

In the Matter of the Application of)
UNION ELECTRIC COMPANY for)
permission and authority to construct,) Case No. EA 79-119
operate and maintain two combustion)
turbine units in the State of Missouri)

State of Missouri)
) **SS**
City of St. Louis)

1. My name is Fred R. Platt, Jr. I reside in St. Louis County, Missouri, and I am a Supervising Engineer in the Mechanical Design Division of the Engineering and Construction Function of Union Electric Company.

2. Attached hereto and made a part hereof for all purposes is my testimony consisting of pages 1 to 8, inclusive, and exhibits 1, 1A, 2, 3, and 3A, all of which testimony and exhibits have been prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. EA 79-119 on behalf of Union Electric Company.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct; that the attached exhibits were prepared under my supervision and direction and truly and correctly show the matters and things they purport to show.

Fred R. Platt, Jr.

Subscribed and sworn to before me this 9th day of March, 1979.

appellant Exhibit No. 4
Date 3/27/79 Case No. EA-79-119
Reporter J. Trotter

Margaret S. Heida
MARGARET S. HEIDA
NOTARY PUBLIC - STATE OF MISSOURI
ST. LOUIS COUNTY
MY COMMISSION EXPIRES JANUARY 2, 1972.

TESTIMONY OF FRED R. PLATT, JR.
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. EA-79-119

Q. Please state your name and address.

A. My name is Fred R. Platt, Jr., and I live at
631 Rayburn Avenue, Crestwood, Missouri.

Q. By whom are you employed and in what capacity?

A. I am employed by Union Electric Company as
Supervising Engineer in the Mechanical Design Division of
the Mechanical Engineering Department of the Engineering
and Construction Function.

Q. What are your duties and responsibilities in
that position?

A. My chief responsibilities lie in the areas of
designing combustion turbine unit installations to be
constructed and operated by Union Electric and in design-
ing modifications to Union Electric's existing power
plants including those which are required to conform to
various environmental regulations.

Q. What is your educational background?

A. I am a 1951 graduate of Bradley University with
a Bachelor of Science degree in Mechanical Engineering.

Q. Are you a registered professional engineer in
the State of Missouri?

A. Yes.

Q. Are you familiar with the subject matter of this proceeding?

A. Yes, I am. I was responsible for the specific site selection and design of the proposed combustion turbine generating units.

Q. Please describe the construction and operation of the proposed combustion turbine generating units.

A. The two turbine units will be oil fired peaking units, each with a maximum peak summer capacity rating of 51 megawatts and a base load summer rating of 48 megawatts. The turbine units' major parts consist of two gas generators and two axial flow turbines which drive a single tandem connected air cooled generator, an exciter which supplies electric current used to produce a magnetic field in the generator, and two air motors for initial starting. The two air motors with their air storage system provide the black start capability which allows them to be started and brought on line even when no external power is available, such as during a system-wide blackout.

Q. Why did you select the Meramec Plant and the Sioux Plant as the sites for these combustion turbines?

A. The combustion turbines were located at these power plant locations for several reasons. First, no

additional transmission facilities are required. Secondly, each site has manpower available for operation and maintenance of the units. Thirdly, each site has a source of distilled water for use in these units to meet federal regulations for control of nitrous oxide emissions. Finally, these combustion turbines have the capability for black start of the respective steam power plants in case of a system blackout.

The Meramec site was the first choice of all system power plant locations for black start purposes for two reasons. First, Meramec is located in the central part of our system. Secondly, the generating units at Meramec are small in size and, therefore, they can be started up faster than larger units in the system. These two factors will provide a fast recovery of our system under a blackout situation.

The Sioux site was the second choice because it is located in the northern part of our system. The combustion turbine unit at Sioux has the added advantage of supplying an additional source of on-site power sufficient to shut down the coal-fired units with much less risk of damage to those units during brownout or blackout situations than that which presently exists with the diesel generators now located at Sioux.

Q. What are the estimated costs of construction of the proposed units?

A. Installation of the proposed generating units will require estimated expenditures of \$8,800,000 for the Meramec combustion turbine and \$9,700,000 for the Sioux combustion turbine. These costs are higher than those cited in our original application filed last November for three basic reasons. First, the actual escalation rate of the equipment costs was higher than originally estimated. Secondly, the Sioux site requires additional site fill and fuel storage facilities that will not be required on the Meramec site. Thirdly, there are a number of additional costs incurred as a result of having two sites in lieu of one, such as installation and engineering costs.

Q. What type of fuel will be used in the proposed units?

A. The units will use No. 2 distillate fuel oil.

Q. Has Union Electric considered whether this type of fuel will be available for use in their proposed units?

A. Yes, it has. We have found No. 2 distillate fuel oil to be available and our experience has been that the usage of this type of peak generation equipment to be low, with a projected usage which ranges from 200 to 400 hours per year. Fuel storage facilities will be provided at each site to assure that we can meet our operating requirements. The Meramec site has fuel storage of 1,500,000 gallons, which will provide for 150 hours of operation for the one

existing and one new unit. The Sioux site will have fuel storage of 600,000 gallons, which will provide for 120 hours of operation for the one new unit.

The federal government recognizes the need for combustion turbines as a form of power generation. In the Power and Industrial Fuel Use Act, which was enacted in November 1978, the federal government provided for the use of petroleum based fuels for combustion turbines.

Therefore, for these reasons, we believe No. 2 distillate fuel oil will be available in the quantities required for use in the proposed units.

Q. Are you familiar with the sites for Union Electric's proposed combustion turbine generating units?

A. Yes, I am.

Q. I hand you what have been marked for identification as Applicant's Exhibits 1 and 1A and ask you to identify them.

A. Applicant's Exhibits 1 and 1A are maps showing the locations of the proposed Meramec Combustion Turbine Unit and Sioux Combustion Turbine Unit, respectively.

Q. To the best of your information, knowledge and belief, do Applicant's Exhibits 1 and 1A truly and correctly show the locations of the proposed units?

A. Yes, they do.

Q. I hand you what has been marked for identification as Applicant's Exhibit 2 and ask you to identify it.

A. Applicant's Exhibit 2 is a map which also shows the locations of the proposed unit sites and in addition shows the relationship of the proposed units with existing generating and transmission facilities of the Union Electric system.

Q. To the best of your information, knowledge and belief, does Applicant's Exhibit 2 truly and correctly indicate the locations of the proposed unit sites and their relationship to the existing generating and transmission facilities of the Union Electric system?

A. Yes, it does.

Q. I hand you what have been marked for identification as Applicant's Exhibits 3 and 3A and ask you to identify them.

A. Applicant's Exhibits 3 and 3A are property descriptions of the tracts of land upon which the proposed generating units will be constructed.

Q. To the best of your information, knowledge and belief, do Applicant's Exhibits 3 and 3A contain true and correct property descriptions of the tracts of land upon which the proposed units will be constructed.

A. Yes, they do.

Q. Are Applicant's Exhibits 1, 1A, 2, 3 and 3A the same as the exhibits that were attached to the amended application in this proceeding?

A. They are.

Q. To what extent has Union Electric acquired the land described in Exhibits 3 and 3A?

A. All of the land described in Exhibits 3 and 3A has been acquired.

Q. Please describe the nature of the areas in which the proposed units are to be constructed.

A. The proposed units will be constructed at existing power plant locations in areas which are sparsely settled. The site of the Meramec Turbine unit is located in St. Louis County in an area zoned "Heavy Industrial" and the site of the Sioux turbine unit is located in St. Charles County in an area zoned "Agricultural."

Q. Has Union Electric considered the effect of the units' operation upon the air quality of these areas?

A. Yes, it has. Union Electric proposes to burn No. 2 oil in these units, which has a low sulphur content. These unit are designed to operate in such manner that they will be in compliance with Federal, State and local air quality and emission standards.

Q. What approvals from environmental regulatory agencies are required for the construction of the proposed

combustion turbine units?

A. On July 5, 1978, we made application to the U. S. Environmental Protection Agency for construction permits to satisfy two requirements: (1) to meet the requirements of prevention of significant deterioration of air quality and (2) to assure compliance with the new source performance standards. For the Meramec turbine unit, a construction permit has been received from the St. Louis County Division of Air Pollution Control. For the Sioux turbine unit, an application for a construction permit was filed in March 1979 with the Missouri Department of Natural Resources.

Q. Has Union Electric considered the effect of the units' operation upon the noise levels in these areas?

A. Yes, it has. The Meramec turbine unit will be in compliance with the "Noise Control Code" of St. Louis County. The Sioux turbine unit will be designed to meet the same level of silencing even though St. Charles County presently has no noise control codes.