Exhibit No.:
Issues: Class Cost-of-Service Allocations
Witness: James C. Watkins
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Case No.: ER-2001-299
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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

JAMES C. WATKINS

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2001-299

Jefferson City, Missouri
April, 2001

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THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2001-299

Q. Please state your name and business address.

A. My name is James C. Watkins and my business address is Missouri Public Service Commission, 200 Madison Street, P. O. Box 360, Jefferson City, Missouri 65102.

Q. What is your present position with the Missouri Public Service Commission (Commission)?

A. I am a Regulatory Economist in the Electric Department of the Operations Division.

Q. Please review your educational background and work experience.

A. I have a Bachelor of Arts Degree in Economics from William Jewell College, a year of graduate study at the University of California at Los Angeles in the Masters Degree Program, and have completed all requirements except my dissertation for a Ph.D. in Economics from the University of Missouri-Columbia. My previous work experience has been as an Instructor of Economics at Columbia College, the University of Missouri-Rolla, and William Jewell College. I have been on the Staff of the Missouri Public Service Commission (Staff) since August 1, 1982.

Q. Are you one of the Case Coordinators for this case?

A. Yes. I am primarily responsible for coordination within the Operations Division and for the April 10, 2001 Rate Design filing.

Q. What is your recommendation to the Commission?

A. I recommend that the Commission view the Staff's direct testimony filing in this case as a work-in-progress. The case filed by the Staff fully presents the Staff's positions on the issues in terms of methodology; however, it is strictly based on the 2000 test year and merely establishes a baseline. While some of the appropriate test-year annualizations and normalizations can, and have been, made at this time, e.g., weather normalization, many cannot. Most significantly, the costs associated with the Company's new State Line Combined Cycle unit are not included. The Staff's current projection of the value of the June 30 update items is presented in the testimony of Staff witness Phillip K. Williams and appears on Accounting Schedule 1 as the "Allowance for Known and Measurable Changes through the True-Up ending June 30, 2001."

Q. What is the purpose of your direct testimony in this case?

A. The purpose of my direct testimony is to describe the allocation methods used in Staff's class cost-of-service study in Case No. ER-97-81, The Empire District Electric Company's (EDE or Company) most recent rate case. The Staff's class cost-of-service study developed for this case, Case No. ER-2001-299, employs the same allocation methodology, but is applied to the level of costs, revenues, sales, and customer numbers corresponding to the 2000 test year. Staff assumes that the results of the special studies that were used in the last case remain valid and that, while the level of weather

normalized sales for each class has changed, there has been no significant change to the shape of each class's hourly load curve.

Q. How were production costs allocated in Staff's study?

A. Production costs were allocated by the time-of-use method.

Q. Why were time-of-use allocators used to allocate production costs?

A. Since different types of generating units (base, intermediate, and peaking) have different operational and cost characteristics, utilities attempt to build the amounts and types of generating units that provide them with the flexibility to match supply to demand in every hour throughout the year at the lowest possible cost. Because production-capacity costs are determined by loads throughout the year, each class's contribution to the sum of hourly class loads was used to allocate hourly production-capacity costs. For consistency and because production-energy costs also vary throughout the year, each class's contribution to the sum of hourly class loads was also used to allocate hourly production-energy costs.

Q. Does this mean that the same allocator was used to allocate both production-capacity and production-energy costs?

A. No. While the allocator is the same on an hourly basis, it is not the same on an annual basis. Weather sensitive classes have a larger contribution to the sum of the hourly class demands during periods when incremental capacity costs are relatively low and incremental energy costs are relatively high, while the opposite is true for classes with little weather sensitivity.

Q. How were the time-of-use allocators calculated?

A. Hourly energy costs from the Staff's fuel run were used to develop a functional relationship between hourly energy costs and load level. This functional relationship was used to calculate hourly marginal energy costs. Hourly marginal production-capacity costs were derived from the hourly marginal energy costs. In each hour the marginal energy costs are summed to determine the total energy cost. The total energy cost in each hour is then allocated to the classes based on their contribution to total load in that hour. A similar process was followed for summing marginal capacity costs and allocating the total to the classes each hour. This is equivalent to the capacity utilization method when each increment of capacity is priced at its marginal cost. Hourly transmission-capacity costs were derived from functionalized transmission-capacity costs based on capacity utilization with each increment of capacity priced the same, i.e., transmission-capacity costs per kW were assumed to be constant.

In each hour the production-capacity costs, production-energy costs, and the transmission-capacity costs (separately) are allocated to each class based on its contribution in that hour to the sum of the class loads. Summing the allocated costs over all hours for each class results in annual costs. The time-of-use allocator is then calculated as each class's contribution to the sum of the annual costs.

Q. Is there an alternative way to describe time-of-use allocations?

A. Yes. Three sets of hourly prices were developed - one for production capacity, one for transmission capacity, and one for energy. For each functional category of cost, each class's load in each hour is then priced out at the same hourly price to determine its cost responsibility for that functional cost category in that hour. The sum of

the hourly costs in each cost category for each class is that class's annual cost responsibility, i.e., its allocation of production capacity costs, transmission capacity costs, and production energy costs, respectively.

The time-of-use allocation methodology has been favored by the Commission because it has the characteristic that every customer, large or small, residential or industrial, pays exactly the same price as every other customer taking service in the same hour. It is only the difference in the timing of each class's usage that results in differences in the annual average price paid by the classes In this respect, time-of-use allocations mimic a truly competitive retail electricity market. Real-time pricing tariffs, which are offered in various forms by several utilities in Missouri, are also based on this concept.

Q. How were transmission costs allocated?

A. As described above, transmission costs were also allocated by the time-of-use method.

Q. Why were transmission costs allocated in the same way as production-capacity costs?

A. The transmission plant is generally considered to be an extension of the production plant. The planning and operation of one is inexorably linked to the other with the major factors that drive production costs tending also to drive transmission costs.

Q. How are distribution costs allocated?

A. The allocation of distribution costs depends on the proportion of costs that are customer related, i.e., independent of usage or required just to hook up customers to

the distribution system, or demand related, i.e., vary with usage or increase when higher demands are placed on the facilities.

Q. How was the customer-related portion of distribution-poles, conductors, and transformers allocated?

A. The customer-related portion of distribution-poles, conductors, and transformers was allocated on class contribution to the sum of the weighted number of customers.

Q. Why was class contribution to the sum of the weighted number of customers used to allocate the customer related portion of distribution-poles, conductors, and transformers?

A. These costs exist regardless of the size of the load placed on the distribution system. Customer numbers were weighted to reflect customer density, i.e., the length of the system required by each class of customer due to being connected to the system.

Q. How were the costs of substations and the related portion of poles and conductors allocated?

A. Substations and the related portion of poles and conductors were allocated on class contribution to the sum of annual class peak demands.

Q. Why was class contribution to the sum of annual class peak demands used to allocate substations and the related portion of poles and conductors?

A. Substations and primary conductors are sized to meet the diversified demands of the customers. Diversity incorporates the fact that customers do not all peak

at the same time. However, since each substation serves a geographic area smaller than the total service territory, system coincident peak demands are not appropriate. The class peak demands incorporate the diversity within each class, but do not take that diversity all the way to the total system.

Q. How were the costs associated with the remaining portion of poles, conductors, and transformers allocated?

A. The costs associated with the remaining portion of poles, conductors, and transformers were allocated on class contribution to customer diversified demand?

Q. Why was class contribution to customer diversified demand used to allocate the remaining portion of poles, conductors, and transformers costs?

A. Since each line transformer and segment of secondary line with associated poles serves a small group of customers, class peaks incorporate too much diversity and customer maximum demand incorporates too little since it accounts for none of the diversity between customers within these small groups.

Q. How was the cost of service lines allocated?

A. Services were allocated on class contribution to the sum of the weighted number of customers.

Q. Why was class contribution to the sum of the weighted number of customers used to allocate the cost of services?

A. The weights used in the allocations reflect the cost of a "typical" service by class.

Q. How was the cost of meters allocated?

A. Meters were allocated on class contribution to meter replacement costs.

Q. Why was class contribution to meter replacement costs used to allocate the cost of meters?

A. These relative costs were used to allocate meter costs because they reflect the current cost of installing a meter (or meters) for each class of customer.

Q. Was class contribution to meter-reading-weighted number of customers used to allocate the cost of meter reading?

A. Yes. Since meter reading costs are related both to the number of customers and customer density, these weights reflect the relative costs of meter reading by class.

Q. What formed the basis for the allocation of uncollectible accounts, billing and records, customer services, and sales promotion expenses?

A. The Staff allocated these costs on unweighted customer numbers because they vary with the number of customers and no special studies have been done to determine what, if any, would be the appropriate weights. A portion of these expenses was assigned to the classes based on Company's assignments.

Q. What are the results of the Staff's class cost-of-service study?

A. Staff witness Ms. Anne E. Ross, who functionalized costs and applied the Staff's allocation factors, is presenting the detailed results of the Staff's study in her testimony.

Q. What are the Staff's rate design recommendations in this case?

A. Staff witness Janice Pyatte is sponsoring the Staff's rate design recommendations in her testimony.

Q. What is your recommendation to the Commission?

A. I recommend that the Commission adopt the Staff's customer class cost-of-service study as one of the factors to consider in determining each class's responsibility for any overall rate increase in this case. I recommend that, based on the Staff's customer class cost-of-service study and the other factors presented in Ms. Pyatte's testimony, the Commission adopt the Staff's recommendation regarding customer class revenue responsibility.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF THE APPLICATION OF THE EMPIRE DISTRICT ELECTRIC COMPANY FOR A GENERAL RATE INCREASE.	))))	Case No. ER-2001-299

AFFIDAVIT OF JAMES C. WATKINS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

James C. Watkins, of lawful age, on his oath states: that he has participated in the preparation of the foregoing written testimony in question and answer form, consisting of 9 pages of testimony to be presented in the above case, that the answers in the attached written testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

James C. Watkins

Subscribed and sworn to before me this 9th day of April, 2001.

Notary Public

My commission expires_____

DAWN L. HAKE
Notary Public – State of Missouri
County of Cole
My Commission Expires Jan 9, 2005