Exhibit No.:	
Issues:	Class Cost-of-Service
Witness:	Sarah L. Kliethermes
Sponsoring Party:	MO PSC Staff
Type of Exhibit:	Surrebuttal Testimony
Case No.:	ER-2014-0370
Date Testimony Prepared:	June 5, 2015

MISSOURI PUBLIC SERVICE COMMISSION

REGULATORY REVIEW DIVISION

SURREBUTTAL TESTIMONY

OF

SARAH L. KLIETHERMES

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2014-0370

Jefferson City, Missouri
June 2015

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service	))))	Case No. ER-2014-0370

AFFIDAVIT OF SARAH L. KLIETHERMES

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

COMES NOW, Sarah L. Kliethermes and on her oath declares that she is of sound mind and lawful age; that she contributed to the attached Surrebuttal Testimony; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah Kliet

Sarah L. Kliethermes

Subscribed and sworn to before me this 4th day of June, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Susan L Sundermeyer

Notary Public

SURREBUTTAL TESTIMONY

OF

SARAH L. KLIETHERMES

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2014-0370

Q. Please state your name and business address.

A. Sarah L. Kliethermes, 200 Madison Street, Jefferson City, MO 65102.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as a Regulatory Economist III.

Q. Are you the same Sarah L. Kliethermes that contributed to Staff's Report on Class Cost-of-Service and Rate Design ("CCOS Report"), filed on April 16, 2015 and that filed rebuttal testimony on May 7, 2015?

A. Yes.

Q. What is the purpose of your surrebuttal testimony?

A. I respond to the comments regarding production-related allocators made by KCPL witness Mr. Rush, Missouri Industrial Energy Consumers ("MIEC") and Midwest Energy Consumers' Group ("MECG") witness Mr. Brubaker, and Mr. Schmidt's testimony on behalf of the United Stated DoE representing the Federal Executive Agencies.

Q. Do you agree with Mr. Rush's testimony at page 48, lines 3-15?

A. Generally, yes. I agree that the Commission is benefited by the presentation of alternative CCOS studies from various parties, and that CCOS results should only be used as a guide.

Q. Do you agree with Mr. Rush's testimony at page 47, lines 1-2?

A. I do not. Mr. Rush testifies that KCPL's participation in the SPP Integrated Energy Market reduces the suitability of the BIP method for production allocation. However, as I discussed in my rebuttal testimony, the use of the detailed BIP method, as performed by Staff, better reflects the time-differentiated energy pricing that is the hallmark of the Integrated Energy Market.

Q. Is Mr. Brubaker's testimony at page 12, lines 3-5, that "Staff effectively is assuming that investment in base load plants is not driven by total system demands but rather by a component of class load profiles." an accurate characterization of Staff's position?

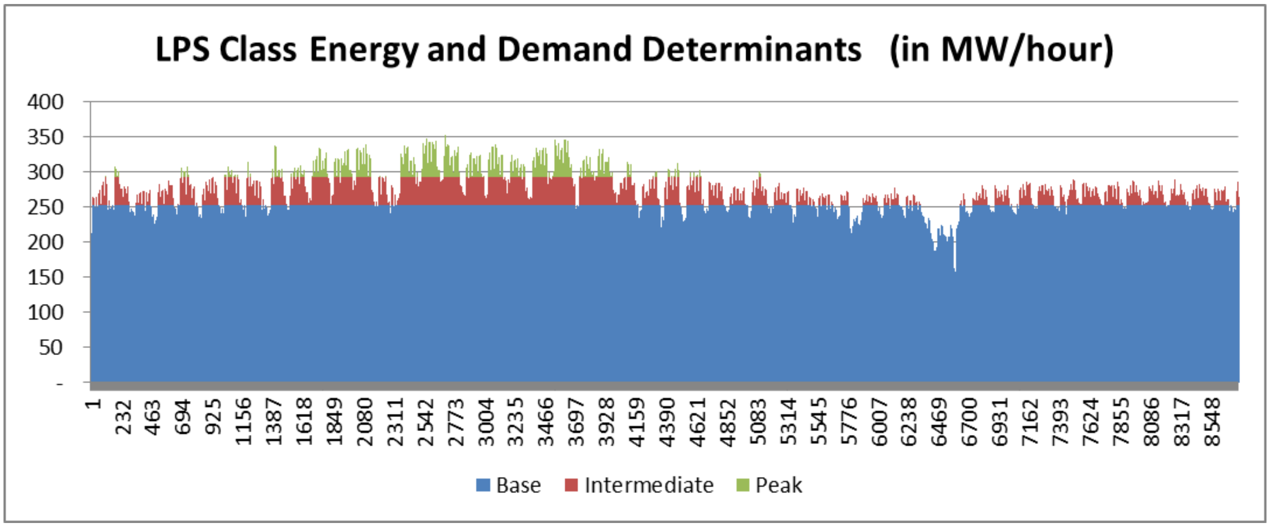
A. No. Despite Staff's testimony and workpapers on the matter Mr. Brubaker seems to believe that Staff's detailed BIP method relies on a direct assignment of cost of service to classes. This is not the case. Staff does use plant-specific cost of service to find each of the following items (1) the average cost of base capacity on a $/MW basis, (2) the average cost of intermediate capacity on a $/MW basis, (3) the average cost of peak capacity on a $/MW basis, (4) the average cost of the fuel to run base plants on a $/MWh basis, (5) the average cost of the fuel to run intermediate plants on a $/MWh basis, (6) the average cost of the fuel to run peaking plants on a $/MWh basis, (7) the average cost of fuel in storage for base capacity on a $/MW basis, (8) the average cost of fuel in storage for intermediate capacity on a $/MW basis, (9) the average cost of fuel in storage for peak capacity on a $/MW basis, (10) the average O&M costs for base capacity scaled to the energy and capacity requirements of each class, (11) the average O&M costs for base capacity scaled to the energy and capacity requirements of each class, and (12) the average O&M costs for base capacity scaled to the energy and capacity requirements of each class. These costs are not *assigned* to the classes, as Mr. Brubaker represents, but are instead multiplied by each class's energy and demand determinants to create allocators for the *allocation* of the associated accounts to the classes. Mr. Brubaker's discussion of his beliefs about Staff's method at page 12, lines 3-5, and again at page 12, line 17 through page 13, line 11 is not factually accurate.

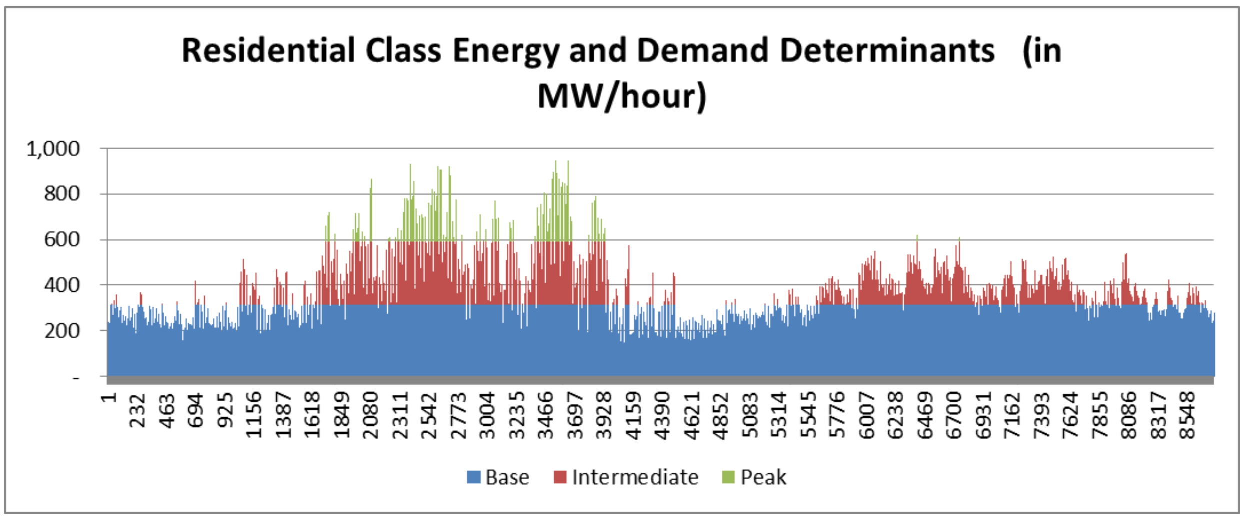
Q. Is it Staff's position that KCPL plans, builds, and dispatches individual plants to meet the specific needs of any individual class as distinct from all other classes?

A. No, of course not. However, a CCOS study is necessarily a simplification of system operations designed to reasonably allocate the costs of providing service to all customers reasonably among classes of those customers. Staff's study does go in to considerably more detail than that offered by Mr. Brubaker in that regard.

Q. Do you agree with Mr. Brubaker's assertion that all plants contribute to meeting peak demands, as stated at page 14, lines 8-9, of his rebuttal testimony?

A. Yes. I do agree with him that all plants contribute to meeting peak demands – this assumption is the foundation of Staff's detailed BIP method. However, the remainder of his answer at page 14, lines 4-12, inaccurately describes the Staff's calculation of production-related allocators. Mr. Brubaker includes a lengthy discussion of his misunderstanding at page 12, line 17 through page 13, line 11. While Staff does designate plants as "base," "intermediate," and "peak," Staff assumes that base plants will be used to contribute towards meeting overall capacity requirements in every single hour, giving appropriate consideration to the time that energy is consumed. For example, the hourly determinants of the LPS class and the Residential class are provided below:

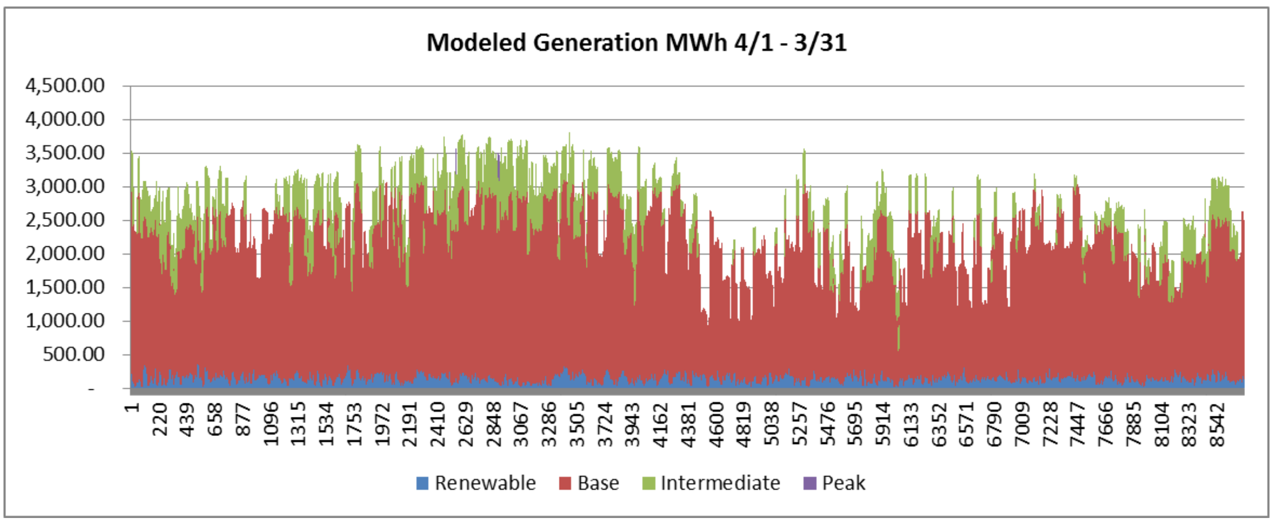




This comparison indicates that while the usage pattern of these two classes is quite different, in both cases the class will only have usage that counts as intermediate energy (and that counts towards its incremental intermediate capacity requirement) when that class's hourly energy demand exceeds that class's base capacity level. Similarly, the class will only have usage that counts as peak energy (and that counts towards its incremental peak capacity requirement) when that class's hourly energy demand exceeds that class's intermediate capacity level. This stacking accounts for the need to treat base capacity resources as resources that contribute to meeting total system capacity requirements.

Q. In the Staff's production modeling, did intermediate plants typically run only after base plants were dispatched, and did peak plants typically run only after intermediate plants were dispatched?

A. Yes. Please see the following graph indicating what types of plants were dispatched in which hours in the Staff's production modeling:



Q. Do you understand Mr. Brubaker's criticism at pages 14, lines 1-12, of his rebuttal testimony of Staff's use of average demand for determining a class's base demand?

A. I do, and it's a good point. While Staff is concerned that use of a minimum demand amount does not reasonably recognize the safe ramp rates of KCPL's generating fleet, Staff also recognizes the benefit of considering alternative measures of base demand, given the magnitude of the dollars allocated with production-related allocators.[1]

Q. How do the class demand and energy determinants based on a minimum demand calculation compare to the class demand and energy determinants based on Staff's recommended average demand calculation?

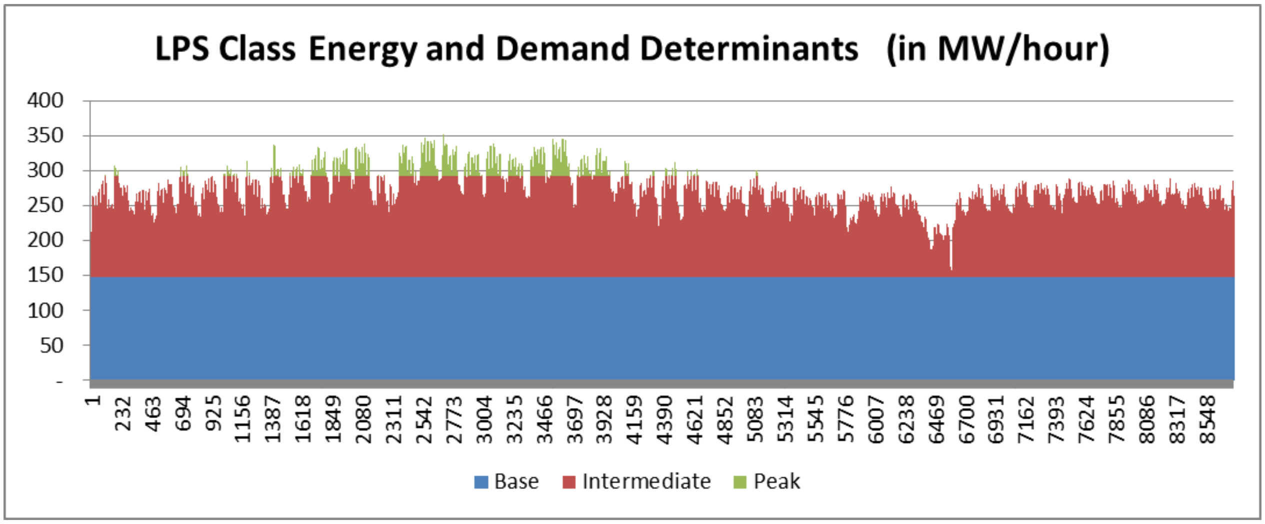
A. Staff's direct-recommended determinants based on average demand are provided below, along with the alternative minimum demand-based determinants suggested by Mr. Brubaker. The final section of the table provides the change in the determinants that result from applying the change suggested by Mr. Brubaker.

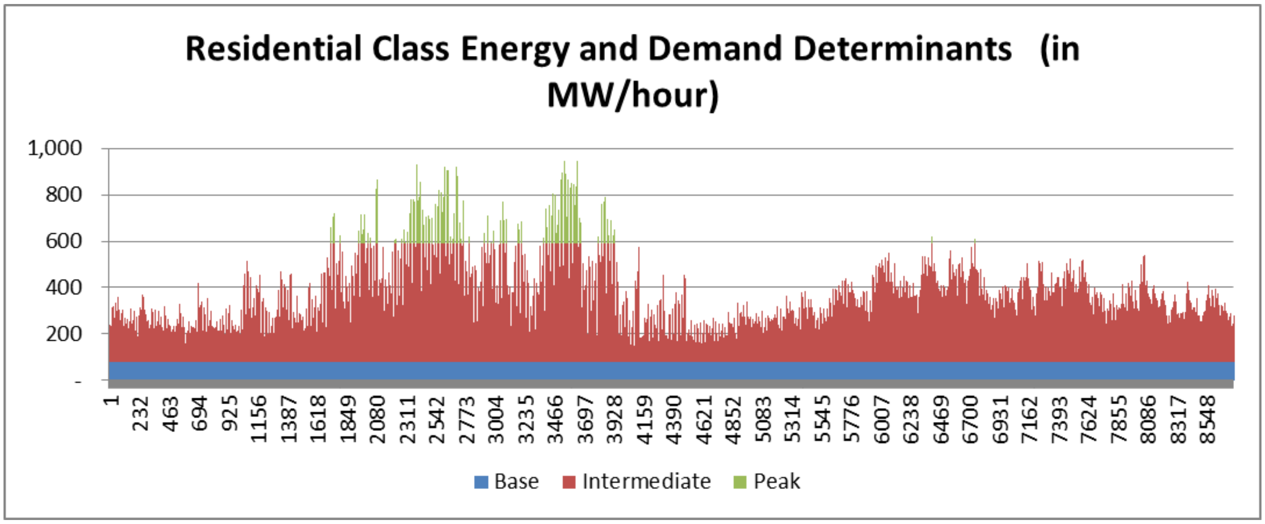
[1] For example, if minimum demand were found to be at a level that, given KCPL's wind generation, assumes that Wolf Creek and the Iatan units shut off every evening and fires back up every morning to be running at full capacity by 2:00 in the afternoon, that result is not reasonable in that it is not practical or even possible. Staff's use of each class's average demand to determine the base component determinants is reasonable, particularly in light of the limited ramp rates of the KCPL generating units assigned to the base component. Staff assumes that unless there is a required outage, the generating units assigned to the base component will run year round. This assumption is reasonable. Staff further assumed that the generating units assigned to the base component will run at some amount greater than 50% of their capacity, but less than 100% of their capacity. This assumption is also reasonable. Both assumptions are consistent with Staff's decision to use of each class's average demand to determine the base component.

	RES	SG	MG	LG	LP	LT
Average Demand						
Base Demand	76.80	22.26	69.83	169.93	147.61	0.01
Intermediate Demand	589.30	82.04	200.99	372.52	293.02	-
Peak Demand	804.07	110.29	266.31	422.31	331.49	-
Base Energy	672,794.84	194,997.86	611,681.56	1,488,571.02	1,293,075.17	93.17
Intermediate Energy	2,017,782.17	254,268.28	600,501.00	976,746.84	1,006,401.68	95,058.00
Peak Energy	48,684.87	5,238.34	20,863.97	16,931.01	25,041.59	-
Base Demand	76.80	22.26	69.83	169.93	147.61	0.01
Incremental Intermediate Demand	512.50	59.78	131.17	202.59	145.40	-
Incremental Peak Demand	214.77	28.25	65.32	49.79	38.48	-
Minimum Demand						
Base Demand	316.94	50.69	135.27	266.39	253.14	10.44
Intermediate Demand	589.30	82.04	200.99	372.52	293.02	-
Peak Demand	804.07	110.29	266.31	422.31	331.49	-
Base Energy	2,307,885.52	395,039.28	1,073,841.95	2,195,712.13	2,173,364.27	47,020.15
Intermediate Energy	382,691.49	54,226.85	138,340.61	269,605.72	126,112.58	48,131.02
Peak Energy	48,684.87	5,238.34	20,863.97	16,931.01	25,041.59	-
Base Demand	316.94	50.69	135.27	266.39	253.14	10.44
Incremental Intermediate Demand	272.36	31.35	65.72	106.13	39.87	-
Incremental Peak Demand	214.77	28.25	65.32	49.79	38.48	-
Difference between Average Demand and Minimum Demand						
Base Demand	(240.14)	(28.43)	(65.45)	(96.46)	(105.53)	(10.43)
Intermediate Demand	-	-	-	-	-	-
Peak Demand	-	-	-	-	-	-
Base Energy	(1,635,090.68)	(200,041.42)	(462,160.39)	(707,141.12)	(880,289.10)	(46,926.97)
Intermediate Energy	1,635,090.68	200,041.42	462,160.39	707,141.12	880,289.10	46,926.97
Peak Energy	-	-	-	-	-	-
Base Demand	(240.14)	(28.43)	(65.45)	(96.46)	(105.53)	(10.43)
Incremental Intermediate Demand	240.14	28.43	65.45	96.46	105.53	-
Incremental Peak Demand	-	-	-	-	-	-

Q. What do those determinants look like on an hourly basis?

A. Similar to the graphs provided above, the hourly determinants of the LPS class and the Residential class are provided below, using minimum demand instead of average demand for establishing the base and incremental intermediate determinants:





Q. What do these graphs showing the relative determinants of these classes demonstrate about using minimum demand instead of average demand for establishing the base and incremental intermediate determinants?

A. Comparing these graphs using minimum demand to establishing the base and incremental intermediate determinants to the graphs earlier in my testimony showing using average demand to establish the base and incremental intermediate determinants indicates that classes with a high load factor are assigned less base capacity when minimum demand is used, but that classes with a poor load factor are assigned proportionately less base capacity than classes with a high load factor.

Q. What allocators result from using minimum demand instead of average demand for establishing the base and incremental intermediate determinants?

A. Using minimum demand instead of average demand for establishing the base and incremental intermediate determinants results in the following allocators:

BIP Installed Capacity Allocator

	Total	RES	SG	MG	LG	LP	LT
Base Capacity	$ 427,627,417	$ 67,517,273	$ 19,568,704	$ 61,384,345	$ 149,383,212	$ 129,764,533	$ 9,350
Incremental Intermediate Capacity	$ 432,418,883	$ 165,700,165	$ 23,067,477	$ 56,515,571	$ 104,745,318	$ 82,390,353	$ -
Incremental Peak Capacity	$ 470,158,286	$ 195,422,560	$ 26,805,525	$ 64,725,091	$ 102,638,580	$ 80,566,530	-
Totals:	$ 1,330,204,587	$428,639,998	$69,441,706	$182,625,007	$356,767,111	$292,721,416	$9,350
BIP Installed Capacity Allocator:		32.22%	5.22%	13.73%	26.82%	22.01%	0.00%

BIP Fuel for Energy Allocator (annual)

	Total	RES	SG	MG	LG	LP	LT
Base Energy Usage	$ 60,180,038	$ 9,501,711	$ 2,753,905	$ 8,638,623	$ 21,022,710	$ 18,261,772	$ 1,316
Incremental Intermediate Usage	$ 110,497,442	$ 45,035,482	$ 5,675,089	$ 13,402,761	$ 21,800,304	$ 22,462,179	$ 2,121,628
Incremental Peak Usage	$ 6,535,600	$ 2,725,124	$ 293,215	$ 1,167,856	$ 947,709	$ 1,401,697	$ -
Totals:	$ 177,213,080	$57,262,316	$8,722,209	$23,209,240	$43,770,723	$42,125,648	$2,122,944
BIP Fuel for Energy Allocator:		32.31%	4.92%	13.10%	24.70%	23.77%	1.20%

BIP Fuel in Storage Allocator

	Total	RES	SG	MG	LG	LP	LT
Base Capacity	$ 19,498,716	$ 3,078,615	$ 892,283	$ 2,798,969	$ 6,811,492	$ 5,916,931	$ 426
Incremental Intermediate Capacity	$ 16,498,195	$ 8,041,640	$ 937,978	$ 2,058,151	$ 3,178,875	$ 2,281,550	$ -
Incremental Peak Capacity	$ -	$ -	$ -	$ -	$ -	$ -	-
Totals:	$ 35,996,910	$11,120,254	$1,830,261	$4,857,120	$9,990,367	$8,198,481	$426
BIP Fuel in Storage Allocator (Capacity):		30.89%	5.08%	13.49%	27.75%	22.78%	0.00%

BIP O&M Allocator

	Total	RES	SG	MG	LG	LP	LT
Base Usage	$ 66,566,854	$ 10,510,113	$ 3,046,173	$ 9,555,427	$ 23,253,819	$ 20,199,866	$ 1,455
Incremental Intermediate Usage	$ 107,063,444	$ 43,635,886	$ 5,498,721	$ 12,986,235	$ 21,122,802	$ 21,764,108	$ 2,055,693
Incremental Peak Usage	$ 969,084	$ 404,075	$ 43,477	$ 173,167	$ 140,524	$ 207,841	$ -
Totals:	$ 174,599,382	$54,550,074	$8,588,371	$22,714,829	$44,517,145	$42,171,815	$2,057,148
BIP O&M Allocator (Energy):		31.24%	4.92%	13.01%	25.50%	24.15%	1.18%

Q. Are customers in high load factor classes allocated more or less cost under the method proposed by Mr. Brubaker?

A. The results vary by allocator, but on the whole, high load factor customers are allocated more costs using Mr. Brubaker's proposed minimum demand method. For example, using Mr. Brubaker's proposed minimum demand method, LPS customers are allocated less energy costs, but are allocated more costs in the areas of production capacity, fuel in storage, and O&M. The changes from Staff's recommended allocators to those that result from Mr. Brubaker's minimum demand proposal are provided below:

	Residential	Small General Service	Medium General Service	Large General Service	LPS	Lighting
BIP Installed Capacity Allocator:	-3.1103278%	0.0048480%	0.4648430%	2.4323788%	0.7144539%	-0.5061959%
BIP Fuel for Energy Allocator:	2.0615813%	0.0369187%	-0.2982671%	-1.4922229%	-0.3070340%	-0.0009761%
BIP Fuel in Storage Allocator (Capacity):	-3.4139264%	-0.0148637%	0.4529646%	2.8123071%	1.0079250%	-0.8444066%
BIP O&M Allocator (Energy):	0.5156041%	-0.0336869%	-0.2452983%	-1.1504056%	1.4078577%	-0.4940710%

Q. Does Mr. Brubaker voice a specific concern with Staff's O&M allocator at page 18 line 20 page 19 line 6 of his rebuttal testimony?

A. Mr. Brubaker does not state a specific concern, but he does imply that he disagrees with Staff's allocation of O&M on the basis of an implication that Staff's O&M allocator does not consider capacity. In so doing, Mr. Brubaker ignores the graph provided at page 22, line 3, of the CCOS Report providing first O&M per $/MW, prior to the graph providing the average O&M $/MWh. Staff's workpapers clearly show that Staff developed its energy-related O&M allocator only after scaling the O&M associated with each plant type to the sum of the class's capacity determinants associated with that plant type. This two-step process is reasonable for class-cost-of-service purposes in that it reasonably allocates the Missouri-jurisdictional revenue requirement among classes considering that some O&M is related to the existence of plants, and some O&M varies with the level of generation produced at each plant.

Q. Do you agree with Mr. Schmidt's statement at page 2 of his rebuttal testimony that he "start[s] with the unremarkable premise that, regardless of load factor or customer class, all customers that use power during the peak period are responsible for the peak. Any of these types of customers could reduce their demand during the peak and thus reduce the peak."

A. Yes, I agree that all customers using power at the time of peak are responsible for the level of peak achieved. As discussed above, Staff's method explicitly accounts for the contributions of all customer classes to the overall system peak, and the dispatch of plants to efficiently serve all load over time.

Q. Do you agree with Mr. Schmidt's assertions at page 3 of his rebuttal testimony that "[t]he BIP methodology shifts costs to the higher load factor customers. This occurs because the BIP methodology uses energy consumption as an allocator during the base, intermediate, and peak periods respectively. I do not support the use of energy consumption, which is variable in nature, to allocate fixed costs."

A. No. This statement is factually inaccurate, as is described in Staff's CCOS Report. Mr. Schmidt's criticism of Staff's study is premised on this factually inaccurate understanding. For example, Mr. Schmidt states at page 4 that "[i]f production plant costs are allocated on the basis of average energy use, then low load factor, peak use customers receive the benefits of cheaper baseload (and intermediate) energy without paying a fair share of the capital costs for these plants." In fact, Staff did not allocate production plant costs on the basis of average energy use, and Staff explicitly allocates energy costs to the classes to exactly match the average energy cost for a class to the generation mix that corresponds to that class's capacity cost allocation.

Q, In responding to the question of "which customer classes are responsible for the peak demand?" Mr. Schmidt states, in part, the following at page 4 of his rebuttal testimony:

> All customers who are consuming power during the peak period are responsible for the peak. The high load factor customer, the medium load factor customer, and the customer that uses energy only during the peak period are responsible for the cost of fixed production plant to meet that peak. Any one of these types of customers could reduce their demand during the peak and thus reduce the system peak.
>
> In addition, all types of plant – base, intermediate and peak – are in operation during the peak period and were built because of that peak load.

Are these statements accurate?

A. Yes. However, Mr. Schmidt goes on to a non-sequitur conclusion to this answer that "[s]ince KCPL is a summer peaking utility, the 4CP methodology is the logical method to use to allocate demand-related production costs." This conclusion ignores the reality that peaking generation capacity is less expensive than base generation capacity. This conclusion appears to be related to Mr. Schmidt's testimony on page 4 that "…[t]he best way of assuring that those customers who consume energy during the peak pay for the required capacity in operation during the peak is to use an allocation method that is directly proportional to peak demand."

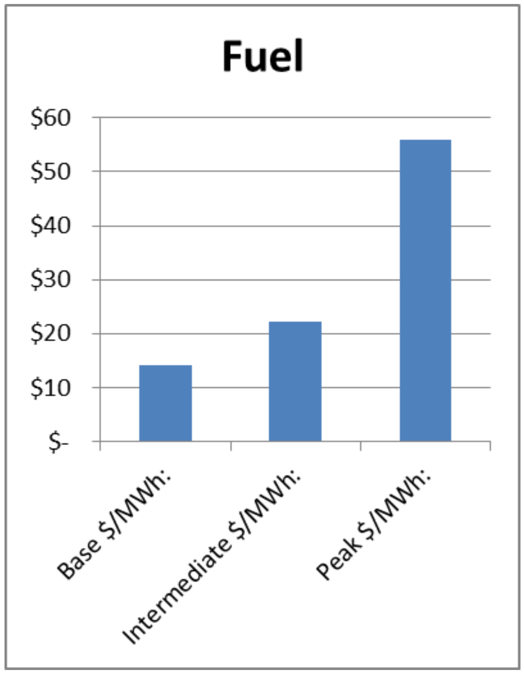
Q. Is it true that the best way to ensure that those customers who consume energy during the peak pay for the required capacity in operation during the peak is to use an allocation method that is directly proportional to peak demand?

A. Of course not. Peak capacity is cheaper to install than base capacity. Simply assuming all capacity costs are the same for all types of capacity, as recommended by Mr. Schmidt, Mr. Brubaker, and Mr. Rush ignores the reality that different types of plants have different costs to own and operate.[2] In this case, the information is available to reasonably allocate capacity, energy, O&M, and fuel in storage costs to classes on the assumption that those classes' usage and demand characteristics during the test year drove the utility's decision to make the plant investments that the utility has made. Staff is not aware of any reason to ignore that information in favor of an assumption that all capacity costs the same to install, and all energy costs the same to generate.

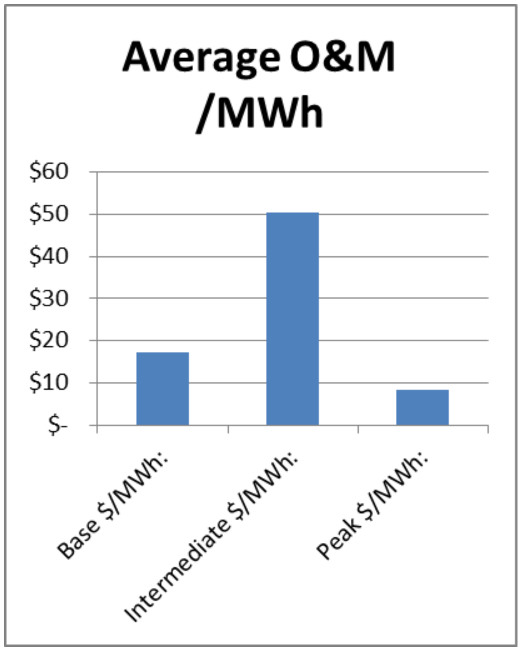
Q. Have you been made aware of an error in one of the figures you provided in the CCOS Report?

A. Yes. In my finalized workpaper used for developing the $/kWh per unit cost of fuel and O&M for the base, intermediate, and peak generating components, I inadvertently failed to apply the jurisdictional allocation factor to the dollars of fuel cost associated with the energy output from the generation assets. I failed to notice this error when incorporating these results into the CCOS Report. The CCOS Report at page 17, line 1, should be revised to state that "Staff found that the average fuel cost for these plants was only $14.12/MWh," at page 17, line 7, regarding intermediate generation it should state that "the average fuel cost for these plants was $22.32/MWh," and at page 17, lines 12-13, regarding peaking generation that "Staff found that the average fuel cost for these plants was $55.97/MWh." The second chart provided at page 22, line 1, contains these errors. The corrected chart is provided below:

[2] It is worth noting that there are applications where a 4CP provides useful information and sometimes the information necessary to do a more detailed study is unavailable. Staff is not recommending that the 4CP be entirely disregarded or abandoned as a useful study for appropriate use.



This correction does not impact any calculations or conclusions in that the values provided are used to develop a ratio, and that ratio is unaffected by applying the noted correction to each component. I have corrected this error and provided corrected workpapers in response to an MIEC data request. Also on page 22, at line 3, the third chart, providing Average O&M $/MWh included an error in the data pulled into that chart. While Staff's calculations are correct, the chart provided in the CCOS is not. The corrected chart is provided below:



Q. Does this conclude your surrebuttal testimony?

A. Yes.