	$ 800,000	$ 0	
Kingdom City Substation	$ 2,000,000	$ 2,450,000	
Kingdom Tap-Kingdom City 345 Kv Line	$ 0	$ 685,000	5 mi x $136K/mi
Total	$20,680,000	$10,635,000	
Reduction Investment with Plan II	$10,045,000		

III. Monthly Facility Use Charge for Period I.

A. Annual charge on 1/2 of the Net Savings from Item II above, based on AEC's annual carrying cost rate of 11.3%:

1/2 x $10,045,000 x 11.3% = $567,543 per year

B. Annual charge for UE's facilities described in Sections 2.1, 2.4, and 2.5 of this Agreement, based on UE's annual carrying cost rate of 18%:

_____ x 18% = _____ per year

C. Annual Facility Use Charge (A+B) = _____ + _____ = per year.

D. Monthly Facility Use Charge = _____ ÷ 12 = _____ per month.

EXHIBIT II

CALCULATION OF MONTHLY FACILITY USE CHARGE - PERIOD II

I. Description of Alternative Plans. The alternative plans for the Period II calculation are the same as described in Exhibit I of this Agreement, however, the 345 Kv Callaway-Chamois transmission line, which was not included in the Period I calculation, has been included in the Period II calculation.

II. Savings Calculation.

	Plan I Cost	Plan II Cost
Thomas Hill-Kingdom City 345 Kv Line	$ 7,500,000	$ 7,500,000
Kingdom City-Franks 345 Kv Line	$10,380,000	$ 0
Franks 345 Kv Terminal	$ 800,000	$ 0
Callaway-Chamois 345 Kv Line	$ 0	$ 1,300,000
Chamois Substation	$ 2,500,000	$ 3,000,000
Kingdom Tap-Kingdom City 345 Kv Line	$ 0	$ 685,000
Kingdom City Substation	$ 2,000,000	$ 2,450,000
Total	$23,180,000	$14,935,000
Reduction in Investment with Plan II	$ 8,245,000	

III. Monthly Facility Use Charge for Period II.

A. Annual charge on 1/2 of the Net Savings from Item II above, based on AEC's annual carrying cost rate of 11.3%:

1/2 x $8,245,000 x 11.3% = $465,843 per year

B. Annual charge on UE's facilities described in Sections 2.1, 2.3, and 2.5 of this Agreement, based on UE's annual carrying cost rate of 18%:

_____ x 18% = _____ per year

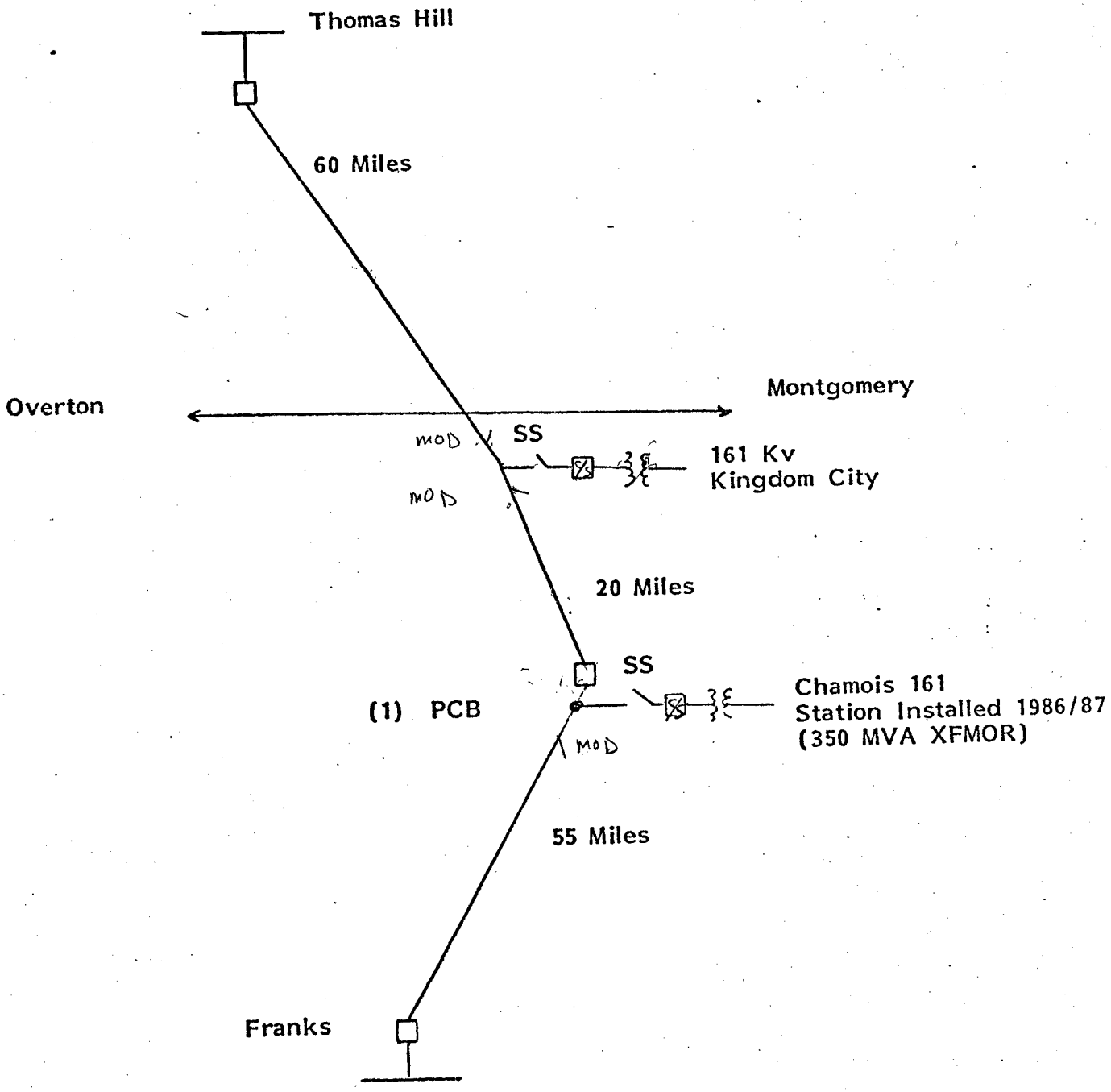
C. Annual Facility Use Charge (A+B) = _____ + _____ = _____ per year.

D. Monthly Facility Use Charge = _____ ÷ 12 = _____ per month.

EXHIBIT III

Plan I

No UE Ties
345 Kv Only Shown



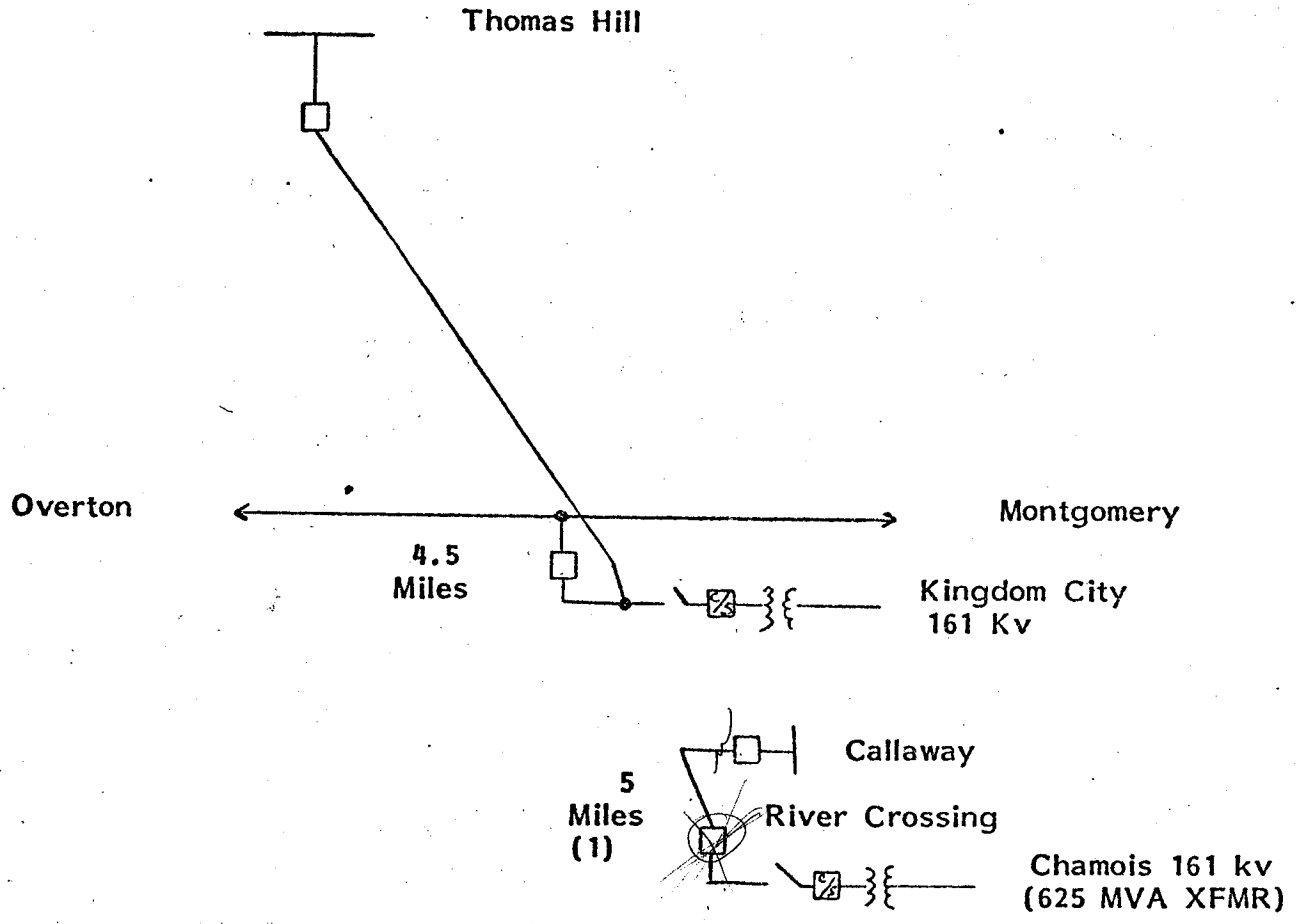
(1) 345 Kv Power Circuit Breaker Installed with 345/161 Kv Chamois Station - 86/87

Circuit Switcher Symbol

Exhibit IV

Plan II

With UE Ties at Kingdom City and Callaway

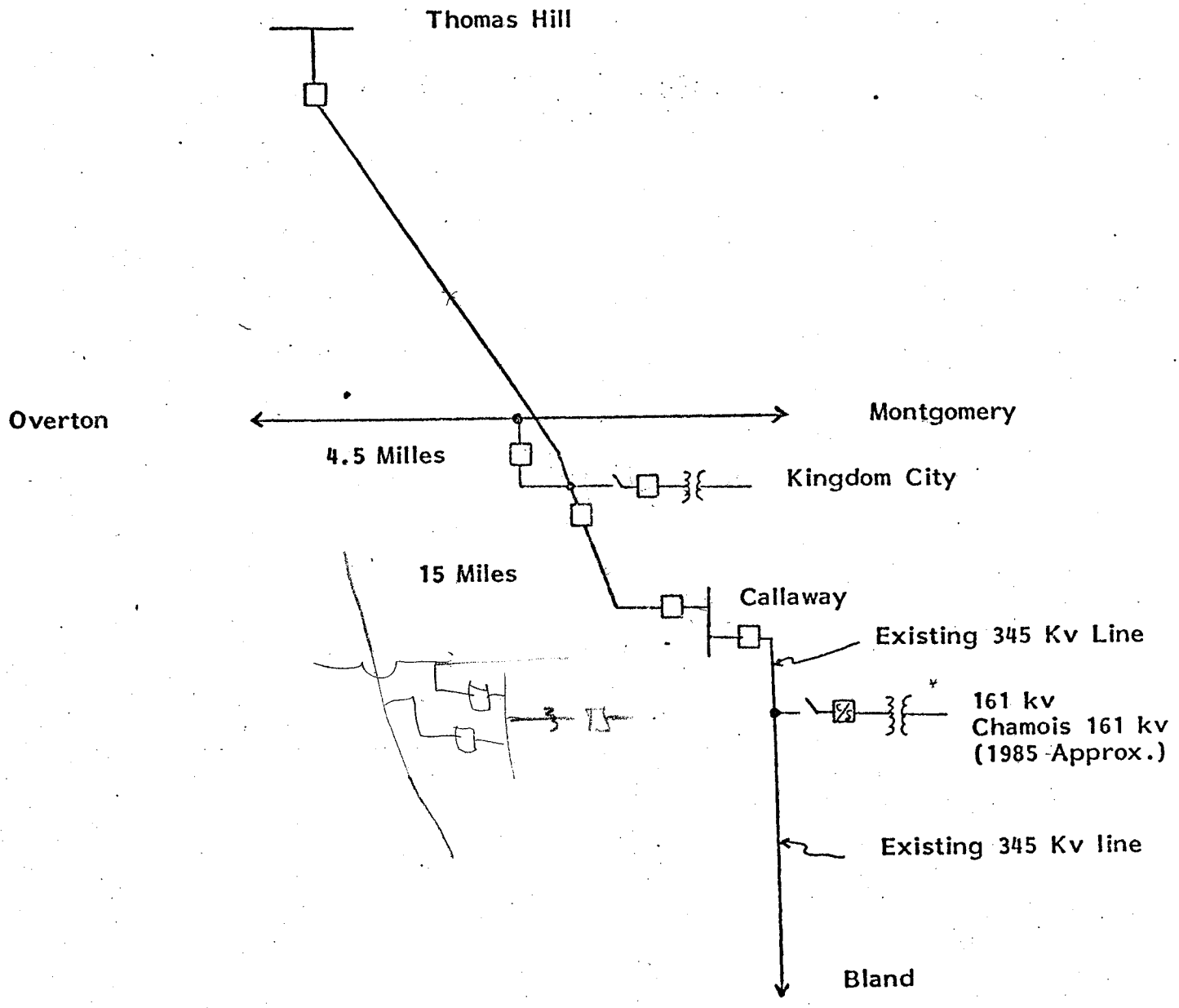


(1) These facilities to be installed in 1985

Exhibit V

Plan III

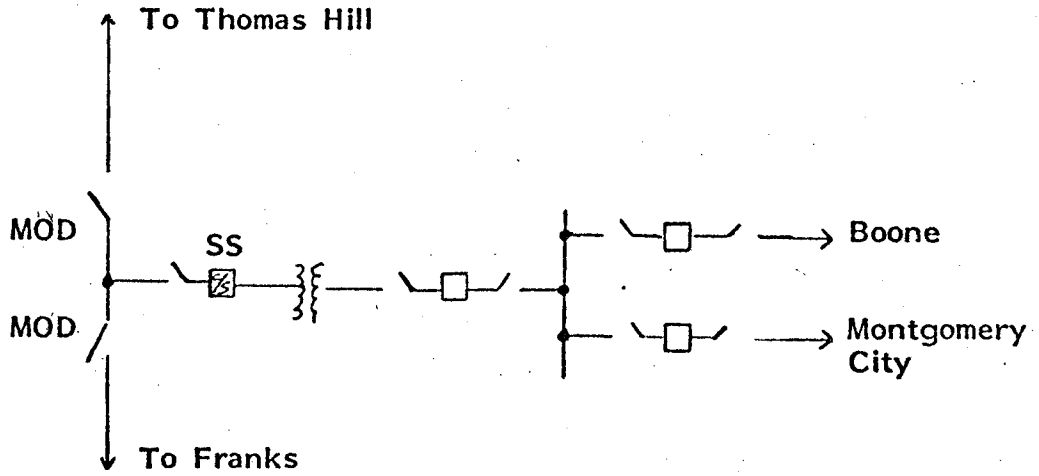
Alternate Plan with UE Ties at Kingdom City, Callaway and Chamois



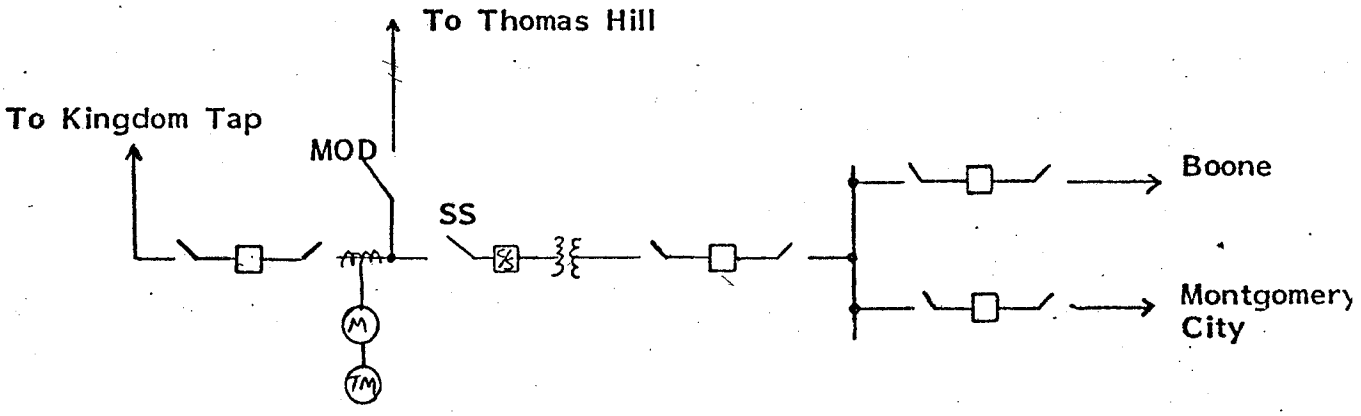
* Min 392 MVA x-form

Exhibit VI
345 Kv Kingdom City Substation
One-Line Diagram

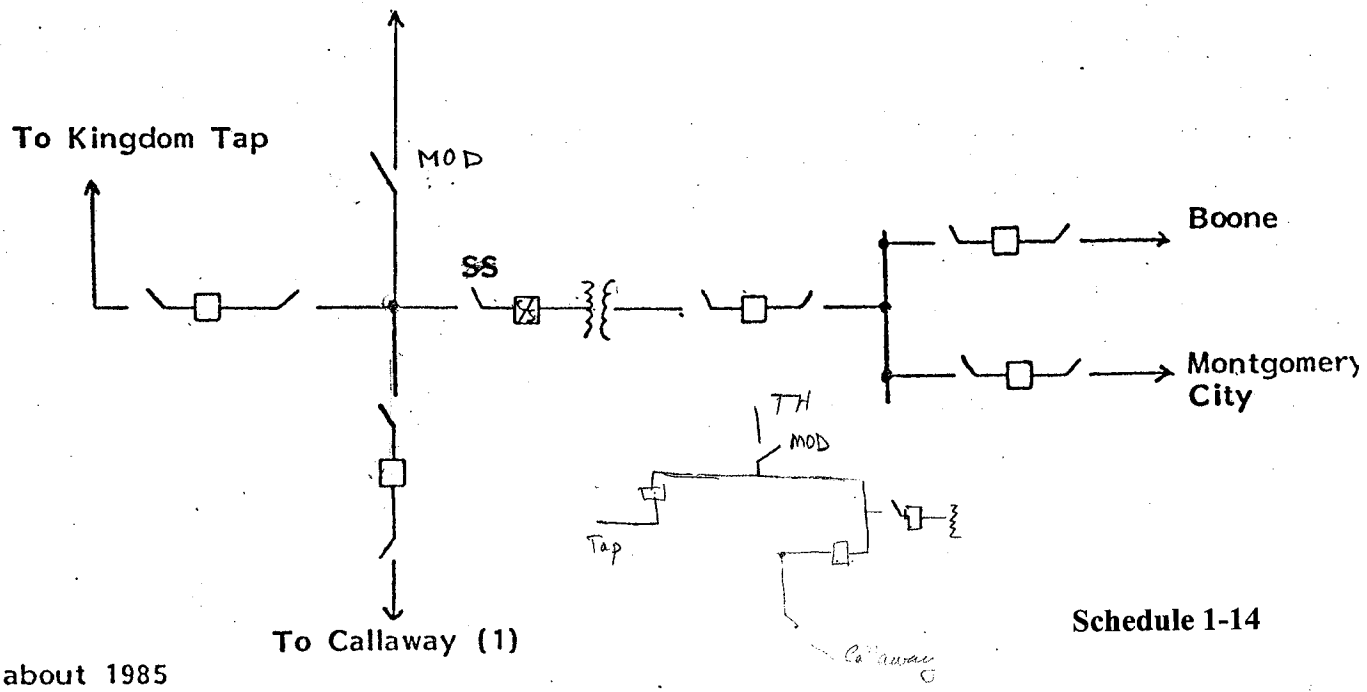
Plan I



Plan II



Plan III



(1) Installed about 1985

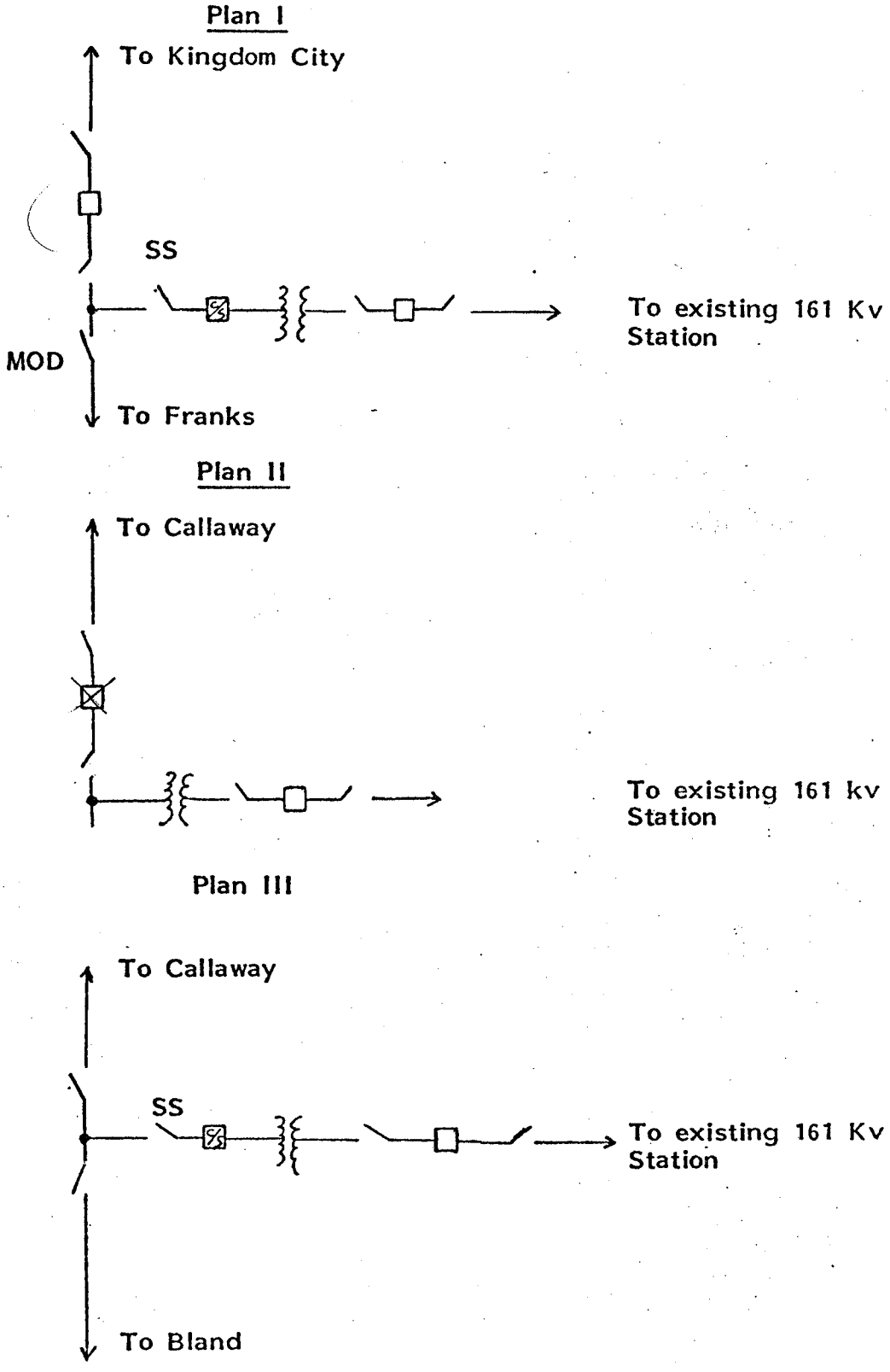
Schedule 1-14

Exhibit VII

Chamois 345/161 Kv Substation

One-Line Diagram

(To be installed about 1985)



LINE FRANKS - KINGDOM CITY No. 94

TRANSMISSION LINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, whether one or more,

Ronald H. Baker or Patience H. Baker

(husband and wife) (unmarried), hereinafter called "Grantor", does hereby grant, bargain, sell and convey to ASSOCIATED ELECTRIC COOPERATIVE, INC., a corporation organized under the laws of the State of Missouri, whose principal office is 2814 South Golden, Springfield, Missouri 65801, hereinafter called "Cooperative", and to its successors, licensees or assigns, the perpetual easement, right, privilege and authority to enter upon lands of the Grantor situated in the County of Osage State of Missouri, to-wit:

All of the East one half (1/2) of the Southeast Quarter of Section Fourteen (14) Township Forty three (43) Range Nine (9) West and the Southwest Quarter of the Southwest Quarter of Section Thirteen (13) Township Forty three (43) Range Nine (9) West (except a strip 20 feet wide off of the East side of the last described tract, containing 120 acres more or less.

Also, all of the West half of the Northwest Quarter of Section Thirteen (13), Township Forty three (43), Range Nine (9) West, and the Southeast Quarter of the Northeast Quarter of Section Fourteen (14), Township Forty three (43), Range Nine (9) West, containing in all 120 acres, more or less.

Except the following: Beginning at the Southeast corner of Section 14, Township 43 North, Range 9 West, thence South 86° 00' West 568.0 feet to the place of beginning of the lot to be conveyed on the North side of the County Road; Thence North 5° 00' West 410 feet to a point on the East side of the aforesaid road; thence at 95° 27' angle North 81° 30' East 320 feet to a point; thence at 84° 32' angle South 5° 00' East 410 feet to a point; thence at an 95° 27' angle South 81° 30' West 320 feet to the place of beginning containing approximately 3 acres more or less and more particularly described in plat attached hereto and made a part of this deed.

Also except a part of the Southeast Quarter of the Northeast Quarter of Section 14, Township 43, Range 9 West described as follows: Starting at the Northwest corner of the Northeast Quarter of the Northeast Quarter, Section Township and Range aforesaid. Thence South 6° 59' East 1330 feet, to the Northwest corner of the said Southeast Quarter of the Northeast Quarter and the place of beginning of the land herein conveyed, thence North 76° East 1270.9 feet, thence South 5° 32' East 768.7 feet, thence South 7° 39' East 479.6 feet, thence South 35° 28' West 307.1 feet, thence South 29° 2' West 135.9 feet, thence North 71° 59' West 1103.5 feet, thence North 6° 59' West 960.0 feet to the place of beginning. Also except a parcel of land in Section 13 and Section 14, Township 43 North, Range 9 West, described as follows: Starting at the Southeast corner of the Southeast Quarter of the Northeast Quarter of Section 14, Township 43 North, Range 9 West, 5 P.M., thence South 77° 54' West, 133.0' to the point of beginning- The point of beginning a 1 1/4" iron pipe (from which bears a 20" Elm - North 57° 30' East - 154.0', a 36" B.O. - North 87° 00' East - 130.0', a 8" B.O. - South 46° 30' East - 46.0'; thence North 77° 54' East, 472.9' to a 1 1/4" iron pipe from which a 15" B.O. - South 77° 54' West - 15.0'; thence North 3° 30' West, 759.3' to a 1 1/4" iron pipe; thence South 84° 33' West, 360.0' to a 1 1/4"iron pipe located on the road R/W line; thence South 3° 30' East, 204.0'to a point on the R/W line; thence South 5° 37' East, 348.3' to a point on the R/W line; thence following the R/W curve to the point of beginning--containing 6.66 acres; containing 193 acres more or less.

Subject, however to all easements and Right of ways heretofore granted.

Schedule 2