Exhibit No.:	___________
Issue(s):	Production Cost Allocator
Witness/Type of Exhibit:	Meisenheimer/Direct
Sponsoring Party:	Public Counsel
Case No.:	ER-2011-0028

DIRECT TESTIMONY

OF

BARBARA A. MEISENHEIMER

Submitted on Behalf of
the Office of the Public Counsel

AMEREN UE

Case No. ER-2011-0028

February 10, 2011

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE's Tariff to Increase Its Annual Revenues for Electric Service.	)))	**Case No. ER-2011-0028**

AFFIDAVIT OF BARBARA A. MEISENHEIMER

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Barbara A. Meisenheimer, of lawful age and being first duly sworn, deposes and states:

1. My name is Barbara A. Meisenheimer. I am a Chief Utility Economist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached affidavit are true and correct to the best of my knowledge and belief.

Barbara A. Meisenheimer

Subscribed and sworn to me this 10th day of February 2011.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI
KENDELLE R. SEIDNER
My Commission Expires
February 4, 2015
Cole County
Commission #11004782

Kendelle R. Seidner
Notary Public

My commission expires February 4, 2015.

Ameren UE

ER-2011-0028

Direct Testimony
of
Barbara Meisenheimer

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. Barbara A. Meisenheimer, Chief Utility Economist, Office of the Public Counsel, P. O. 2230, Jefferson City, Missouri 65102. I am also an adjunct instructor for William Woods University.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.

A. I hold a Bachelor of Science degree in Mathematics from the University of Missouri-Columbia (UMC) and have completed the comprehensive exams for a Ph.D. in Economics from the same institution. My two fields of study are Quantitative Economics and Industrial Organization. My outside field of study is Statistics.

I have been with the Office of the Public Counsel since January 1996. I have testified before the Missouri Public Service Commission (Commission) on economic issues and policy issues in the areas of telecommunications, gas, electric, water and sewer. In rate cases my testimony has addressed class cost of service, rate design, miscellaneous tariff issues, low-income and conservation programs and revenue requirement issues related to the development of class revenues, billing units, low-income program costs, incentive programs and fuel cost recovery.

Over the past 15 years I have also taught courses for the following institutions: University of Missouri-Columbia, William Woods University, and Lincoln University. I currently teach undergraduate and graduate level economics courses and undergraduate statistics for William Woods University.

Q. HAVE YOU TESTIFIED IN PAST AMEREN UE RATE CASES?

A. Yes. I testified on class cost of service issues in Ameren UE Case No. ER-2007-0002, Case No. ER-2008-0318 and Case No. ER-2010-0036.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my direct testimony is to present Public Counsel's production cost allocator. Ryan Kind used this allocator in Public Counsel's Class Cost of Service (CCOS) study. The production cost allocator is based on a weighting of average and peak demands.

Q. HAVE YOU DEVELOPED A TIME OF USE BASED ALLOCATION FACTORS FOR USE IN THIS CASE?

A. No. Although Public Counsel continues to support time of use based allocations, in this case, Public Counsel had insufficient internal and consulting resources available to develop time of use allocators.

Q. WHICH CUSTOMER CLASSES ARE USED IN DEVELOPING YOUR ALLOCATOR FOR PRODUCTION PLANT?

A. The A&4CP allocator is designed to apportion costs to a Residential Class (RG), a Small General Service Class (SGS), a blended Large General Service and Small Power Service Class (LGS/SPS), a Large Power Service Class (LPS) and a Large Transmission Class (LTS).

Q. ON WHAT DATA IS YOUR ALLOCATOR BASED?

A. My allocator is based on Company provided data related to weather normalized, class coincident and system peak demands and annual class energy use for the period April, 2009, through March, 2010.

Q. WHAT COSTS ARE INCLUDED IN PRODUCTION PLANT?

A. Production Plant includes the cost of land, structures and equipment used in connection with power generation.

Q. WHAT CONSIDERATIONS ARE IMPORTANT IN DEVELOPING AN ALLOCATOR TO APPORTION PRODUCTION PLANT COSTS?

A. Both demand and energy characteristics of a system's load are important determinants of production plant costs since production must satisfy both periods of normal use throughout the year and intermittent peak use.

Q. HOW DOES YOUR ALLOCATOR REFLECT THESE USE CHARACTERISTICS?

A. My production allocator assigns Production Plant according to a composite allocator that has (1) a peak demand related component and (2) an energy related component. This method reflects peak demand using a 4 coincident peak component which is the average of the four highest system use hours. The method reflects normal use throughout the year using a measure of average energy use. For each customer class I develop a weighted allocator that includes the customer class's share of peak use (4CP) and average energy use. The weighting I used for the average energy component is called the "load factor" which is the proportion of average system use to total system use. One minus the load factor is the proportion of total system use associated with the remaining system peaking capacity so I used this as the weight assigned to peak use.

Q. REGARDING YOUR ALLOCATION METHOD, IS A WEIGHTED AVERAGE AND COINCIDENT PEAK (A&CP) METHOD THAT ALLOWS DISCRETION IN SELECTION OF THE NUMBER OF COINCIDENT PEAKS AMONG THE NARUC-RECOGNIZED PRODUCTION CAPACITY COST ALLOCATION METHODS?

A. Yes. Part IV B. of the NARUC Electric Utility Cost Allocation Manual describes methods for developing energy weighted production plant cost allocations. Section 4 of Part IV discusses production cost allocations based on judgmental energy weightings. Page 57-59 of the NARUC Manual specifically recognizes weighted average and coincident peak methods where the coincident peak (CP) may be estimated based on more than one period of peak use. The Manual describes the method as follows:

> Some regulatory commissions, recognizing that energy loads are an important determinant of production plant costs, require the incorporation of judgmentally-established energy weightings into cost studies. One example is the "peak and average demand" allocator derived by adding together each class's contribution to the system peak demand (or to a specific group of system peak demands; e.g., the 12 monthly CPs) and its average demand. The allocator is effectively the average of the two numbers: class CP (however measured) and class average demand. Two variants of this allocation method are shown in Tables 4-14 and 4-15.

The Manual goes on to provide two examples of weighted methods, one based on average demand and a single period of coincident peak use (A&1CP) and another that incorporates average demand and 12 periods of peak use (A&12CP) in developing an allocator. I have included a copy of the relevant pages in Schedule 1 to this testimony.

I used an A&4CP method in calculating the production allocator. The 4CP I used to represent the peak portion of the allocator falls well within the number of peak periods recognized in the NARUC Manual. Also, as I described above, I used a measure of load factor (LF) as the weight assigned to the average portion of the allocator and used 1- LF as the weight assigned to the peak portion of the allocator. This is a common method of assigning weights used in the NARUC Manual.

Q. IS A 4CP REPRESENTATIVE OF THE PEAK DEMAND ON AMERENUE'S SYSTEM?

A. Yes. The 4CP is reasonably representative of the peak demand on AmerenUE's system. As illustrated in Table 1 the 4CP includes periods when demand was at or in excess of 89% of the system's maximum peak.

Table 1

Coincident Peak (CP) @ Generation (Converted to MWh)

	Residential	SGS	LGS & SPS	LPS	LTS	Lighting	Total	% System Peak
Apr-09	2285	431	1468	436	486	58	5164	65%
May-09	2164	719	1958	554	488	0	5883	74%
Jun-09	3263	844	2097	514	485	0	7202	91%
Jul-09	3838	846	2225	555	485	0	7948	100%
Aug-09	3775	578	1740	486	486	0	7065	89%
Sep-09	2736	798	2086	549	487	0	6655	84%
Oct-09	2023	455	1547	480	487	59	5051	64%
Nov-09	2555	507	1502	447	484	54	5549	70%
Dec-09	3297	670	1982	466	487	7	6909	87%
Jan-10	3797	619	1690	424	487	60	7077	89%
Feb-10	3494	631	1708	428	489	57	6808	86%
Mar-10	2592	564	1591	404	487	59	5697	72%

Q. WHY IS IT REASONABLE TO USE MULTIPLE PEAKS IN DEVELOPING THE MEASURE OF COINCIDENT PEAK USED IN THE PRODUCTION CAPACITY ALLOCATOR?

A. As illustrated in Table 2, a class's relative share of system demand may vary significantly within a particular peak hour. Using a blended measure of the customer classes' relative share of system demand which occur during peak hours reduces the likelihood of relying on anomalous class characteristics of demand during a single peak hour as the basis of the allocator. In addition, the system is designed to meet a range of system demands and a class's relative share may vary over the period when the system peak might occur. For example, a customer class's peak demand requirements may vary by month. For these reasons, it is reasonable to consider relative class demand in more than simply the highest single peak hour to reflect the class's relative share of system demand. For each of the 4 hours used to develop the peak component of my A&4CP allocator the system demand is 89% or more of the annual system peak hour demand. Considering relative class demand in these hours when system demand meets or exceeds 89% of the annual system peak hour demand retains the conceptual focus on determining peak demand while also reflecting each class's relative share of variation in system peak demands.

Table 2

Coincident Peak (CP) @ Generation (Converted to MWh)

	Residential	SGS	LGS & SPS	LPS	LTS	Lighting
Jun-09	45.30%	11.72%	29.11%	7.14%	6.73%	0.00%
Jul-09	48.29%	10.64%	28.00%	6.98%	6.10%	0.00%
Aug-09	53.44%	8.18%	24.62%	6.88%	6.88%	0.00%
Jan-10	53.65%	8.75%	23.88%	5.99%	6.88%	0.84%

Q. WHAT CLASS COST ALLOCATIONS RESULT FROM YOUR A&4CP PRODUCTION COST ALLOCATION METHOD?

A. Table 3 illustrates the results of the A&4CP allocation method. The Residential Class, for example, would be allocated 43.23% of production costs. This is less than the 50.19% share that would be allocated to the Residential Class using a pure peak allocation method such as the sum of the 4CP, but it is more than the 37.88% share that would result from an allocation based solely on average annual energy use. The A&4CP allocation method results in a reasonable balance that meaningfully reflects both average energy use and peak demand considerations in allocating production costs among customer classes.

Table 3

	Class Share				
	Residential	SGS	LGS & SPS	LPS	LTS
Annual Energy (kWh)	37.88%	9.73%	31.75%	10.05%	10.59%
A&4CP Allocator	**43.23%**	**9.79%**	**29.47%**	**8.63%**	**8.88%**
Sum of 4CP	50.19%	9.88%	26.52%	6.77%	6.64%

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

4. Judgmental Energy Weightings

Some regulatory commissions, recognizing that energy loads are an important determinant of production plant costs, require the incorporation of judgmentally-established energy weighting into cost studies. One example is the "peak and average demand" allocator derived by adding together each class's contribution to the system peak demand (or to a specified group of system peak demands; e.g., the 12 monthly CPs) and its average demand. The allocator is effectively the average of the two numbers: class CP (however measured) and class average demand. Two variants of this allocation method are shown in Tables 4-14 and 4-15.

TABLE 4-14

CLASS ALLOCATION FACTORS AND ALLOCATED PRODUCTION PLANT REVENUE REQUIREMENT USING THE 1 CP AND AVERAGE DEMAND METHOD

Rate Class	Demand Allocation Factor - 1 CP MW (Percent)	Demand-Related Production Plant Revenue Requirement	Avg. Demand (Total MWH) Allocation Factor	Energy-Related Production Plant Revenue Requirement	Total Class Production Plant Revenue Requirement
DOM	34.84	233,869,251	30.96	120,512,062	354,381,313
LSMP	37.25	250,020,306	33.87	131,822,415	381,842,722
LP	24.63	165,313,703	31.21	121,450,476	286,764,179
AG&P	3.29	22,078,048	3.22	12,545,108	34,623,156
SL	0.00	0	0.74	2,864,631	2,864,631
TOTAL	100.00	671,281,308	100.00	389,194,692	$1,060,476,000

Notes: The portion of the production plant classified as demand-related is calculated by dividing the annual system peak demand by the sum of (a) the annual system peak demand, Table 4-3, column 2, plus (b) the average system demand for the test year, Table 4-10A, column 3. Thus, the percentage classified as demand-related is equal to 13591/(13591+7880), or 63.30 percent. The percentage classified as energy-related is calculated similarly by dividing the average demand by the sum of the system peak demand and the average system demand. For the example, this percentage is 36.70 percent.

Some columns may not add to indicated totals due to rounding.

Schedule 1

TABLE 4-15

CLASS ALLOCATION FACTORS AND ALLOCATED PRODUCTION PLANT REVENUE REQUIREMENT USING THE 12 CP AND AVERAGE DEMAND METHOD

Rate Class	Demand Allocation Factor - 12 CP MW (Percent)	Demand-Related Production Plant Revenue	Average Demand (Total MWH) Allocation Factor	Energy-Related Production Plant Revenue Requirement	Total Class Production Plant Revenue Requirement
DOM	32.09	198,081,400	30.96	137,226,133	335,307,533
LSMP	38.43	237,225,254	33.87	150,105,143	387,330,397
LP	26.71	164,899,110	31.21	138,294,697	303,193,807
AG&P	2.42	14,960,151	3.22	14,285,015	29,245,167
SL	0.35	2,137,164	0.74	3,261,933	5,399,097
TOTAL	100.00	617,303,080	100.00	443,172,920	$1,060,476,000

Notes: The portion of production plant classified as demand-related is calculated by dividing the annual system peak demand by the sum of the 12 monthly system coincident peaks (Table 4-3, column 4) by the sum of that value plus the system average demand (Table 4-10A, column 3). Thus, for example, the percentage classified as demand-related is equal to 10976/(10976+7880), or 58.21 percent. The percentage classified as energy-related is calculated similarly by dividing the average demand by the sum of the average demand and the average of the twelve monthly peak demands. For the example, 41.79 percent of production plant revenue requirements are classified as energy-related.

Another variant of the peak and average demand method bases the production plant cost allocators on the 12 monthly CPs and average demand, with 1/13th of production plant classified as energy-related and allocated on the basis of the classes' KWH use or average demand, and the remaining 12/13ths classified as demand-related. The resulting allocation factors and allocations of revenue responsibility are shown in Table 4-16 for the example data.

TABLE 4-16

CLASS ALLOCATION FACTORS AND ALLOCATED PRODUCTION PLANT REVENUE REQUIREMENT USING THE 12 CP AND 1/13TH WEIGHTED AVERAGE DEMAND METHOD

Rate	Demand Allocation Factor - 12 CP MW (Percent)	Demand-Related Production Plant Revenue Requirement	Average Demand (Total MWH) Allocation Factor	Energy-Related Production Plant Revenue Requirement	Total Class Production Plant Revenue Requirement
DOM	32.09	314,111,612	30.96	25,259,288	339,370,900
LSMP	38.43	376,184,775	33.87	27,629,934	403,814,709
LP	26.71	261,492,120	31.21	25,455,979	286,948,099
AG&P	2.42	23,723,364	3.22	2,629,450	26,352,815
SL	0.35	3,389,052	0.74	600,426	3,989,478
TOTAL	100.00	978,900,923	100.00	81,575,077	$1,060,476,000

Notes: Using this method, 12/13ths (92.31 percent) of production plant revenue requirement is classified as demand-related and allocated using the 12 CP allocation factor, and 1/13th (7.69 percent) is classified as energy-related and allocated on the basis of total energy consumption or average demand.

Some columns may not add to indicated totals due to rounding.

C. Time-Differentiated Embedded Cost of Service Methods

Time-differentiated cost of service methods allocate production plant costs to baseload and peak hours, and perhaps to intermediate hours. These cost of service methods can also be easily used to allocate production plant costs to classes without specifically identifying allocation to time periods. Methods discussed briefly here include production stacking methods, system planning approaches, the base-intermediate-peak method, the LOLP production cost method, and the probability of dispatch method.

1. Production Stacking Methods

Objective: The cost of service analyst can use production stacking methods to determine the amount of production plant costs to classify as energy-related and to determine appropriate cost allocations to on-peak and off-peak periods. The basic