

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI

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In the matter of the application ) CASE NO. EA-87-159  
of Union Electric Company. ) CASE NO. EA-88-124

COMMISSION COUNSEL  
PUBLIC SERVICE COMMISSION

APPEARANCES: Paul A. Agathen, General Attorney and David C. Linton,  
Attorney at Law, P. O. Box 149, 1901 Chouteau Avenue,  
St. Louis, Missouri 63166, for Union Electric Company.

Roderic A. Widger, Attorney at Law, Stockard, Andereck,  
Hauck, Sharp & Evans, P. O. Box 1280, Jefferson City,  
Missouri 65102-1280, for Boone Electric Service Company,  
Howard Electric Service Company, North Electric Service Co.,  
Platte-Clay Electric Cooperative and Ralls Electric Service  
Company.

Lewis R. Mills, Jr., First Assistant Public Counsel,  
P. O. Box 7800, Jefferson City, Missouri 65102 for  
the Office of the Public Counsel and the Public.

Robert J. Hack, Assistant General Counsel, P. O. Box 360,  
Jefferson City, Missouri 65102, for the Staff of the  
Missouri Public Service Commission.

SUPPLEMENTAL REPORT AND ORDER

By Order issued June 29, 1990, the Commission clarified the authority previously granted to Union Electric Company (UE) in the various Reports and Orders issued in these matters by stating that the certificates should include "land sections in which UE has existing distribution facilities plus land sections immediately adjacent thereto".

In attempting to define the UE area certificate it became apparent for the first time that although the term had been used in the Staff's testimony, there was no generally or commonly accepted meaning of the term "distribution facilities". For that reason, the June 29, 1990 order also set the UE applications for further hearing "for the sole and limited purpose of taking evidence on how the term 'distribution

facilities' should be defined for the purposes of the authority granted to UE in the previous Report and Order." That Order was not appealed and is now final.

The issue of the meaning of the term "distribution facilities" involves only the Union Electric applications. The further hearing for arriving at that definition was held on August 30, 1990. Briefs have been filed by UE, the intervenor cooperatives, and the Commission's Staff.

#### Findings of Fact

The Missouri Public Service Commission, having considered all of the competent and substantial evidence upon the whole record, makes the following findings of fact:

UE proposes to define distribution facilities herein as all lines of a capacity of 100,000 volts (100 kv) or less. Because UE's system generally does not include any lines of a capacity between 69 kv and 138 kv, as a practical matter, UE is asking for the inclusion of 34.5 kv and 69 kv lines.

The Commission Staff proposes to define distribution facilities herein as lines of a capacity of 30 kv or lower. The intervenor cooperatives contend that distribution facilities should be defined as only those lines of a capacity of 25 kv or less.

The diverse positions urged by the parties places at issue approximately 1,000 sections of land or square miles in UE's certificate applications. UE's system has 34.5 kv lines in 477 sections and 69 kv lines in approximately 321 land sections. There are approximately 150 additional sections which have 34.5 kv or 69 kv lines plus lines of a much larger capacity, which all parties agree are transmission facilities. UE's witnesses are unaware of the number of sections that would be involved by the inclusion of "adjacent sections" since no study of their system maps had been performed for that purpose.

The position of the intervenors was stated by the manager of one of the member cooperatives, based on his familiarity with Rural Electrification Administration standards for line construction and work, and his familiarity with cooperative practices on a daily basis. The cooperatives are unaware of any book definition of "distribution" as opposed to "transmission" facilities. Instead, the cooperative manager proposes a practical distinction of whether or not a line is used to carry electric energy at voltages usable to the ultimate customer. It is the position of the cooperatives that if the voltage carried by a line is so high that a substation or multiple transformers are required to reduce the voltage, then the line should be properly defined herein as a transmission line.

The amount of available energy is increased by the use of multiple conductors. Mr. Jahn, the cooperative manager, stated that his cooperative's standard construction was of 7,200 volts single-phase distribution, and three-phase construction of 12,470 volts, commonly referred to as 7,200/12,470. Jahn acknowledged that some cooperatives do operate at 14,400/24,900 volts for distribution purposes. The cooperatives do not operate at more than 24,900 volts because of the necessity to increase inventory of different sizes of transformers, insulators, meters and other associated equipment. It was Jahn's opinion that a distribution voltage of 30,000 was an energy flow too large for common use and too small for large power users.

Jahn was also of the opinion that lines of 34.5 kv should be considered transmission lines because very expensive transformers are required to serve the most common load. Transformers for converting the energy from the cooperatives' 7,200 volt distribution lines cost only \$453. It was Jahn's opinion that transformers to convert energy from 34.5 kv to 120/240 volts cost approximately \$1,540 and require up to 16 to 18 weeks for delivery. The UE witnesses contradict the cost estimates proffered by Mr. Jahn. The UE witness produced a quotation for transformers capable

of converting energy from a 34.5 kv line to customer service voltage for a price of \$485, only 18 percent higher than the \$409 which UE pays for transformers employed on 12.47 kv lines. Jahn also expressed the opinion, however, that UE is in reality using much lower capacity facilities for distribution purposes and described one situation in Audrain County near Benton City where UE chose to build a new 2,400 volt line to serve individual residences rather than use existing 34.5 kv lines. Jahn appears to be only marginally familiar with the circumstances surrounding the construction near Benton City, since UE's evidence establishes that the only construction from a 2,400 volt line of that nature in 1989 was a 60-foot extension of primary and 100 feet of 120/240 volt secondary to serve a single residence. The 34.5 kv line of which Jahn was presumably speaking was approximately one quarter of a mile from the customer.

The Staff's selection of 30 kv as the maximum capacity for inclusion in distribution lines is based on the Staff witness' observation that retail customers are very rarely served directly from lines of 34.5 kv or higher voltages. It was the Staff witness' opinion that customers aren't generally served from lines of that size because those lines are looped, i.e., capable of having power flow from two directions. It is the Staff's contention that, since those lines are taken out of service to perform maintenance, customers served directly from those lines necessarily must be out of service during periods of maintenance. The Staff's opinion is also based partly on the broad observation that retail service from 34.5 and 69 kv lines is customarily performed through distribution substations.

The Staff also objects to the inclusion of 34.5 and 69 kv lines in the distribution category since such an assignment would create unreasonable service obligations for UE. UE's present extension rule provides for service extensions of up to 500 feet on private right-of-way at no cost to a customer. It is the Staff's

interpretation of that rule that a customer requesting service to a location near a 34.5 or 69 kv line could require UE to construct an expensive substation.

The record indicates, however, that the most common method of providing retail service from a 34.5 or 69 kv line is through the use of an "underbuild", which is the construction of a distribution voltage line under the transmission line on the same poles or towers. UE estimates its cost of building stand alone single-phase lines to be approximately \$5.00 per running foot, whereas, underbuilding can be achieved for approximately 60 percent of that cost. It is the Staff's opinion that if UE's area certificate includes sections containing 34.5 and 69 kv lines in adjacent sections, the Company could also be required under its extension rule to extend an underbuild as much as two miles, a distance that is neither cost effective nor reasonable.

In support of its proposal to include 69 and 34.5 kv lines in the definition of distribution facilities herein, UE relies on language in its tariff and in the Uniform System of Accounts prescribed by the Federal Energy Regulatory Commission (FERC). The applicable tariff provisions are contained in Sheets 128 and 132 of the Company's General Rules and Regulations which became effective May 5, 1990. Sheet 128, paragraph 12, Distribution System states as follows: "Company facilities, generally supplied from various points on the transmission system, e.g., substations, primary lines normally ranging from 69,000 to 2,400 volts, transformers, switch gear, manholes, pedestals, secondary lines ranging from 600 to 120 volts, services and metering."

Paragraph 36, Transmission System on Sheet 132 states as follows: "Company lines and substations, normally operating at voltages of 138,000 volts or higher, which transfer bulk electrical power from generating stations or other sources of supply to principal connection points on the Company's distribution system or to other interconnected utility systems."

In the Commission's opinion the definitions are of little persuasion and somewhat at odds with the sponsoring witness' statement that "the difference between transmission and distribution lines on the Union Electric system is one of purpose of the line and how the facility is being used." The UE witness also acknowledged that to determine where the Company is authorized to serve, the Commission must determine the Company's ability to serve customers in a reasonable manner. We are of the opinion that the cited tariff provision, in the abstract, does not describe the Company's ability to serve customers in a reasonable manner.

The FERC Uniform System of Accounts provisions relied on by UE is described as Electric Plant Instruction 14 which states:

14. *Transmission and Distribution Plant.*

For the purpose of this system of accounts:

A. "Transmission system" means:

. . . . .

(3) All lines and equipment whose primary purpose is to augment, integrate or tie together the source of power supply.

B. "Distribution system" means all land, structures, conversion equipment, lines, line transformers, and other facilities employed between the primary source of supply (i.e., generating station, or point of receipt in the case of purchased power) and of delivery to consumers, which are not includable in transmission system as defined in Paragraph A, whether or not such land, structures and facilities are operated as part of a transmission system or as a distribution system. (Emphasis supplied).

In the Commission's opinion the cited portion illustrates that the Uniform System of Accounts is intended primarily to ensure that all facilities are included in some jurisdictional rate base for ratemaking purposes. The allocation resulting from the Uniform System of Accounts may or may not reflect the actual use of the facilities and is not persuasive for the instant purpose of these proceedings.

A second UE witness, the manager of the Company's Capital District, also agreed generally that the instant issue should be resolved on the basis of actual

function by saying "the real question is from what facilities is the Company capable of serving customers." It was the district manager's contention that, since the Company can and does serve many customers directly from 69 kv and 34.5 kv lines, both should be included in the category of distribution facilities.

The evidence shows that UE can serve retail customers in two ways from 34.5 kv lines. The manager of the Capital District described investigations by Missouri Power & Light Company (MPL) of the feasibility of rendering direct service from 34.5 kv lines prior to UE's subsidiaries being merged into the parent company. MPL had investigated the possibility of making it a routine practice to extend service directly from 34.5 kv lines to residential, commercial and industrial customers. Although that method of service was demonstrated to be practical, the management of UE has chosen not to adopt it since the merger. The Staff concedes that there is no question that UE does in fact provide service to residential and smaller general service customers directly from 34.5 kv lines, however, the number of customers served in such fashion is quite small in comparison to the total number of UE customers. The Staff contends that since residential and small general service customers being served directly from 34.5 kv lines constitute the exception rather than the rule, only those 34.5 kv lines that directly serve residential and small general service customers could be considered distribution facilities for the purposes of defining UE's service area.

A common form of UE extending retail service is through the use of underbuilding as previously described herein. That preferred method of providing service weighs against Staff's apprehensions concerning any obligation of UE to make unrealistically costly extensions. 625 miles or 47 percent of the Company's 34.5 kv lines in the affected areas already are underbuilt with lines of lesser voltage. The Company interprets its tariff to mean that the cost calculated under its extension rule will be based on the method the Company intends to use to render service. As

such, the Company does not acknowledge any obligation to build a substation, but would calculate the cost of extension of being that of lengthening the underbuild. The Company witness indicated that if that possibility remained a concern the Company would be willing to amend its tariff and definitely rule out the consideration of being required to build a substation. The Company witness also attempted to demonstrate why there would be no exposure to making very costly extensions. The cost of extending an underbuild for the 500 feet granted at no charge to the customers, would be approximately \$1,500. UE witnesses are of the opinion that there is little likelihood of receiving service requests from customers willing to pay substantial extension costs. Under the tariff, the cost of any extension beyond 500 feet must be borne by the customer. It is the Company's position, however, that if a potential customer chooses that option the customer should have that right.

The Commission is of the opinion and finds that for the purposes of defining UE's service territory herein, the presence of 34.5 kv or less lines constitutes "distribution facilities". Although the number of retail customers presently served in that fashion is small, the evidence establishes that UE could adopt direct connections to retail customers from 34.5 kv lines by way of the use of a transformer as a practical and cost effective method. The Commission also is of the opinion and finds that the common or general existence of underbuild facilities in connection with 34.5 kv lines establishes that method as a fairly common and cost effective source of extensions. We are of the opinion that the Company's tariff and method of service adequately insulate it from unrealistic costs for extensions. We are also of the opinion and find that the cooperatives' contentions concerning the cost and delivery of equipment, at least for UE's purposes, is unfounded.

However, as to also defining 69 kv lines as distribution facilities, the Commission finds that the record offers little support for the assertion that any



significant number of retail customers are being served directly from facilities of that size, or that they can be practically served from such facilities.

One of the UE witnesses expressed the opinion that there probably exists a transformer that can step down 69 kv voltage to be usable by a residential retail electric customer. However, he had never seen one and had no idea how much one might cost. The Commission finds that possible method of service is so speculative as not to merit further consideration for purposes of this proceeding.

UE's testimony establishes that its customary method of providing retail service from a 69 kv line would necessitate the use of a substation. Only seven customers are served directly from 69 kv lines, without a substation, in the area affected by this proceeding. Likewise, only eight percent of UE's 69 kv lines in the affected areas include underbuilds from which retail service could be provided. At best, these constitute exceptions rather than the rule and should not be the basis for defining boundaries for future retail growth. At worst, such extensions simply may be unreasonable. The Commission, therefore, is of the opinion and finds that generally including UE's 69 kv lines in the definition of "distribution facilities" herein is unreasonable.

The Commission finds, that for the purposes only of clarifying the certificates of public convenience and necessity to be extended to UE in these proceedings, the term "distribution facilities" shall include UE's existing lines of a capacity of 34.5 kv or less along with all existing distribution substations. The certificate, therefore, shall include sections of land in which these facilities are located, plus adjacent sections.

#### Conclusions

The Missouri Public Service Commission has arrived at the following conclusions of law:

UE's brief raises several issues which are either beyond the scope of these proceedings or have been previously considered. As such, the Commission is of the opinion and concludes that it is unnecessary and improper to consider those contentions further. An example is UE's attempt to reopen the issue of granting it a certificate for areas in which it has "facilities" without limitation. As previously stated, the order establishing the sole issue in these proceedings to be the definition of "distribution facilities" was not appealed and is final.

The Commission concludes that the only further activity required in the instant proceeding is for the Applicant to file tariffs and service area maps, for Commission approval, enumerating the entire sections of land in which it had distribution facilities on May 30, 1990, as herein described. The Company's tariffs shall also enumerate partial land sections included and describe any natural or artificial barriers which prohibit service to an entire section.

IT IS THEREFORE ORDERED:

1. That within sixty (60) days from the effective date of this Report and Order, Union Electric Company shall file, for Commission approval, proposed tariff sheets consistent with the findings and conclusions herein.
2. That this Report and Order shall become effective on April 12, 1991.

BY THE COMMISSION

*Brent Stewart*

Brent Stewart  
Executive Secretary

(S E A L)

Steinmeier, Chm., Mueller, Rauch,  
McClure and Letsch-Roderique, CC.,  
Concur and certify compliance with the  
provisions of Section 536.080, RSMo 1986.

Dated at Jefferson City, Missouri,  
on this 13th day of March, 1991.