**ILLINOIS COMMERCE COMMISSION**

**DOCKET NO. 07-_____**

# DIRECT TESTIMONY

**OF**

**GARY T. BROWNFIELD**

**SUBMITTED ON BEHALF OF**

**CENTRAL ILLINOIS PUBLIC SERVICE d/b/a AmerenCIPS**

**OCTOBER 2007**

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**PREPARED DIRECT TESTIMONY OF GARY T. BROWNFIELD**

## I. Introduction and Witness Qualifications

**Q1. Please state your name, business address and present position.**

A. Gary T. Brownfield, One Ameren Plaza, St. Louis, Missouri 63166. I am employed by Ameren Services Company ("Ameren Services"). My current title is Supervising Engineer – Transmission Planning in the Electric Planning Department. Ameren Services is the service company that provides among other services, engineering support for the Ameren Corporation ("Ameren") operating utilities, including Central Illinois Public Service Company d/b/a AmerenCIPS ("AmerenCIPS" or the "Petitioner").

**Q2. Please summarize your educational background and professional experience.**

A. I received Bachelor and Master of Science Degrees in Electrical Engineering from the University of Missouri (Columbia campus) in May and December of 1974, respectively. I joined Union Electric Company in 1974 as an engineer in the System Planning Department. From 1974 to 1993 I had various engineering assignments in the Planning Department, performing studies related to: designing supplies to major customers, performance and reliable expansion of the transmission and distribution system, interregional transmission studies, major power system disturbances, and system reactive supply. In 1993, I became a Supervising Engineer in the Transmission Planning Department. From 1993

through March 2007, I supervised the work of distribution system planning engineers involved in studies related to: designing supplies to major customers, performance and reliable expansion of the distribution system, major power system disturbances, and system reactive supply. In April 2007, I was transferred to supervise the Transmission Planning group.

**Q3. What are your duties and responsibilities in your present position?**

A. My primary responsibility is to oversee transmission system planning activities for Ameren, including directing, reviewing and performing studies related to major customer load additions, generation interconnection studies, and studies to develop long-range system plans. This responsibility encompasses transmission facilities owned by AmerenCILCO, AmerenCIPS, AmerenIP, and AmerenUE.

## II. Purpose and Scope

**Q4. Are you familiar with the Project proposed in the Petition filed by AmerenCIPS in this proceeding?**

A. Yes. I was the Supervising Engineer for the Distribution System Planning group responsible for providing supply of electric power to the Wood River Refinery ("WRR") owned by WRB Refining, LLC ("WRB"), wholly owned by ConocoPhillips Corporation and EnCana Corporation. I participated in or supervised discussions and analyses regarding the expansion of the refinery and the options considered for providing electric service to the expanded WRB facilities. As the supervising engineer for the Transmission Planning group, I am familiar with the recommended plan to extend two new 138 kV supplies to this customer.

**Q5. What is the purpose of your testimony in support of this Petition?**

A. The purpose of my testimony is to review the present and future electric service needs for the WRR in Roxana, Illinois and how this Project will be funded. My testimony will cover four topics. First, I will discuss the design of AmerenCIPS' electric system. Second, I will review the existing facilities used to supply the WRR. Third, I will describe Petitioner's plan for two 138 kV supplies to the WRR. Fourth, I will conclude with a description of how this Project will be funded and why it will not cause any financial harm to AmerenCIPS.

**Q6. In addition to your testimony in AmerenCIPS Exhibit 1.0 are you sponsoring any other exhibits?**

A. Yes. In addition to AmerenCIPS Exhibit 1.0, I am submitting a one-line diagram showing the existing transmission and subtransmission lines as AmerenCIPS Exhibit 1.1, and a one-line diagram showing the proposed plan as AmerenCIPS Exhibit 1.2.

## III. System Description

**Q7. Please explain how AmerenCIPS' transmission and distribution system delivers electricity to customers.**

A. AmerenCIPS considers its electric system as being comprised of three functional levels for planning and operating purposes: 1) transmission (345 kV, 230 kV, 161 kV and 138 kV); 2) subtransmission (69 kV and 34.5 kV); and 3) distribution (12 kV and 4 kV). Each of these systems has unique design and operating characteristics. The transmission system is a network of higher voltage lines which is used to move electric energy from the generation sources to the

distribution systems and to move electric energy between utility systems. A limited number of very large customers are served directly from the transmission system. The subtransmission system includes both network and radial 69 kV and 34.5 kV lines. Bulk supply transformers supply electricity from the transmission system to the subtransmission system, which in turn delivers power at the intermediate voltage levels to distribution substations or directly to large customers. Distribution substation transformers step the subtransmission voltages down to the 12 kV and 4 kV distribution system voltages. The distribution system is predominantly configured as a radial system.

## IV. Supply System for ConocoPhillips: Existing and Proposed

**Q8. Do you have an exhibit showing the facilities which provide electric service to the existing WRR in Roxana, Illinois?**

A. Yes. AmerenCIPS Exhibit 1.1 is an electrical one-line drawing showing the electrical system which provides electrical supply to the WRR. The Roxford Substation has three 138-34.5 kV transformers. Seven 34.5 kV feeders from the Roxford Substation provide service to the WRR. Four of those feeders also serve other customers in the area.

**Q9. What is the present electrical demand at the WRR and how much is it going to increase?**

A. The present electrical demand of the refinery is about 150 MW. The electrical demand of the facility will increase by about 90 MW for a total of 240 MW. The major part of the 90 MW load increase is associated with the construction of a coker refining unit and its ancillary equipment. The coker unit will allow the

refinery to handle lower quality, more sour crude petroleum feedstock, specifically, Canadian tar sand derived bitumen that will be provided by its business partner Encana. The load will come on line in stages, commencing in late 2009 and reaching full capacity in 2012. ConocoPhillips and Encana have already formed WRB Refining LLC to undertake this $2 billion project and significant expenditures have already been made.

**Q10. Why is it necessary to build the new 138 kV lines?**

A. The existing Roxford 138-34.5 kV substation and the seven existing 34.5 kV feeders would not be able to provide electric service to the increased electrical load. While it would be technically possible to supply the additional load by adding another 138-34.5 kV transformer at Roxford Substation and extending more 34.5 kV lines to the WRR, this approach would be a higher cost option than the proposed Project. AmerenCIPS and the owners of the WRR have from time to time studied the possible conversion of the supply to 138 kV. The advent of the load addition justifies the migration to the higher voltage supply. Moreover, the use of 138 kV facilities to supply a load with an electrical demand of over 200 MW is consistent with good utility practice. Various alternatives to provide the 138 kV supplies were considered. The two supplies identified were selected as the least-cost approach.

**Q11. Please describe how the electrical supply to the WRR will change with the addition of the two new 138 kV lines.**

A. As shown on AmerenCIPS Exhibit 1.2, one 138 kV supply to the WRR will be provided by tapping the existing 1502 circuit and building a new 138 kV line

section to the WRR. A second supply to the WRR will be provided by an extension of the existing 138 kV line presently serving BOC Gases. The second supply is being provided at the request of WRB. After the new 138 kV supplies are fully functional, the existing seven 34.5 kV feeders from the Roxford Substation will be removed to the extent they are not needed to provide electric service to other customers in the area.

**Q12. Will the conversion of WRB service from 34.5 kV to 138 kV improve the reliability of the distribution system in the surrounding areas?**

A. Yes. The 34.5 kV feeders which presently provide service to the WRR also supply the distribution substations which provide electric service for the surrounding area. When the portions of these 34.5 kV circuits which feed into the refinery are removed, the overall length of the circuits will be reduced. This will improve the reliability in and for the surrounding areas of Hartford, Roxanna, and South Roxanna.

**Q13. Does WRB have a timetable by which the Project should be complete?**

A. Yes. The customer has asked for a completion date of September 1, 2009.

**Q14. What is the source of funding for this Project?**

A. This Project will be funded in its entirety by WRB. In accordance with the provisions of AmerenCIPS' delivery services tariffs, this project will be billed as contributions in aid of construction. The specific delivery service tariff involved is Electric Service Schedule Ill.C.C.No.16, STANDARDS AND QUALIFICATIONS FOR ELECTRIC SERVICE, Section 3. EXPANSION AND MODIFICATION OF ELECTRIC SYSTEM, Part D. System Relocations and

Modifications. While the 90 MW of new load creates an estimated $46,000 in annual delivery services revenue, the reduction in delivery service revenues associated with the change of the existing 150 MW of load from 34.5 kV service to 138 kV service is about $1.23 million, leaving negative net anticipated annual delivery service revenue for the Project as a whole. For this reason, no credit is given ConocoPhillips for delivery service revenues toward the Project cost. AmerenCIPS will bill in advance of construction for all projected costs plus an additional amount to account for the taxable nature of such payments. WRB is obligated to make progress payments as work proceeds.

**Q15. Is this Project different than other projects (like Prairie State) that involve upgrades to high voltage equipment?**

A. Yes. This Project provides distribution service, not transmission service. WRB will be served as a radial distribution customer at 138 kV. None of these upgrades serve other customers or add to transmission capability for the benefit of any other customers or any other connected load. As a distribution customer, AmerenCIPS is not obligated in any way to repay or refund WRB for the work that is being done. This Project is for the sole benefit of WRB.

**Q16. Will this Project produce any financial burden on AmerenCIPS?**

A. No. This Project is 100% funded by WRB and all payments will include tax gross-ups. There is no need to provide any construction financing. WRB will provide progress payments before the next stage of construction begins. At no point in time will there be any financial burden on AmerenCIPS.

**Q17. What is the cost estimate for the project?**

A. The estimated cost for the project is $14.3 million, including tax gross up, and, prior to tax gross up, is $10.9 million. The cost of the removal of unused sections of 34.5 kV lines has not been estimated in detail, but a preliminary review indicates it will be approximately $0.5 million.

**Q18. Does this conclude your prepared direct testimony?**

A. Yes, it does.