

ILLINOIS COMMERCE COMMISSION

DOCKET NO. 07-_____

DIRECT TESTIMONY

OF

JAMES N. CHAPMAN II

SUBMITTED ON BEHALF

OF

CENTRAL ILLINOIS PUBLIC SERVICE COMPANY d/b/a AmerenCIPS

OCTOBER 2007

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I. INTRODUCTION AND WITNESS QUALIFICATIONS

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Q1. Mr. Chapman, will you please state your name, address, and position with Ameren Services Company (Ameren Services)?

A. My name is James Neal Chapman II. My business address is 1901 Chouteau Avenue, St. Louis, Missouri. I am a Career Engineer in the Transmission Line Design Group for the Ameren Services Company (“Ameren Services”). Ameren Services provides various services to Central Illinois Public Service Company d/b/a/ AmerenCIPS (“AmerenCIPS” or “Petitioner”) and to other Ameren Corporation (“Ameren”) affiliates. Ameren Services, on behalf of AmerenCIPS, will be designing two new lines to supply WRB Refining, LLC’s (“WRB”) Wood River Refinery.

Q2. How long have you been so employed?

A. I have been employed for eight years with Ameren Services.

Q3. Will you state briefly your training and experience for the position you now hold?

A. I have a Bachelor degree in Electrical Engineering from the University of Missouri-Rolla in Rolla, Missouri. I have also attended numerous industry-related seminars and professional development courses. I have eight total years of utility engineering experience in the areas of transmission line design and project management. I am a member of the IEEE – Power Engineering Society, serving on the Towers, Poles and Conductors Sub-committee, under the Transmission and Distribution Committee. I have

20 also served as a technical advisor on several projects undertaken by the NEETRAC
21 testing laboratory in Atlanta, Georgia.

22 **Q4. Are you a registered professional engineer?**

23 A. Yes, I am a registered professional engineer in the State of Missouri. My license number
24 is 2005000962. This information may be verified by contacting the following office:
25 Board for Architects, Professional Engineers, Professional Land Surveyors and
26 Landscape Architects, 3605 Missouri Boulevard, Suite 380, Jefferson City, Missouri,
27 65102-0184.

28 **II. PURPOSE AND SCOPE**

29 **Q5. What is your understanding of the purpose of this Petition filed by Petitioner in this**
30 **proceeding?**

31 A. The purpose of the Petition is to obtain a Certificate of Public Convenience and Necessity
32 authorizing AmerenCIPS to construct, operate and maintain new 138,000 volt electric
33 lines, which will provide service to WRB's Wood River Refinery.

34 **Q6. What is the purpose of your testimony?**

35 A. The purpose of my testimony is to support the Petition for a Certificate of Public
36 Convenience and Necessity, by providing information regarding the design and
37 construction of the proposed 138 kilovolt ("kV"), three phase, multigrounded, lines
38 connecting the existing Illinois Power Company d/b/a AmerenIP ("AmerenIP") Wood
39 River-Roxford L1502 and AmerenCIPS Roxford-BOC lines to two new adjacent
40 substations at the Wood River Refinery, which will be constructed by WRB in Madison
41 County in Illinois. These substations are proposed to be named the COP Substation 1 &
42 2.

43 **Q7. In addition to your testimony in AmerenCIPS Exhibit 3.0, are you sponsoring any**
44 **other exhibits?**

45 A. Yes. In addition to AmerenCIPS Exhibit 3.0, I am sponsoring AmerenCIPS Exhibits 3.1,
46 3.1A – 3.1F, 3.2, 3.3, 3.4., 3.5, 3.6, and 3.7.

47 **Q8. Will you explain AmerenCIPS Exhibit 3.1?**

48 A. This is a drawing depicting the two primary routes for the COP Sub Tap - 1 & 2 138 kV
49 Lines and four alternate routes. The north route will be named the COP Sub Tap - 2
50 (“Line 2”) and the south route will be named the COP Sub Tap - 1 (“Line 1”). The Line
51 2 primary route is marked in purple, with the first Line 2 alternate route marked in blue,
52 and the second Line 2 alternate marked in yellow. The Line 1 primary route is marked in
53 orange, the first Line 1 alternate route is marked in green, and the second Line 1 alternate
54 is marked in red. Also attached hereto are legal descriptions of the primary and alternate
55 routes. The legal description for the Line 2 primary route is marked AmerenCIPS
56 Exhibit 3.1A, the legal description for the Line 1 primary route is marked AmerenCIPS
57 Exhibit 3.1D, the legal description for the first Line 2 alternate route is marked
58 AmerenCIPS Exhibit 3.1B, the legal description for the second Line 2 alternate route is
59 marked AmerenCIPS Exhibit 3.1C, the legal description for the first Line 1 alternate
60 route is marked AmerenCIPS Exhibit 3.1E, and the legal description for the second Line
61 1 alternate route is marked AmerenCIPS Exhibit 3.1F.

62 **Q9. Will the primary and alternate routes identified be in close proximity to any foreign**
63 **company facilities?**

64 A. Yes. Attached hereto as AmerenCIPS Exhibit 3.2 is an AmerenCIPS drawing depicting
65 the Ameren and foreign company facilities which are involved with or are located in

66 close proximity to the primary proposed COP Sub Tap – 1 & 2 138 kV line routes. As
67 indicated by the legend on the right side of the drawing, the proposed and existing
68 Ameren facilities have been identified by an encircled letter. The legend also includes an
69 index of foreign facilities, which are identified by an encircled number. Railroads are
70 designated by a number inside a square.

71 **III. DESIGN CONSIDERATIONS**

72 **Q10. Please describe the various transmission facilities to be constructed.**

73 A. The proposed COP Sub Tap – 1 and 2 138 kV lines are approximately four miles in
74 length. The typical structure installed to support the line will be a single-shaft steel pole.
75 The typical pole heights will be 70-110 feet above ground. The average span length will
76 be approximately 600 feet with the maximum span being approximately 900 feet. Some
77 specially designed steel poles may be required for unusual topographic features such as
78 detention pond crossings or crossings of overhead distribution lines and/or overhead
79 pipeline racks. Each phase conductor will be 795 KCM Drake ACSS (WRB is
80 considering funding to install a larger conductor size, that would eliminate the need to re-
81 conductor the newly constructed lines in the event that an additional plant expansion
82 would be funded.) The estimated cost to re-conductor the lines in the future would be on
83 the order of magnitude of \$1 million per mile, the approximate cost of increasing the
84 conductor size during the initial construction is estimated to be \$350,000. This Project is
85 being fully financed by WRB. The shield wire will be either 7#8 AW or equivalent fiber
86 optic ground wire. Fiber optic shield wire may be required for substation communication
87 purposes. The insulators on tangent structures will be polymer horizontal line posts with
88 polymer suspension braces when necessary for strength. The insulators on dead-end

89 structures will be porcelain bells. The proposed structures will be designed with concrete
90 foundations, thus eliminating guy wires and anchors. Concrete foundations will typically
91 be four to seven feet in diameter and project out of the ground approximately three feet.

92 **Q11. Were any alternate routes considered in the design of the proposed line?**

93 A. Yes. I will explain the basis for selecting the primary preferred routes.

94 **Q12. What are the advantages that support the selection of the proposed primary route
95 for the proposed Line 1?**

96 A. The advantages of the proposed primary Line 1 route are: it parallels existing utilities in
97 less congested areas, which will allow greater flexibility in placement of structures thus
98 reducing construction cost; the majority of this route is on WRB's property; it impacts a
99 fewer number of property owners than the second alternate; and it is the least cost route.
100 These advantages substantially outweigh the disadvantages of the primary route, which
101 include: it has the largest number of major angle points; and it impacts more cropland
102 than the first alternative route. Because of the significant disadvantages of the two
103 alternate routes, the primary route was selected as preferred. Moreover, the primary route
104 was designed with the input and concerns from local government, state and federal
105 environmental agencies.

106 **Q13. Describe the disadvantages of the first alternate Line 1 route that led to its rejection
107 as a primary route.**

108 A. The disadvantages of the first alternate route are: it parallels underground gas
109 transmission lines in congested areas for a large portion of the route, which will slow
110 construction and add expense by requiring soft digging or daylighting of underground
111 utilities while building foundations to ensure that proper clearances are provided;

112 paralleling existing pipelines could also require additional studies to look at induction
113 issues; and it may require the relocation or overbuilding an existing 34 kV distribution
114 line. These disadvantages create significant engineering concerns that outweigh the
115 advantages of the first alternate Line 1 route, which are that it is the shortest route; it has
116 the fewest number of major angle points; and it is the furthest away from occupied
117 structures for most of the route.

118 **Q14. Describe the disadvantages of the second alternate Line 1 route that led to its**
119 **rejection as a primary route.**

120 A. The disadvantages of the second alternate route are: it is the longest route; it affects the
121 greatest number of occupied structures; and it received the most opposition at the public
122 workshop. The nature of the public opposition came in the form of the route's proximity
123 to occupied structures. These disadvantages outweigh the only advantage of the second
124 alternate Line 1 route, which is that it follows road rights-of-way for most of the route.

125 **Q15. What are the advantages that support selection of the proposed primary route for**
126 **Line 2?**

127 A. The advantages of the proposed primary Line 2 route are that it is mostly on WRB's
128 property or on adjacent landowners' property that WRB has close business relationships
129 with, giving the greatest possibility of successfully obtaining easements in a timely
130 manner; a landowner on the alternate routes has expressed some concern or reluctance to
131 work towards finding a mutually agreeable route across their property; and it is the route
132 that is preferred by WRB. These advantages outweigh the disadvantages of the proposed
133 primary route, which include: it is inside refinery property, which could slow
134 construction by requiring a large number of guard structures to protect existing facilities;

135 and it is a more costly route than the first alternate (although I note this Project is being
136 financed entirely by WRB). Because of landowner reluctance toward the alternate routes
137 and the better likelihood of obtaining easements on the proposed primary route, as well as
138 the other advantages, the primary route was selected as preferred. Moreover, the primary
139 route was designed with the input and concerns from local government, state and federal
140 environmental agencies.

141 **Q16. Describe the disadvantages of the first alternate Line 2 route that led to its rejection**
142 **as a primary route.**

143 A. The disadvantages of the first alternate route are: it crosses over an underground
144 propane storage tank which could limit foundation depths and complicate the design; it is
145 near several large above-grade storage tanks which could increase construction costs by
146 requiring a contractor to provide additional protection to existing facilities; and the
147 landowner has been reluctant to provide clearance guidelines or work towards finding a
148 mutually agreeable route across their property. As discussed above, these disadvantages
149 outweigh the advantages of the first alternate Line 2 route, which are that it is the shortest
150 route and it is the least cost route.

151 **Q17. Describe the disadvantages of the second alternate Line 2 route that led to its**
152 **rejection as a primary route**

153 A. Disadvantages of the second alternate route are: it is longer than the first alternate; and
154 the landowner has expressed strong opposition to this route. These disadvantages
155 outweigh the only advantage of the second alternate Line 2 route: that it avoids the
156 underground and above-grade propane storage tanks.

157

158 **Q18. The Petition indicates that AmerenCIPS evaluated routing the proposed lines along**
159 **existing corridors, but you state it is a disadvantage that the first alternate Line 1**
160 **route parallels underground gas transmission lines. Can you explain?**

161 A. Yes, AmerenCIPS believes that routing lines along existing utility corridors is a good
162 land use practice that has been supported by outside agencies. In this case, however, due
163 to the congested nature of the pipelines, it is viewed as a disadvantage because of the
164 additional cost associated with construction and maintenance

165 **Q19. Has a document been prepared that provides basic route information for all of the**
166 **proposed routes?**

167 A. Yes, attached hereto as AmerenCIPS Exhibit 3.3 is a set of data sheets which provides
168 basic information on the primary and alternate routes for the proposed lines.

169 **Q20. Will there be any above-ground fixtures located on agricultural land other than**
170 **support structures, conductor, guys and anchors?**

171 A. No.

172 **Q21. Will Petitioner place any guy wires and anchors along the right-of-way lines or land**
173 **division lines where possible?**

174 A. No. All proposed new angle structures will be self-supporting steel poles with concrete
175 foundations and no guy wires.

176 **Q22. When the electric line parallels road right-of-way, but is to be placed on private**
177 **land, how far from the edge of the right-of-way will the centerline of the support**
178 **structures be placed?**

179 A. The centerline of the tangent structures will typically be placed three to five feet from the
180 edge of the road right-of-way. This is typical practice in the industry for 138 kV roadside

181 construction. There will be exceptions when the highway alignment shifts or when
182 existing utilities or facilities interfere with such placement. The attached AmerenCIPS
183 Exhibits 3.4, 3.5, 3.6, and 3.7 depict the typical structure configurations that are currently
184 expected to be used on the Project.

185 **Q23. Does this conclude your testimony?**

186 A. Yes it does.

187