Exhibit No.:	
Issue(s):	*Rate Design* *Net Metering Time-based Rates*
Witness:	*Sarah L.K. Lange*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case No.:	*ER-2024-0189*
Date Testimony Prepared:	*July 12, 2024*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPARTMENT

DIRECT TESTIMONY

OF

SARAH L.K. LANGE

EVERGY MISSOURI WEST, INC.,

d/b/a Evergy Missouri West

CASE NO. ER-2024-0189

Jefferson City, Missouri
July 12, 2024

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DIRECT TESTIMONY OF

SARAH L.K. LANGE

EVERGY MISSOURI WEST, INC.,
d/b/a Every Missouri West

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DIRECT TESTIMONY

OF

SARAH L.K. LANGE

EVERGY MISSOURI WEST, INC.,
d/b/a Every Missouri West

CASE NO. ER-2024-0189

Q. Please state your name and business address.

A. My name is Sarah L.K. Lange, 200 Madison Street, Jefferson City, MO 65101.

Q. Are you the same Sarah L.K. Lange who provided revenue requirement direct testimony in this matter?

A. Yes.

EXECUTIVE SUMMARY

Q. What is the purpose of your direct testimony?

A. My testimony will:

1. Recommend revisions to the rate structure of Every Missouri West's (EMW) non-residential non-lighting customers,

2. Discuss why changes to EMW's residential rate design are not appropriate at this time, except to facilitate improved billing for net metered customers,

3. Note various tariff provisions which will require updating in conjunction with compliance tariff rates in this case.

Q. Could you provide a summary of your rate structure and rate design recommendations?

A. Yes. For residential customers who have been exposed to significant rate changes and confusion related to rate changes, I recommend substantively

maintaining the current rate structures and rate designs.[1] For non-residential non-lighting customers, I recommend that the reliance on hour-use rate structures be lessened, and time-based elements be incorporated, and that end-use rate distinctions and related discounts be eliminated. This recommendation is substantively similar to Staff's recommendation in Case No. ER-2022-0130, EMW's last general rate case, and is not inconsistent with recently-implemented Evergy Kansas Metro rate structures in the State of Kansas, *see* Schedule SLKL-drd13.

Q. What changes in class revenue responsibility does Staff recommend in this case?

A. Staff does not recommend changes in class revenue responsibility at this time.

NONRESIDENTIAL/NON-LIGHTING RATE STRUCTURES AND RATE DESIGN RECOMMENDATIONS

Q. What changes in rate structure are appropriate for the commercial and industrial customers of EMW?

A. For non-residential non-lighting customers, I recommend that the reliance on hours-use rate structures be lessened, and time-based elements be incorporated, and that end-use rate distinctions and related discounts be eliminated. This recommendation is substantively similar to Staff's recommendation in Case No. ER-2022-0130, EMW's last general rate case, and is not inconsistent with recently-implemented Evergy Kansas Metro rate structures in the State of Kansas, *see* Schedule SLKL-drd13.

Q. How should time-based elements be incorporated into the EMW commercial and industrial rate structures?

[1] Staff recommends revision of residential rate structures as defined in order to facilitate net metering statutory requirements, however, this revision will be invisible to customers.

A. Time-based elements should be incorporated as an overlay to moderate customer impacts. This approach moderates customer impacts by allowing customers with higher load factors to continue to pay a lower than average cost per kWh, and persists in billing customers with lower load factors to pay higher than average costs per kWh.

Q. Are the existing differences in average costs per kWh cost-based?

A. It is reasonable to assume that customers who use energy around the clock are less expensive to serve on a per-kWh basis than customers who use energy only at times when all customers are using energy. However, because the hours use demand is established by each customer's noncoincident peak (NCP) in a given billing month, and hourly usage is not monitored, time-based rates are a much better tool than hours use rates for reasonably aligning revenue responsibility with cost causation.

Q. What is NCP?

A. As defined for EMW, NCP is a customer's usage in the 15 minutes in which that customer had the most usage in a given billing month. Prior to widespread usage of Advanced Metering Infrastructure (AMI) metering, NCP was a reasonable stand-in for estimating the relationship between a given customer's usage and the coincidence of that customer's usage with other customers' usage. Reliance on this relationship gave rise to the rate structure known variously as hours use, hours' use, and hours of use.

Q. What is the hours use rate structure?

A. The hours use rate structure uses the relationship between a customer's NCP and energy usage in a given month to approximate for billing purposes a calculation of the amount of energy a customer used during peak, shoulder, and off-peak times. This approach historically approximated billing customers a relatively low energy charge for the amount of energy that customers used around the clock, a relatively higher energy charge for the amount of energy

used during daytime or traditional business hours, and a moderate energy charge for the amount of energy used in between. Alternatively, it could be thought of as charging a relatively high rate for energy consumed on a daytime first shift, a moderate rate for energy consumed on second shift, and a relatively lower rate for energy consumed on the overnight third shift.

End-Use Distinctions and Discounts

Q. What is "Seasonal Energy?"

A. EMW's current tariffs for Small General Service (SGS), Large General Service (LGS), and Large Power Service (LPS) include a provision for a discounted rate for non-summer seasonal energy, described within the following provisions:

> MONTHLY BASE ENERGY AND SEASONAL ENERGY Monthly Seasonal Energy shall be the customer's monthly measured energy in excess of the customer's Annual Base Energy. The Monthly Base Energy shall be the measured energy in excess of the Monthly Seasonal Energy.[2]
>
> ANNUAL BASE DEMAND The Annual Base Demand shall be 100% of the maximum measured demand established during the preceding four (4) summer billing months. Company will determine the Annual Base Demand each year prior to the October billing month to be used for the following twelve (12) billing months. Company will estimate the Annual Base Demand for customers who have insufficient billing history. [3]
>
> MONTHLY BASE BILLING DEMAND AND SEASONAL BILLING DEMAND The Monthly Billing Demand shall be the customer's maximum fifteen (15) minute integrated demand measured during the month, but in no event less than twenty-five (25) kW. The Monthly Seasonal Billing Demand shall be the Monthly Measured Demand in excess of the customer's Annual Base Demand. The Monthly Base Billing Demand shall be the Monthly Billing Demand in excess of the customer's Monthly Seasonal Billing Demand. [4]
>
> MONTHLY BASE ENERGY AND SEASONAL ENERGY The customer's energy usage during the month shall be apportioned to Base Energy and Seasonal Energy in the same proportion as the customer's Monthly Base Billing Demand and Seasonal Billing Demand. The

[2] Small General Service, 147.4.
[3] Small General Service 147.5, Large General Service 148.3, Large Power Service 149.5.
[4] Small General Service 147.5, Large General Service 148.3, Large Power Service 149.5.

Monthly Base Energy and Seasonal Energy shall be apportioned to the Hours Use rate blocks based on the Monthly Base Demand and Seasonal Demand. [5]

Q. What end-use discounted rates are reflected in EMW's current tariffs?

A. EMW offers discounts for space heating and electric water heating to small general service customers at sheet 147.1, which is "FROZEN," to new customers.

Development of Time-Based Overlay

Q. How did Staff develop its non-residential non-lighting rate recommendations?

A. The first step was to review the load characteristics and energy cost characteristics to select time periods for the time-based overlay. Next, the wholesale cost of energy differentials across those time periods were used to develop rates for the periods of the overlay, by billing season. The percentage of load for each rate class that falls into each overlay period, by billing season, was used in conjunction with Staff's normalized and annualized billing determinants for each rate class to develop determinants for each overlay period, by billing season. Using these determinants and the rates calculated based on wholesale cost of energy differentials, the revenue impact of the recommended overlay for each rate class was calculated. This revenue impact, along with the elimination of end use and seasonal discounts is incorporated into the rate recommendation for each class, all as described in greater detail in the following sections.

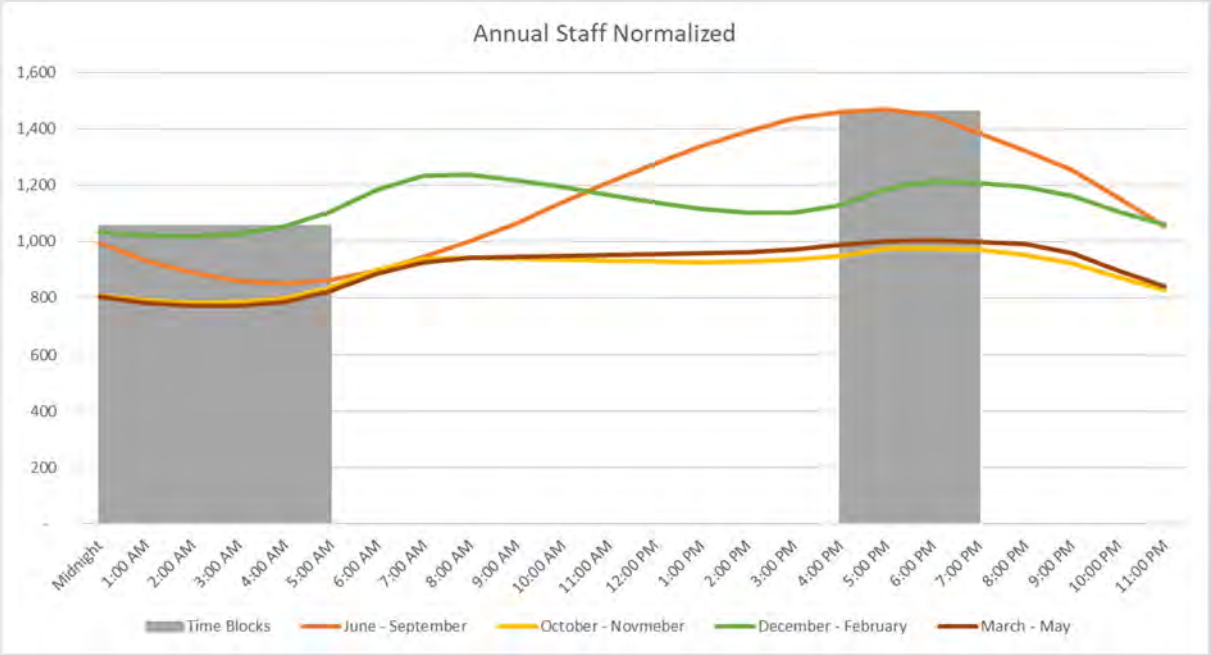
Load Characteristics

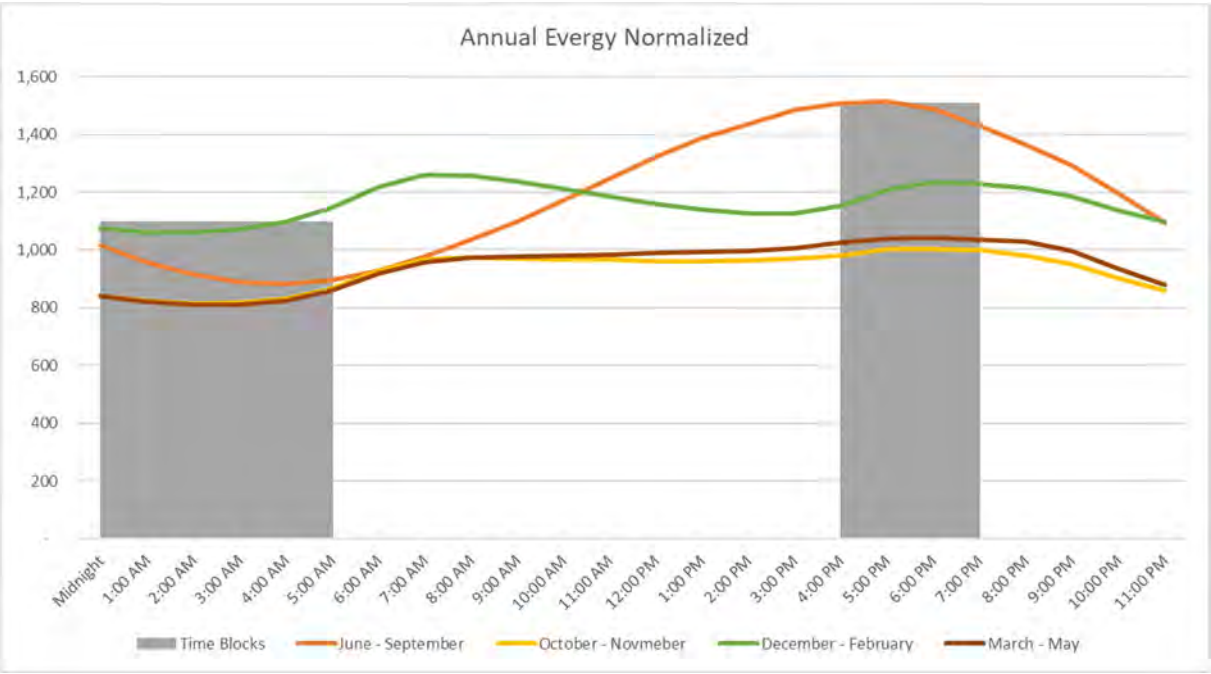
Q. What is the relationship of EMW's load and the time of day?

A. The relationship of EMW's load and the time of day varies by year. Below are a series of graphs depicting EMW's load as weather-normalized by Staff, as weather-normalized

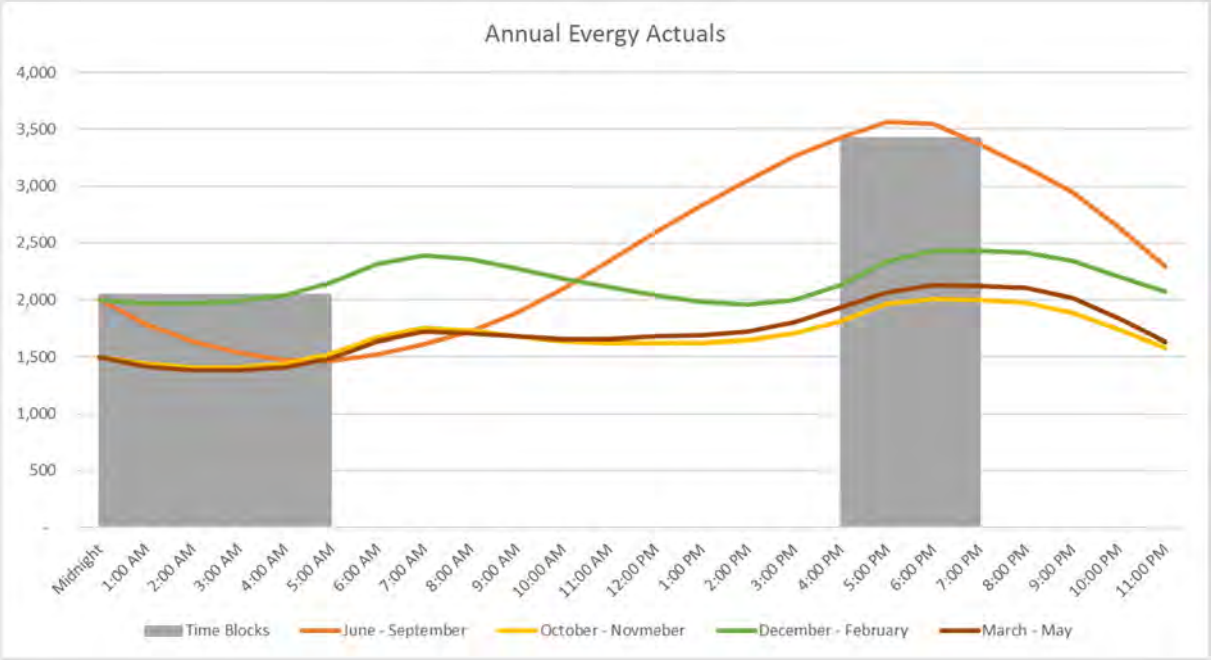
[5] Small General Service 147.5, Large General Service 148.3, Large Power Service 149.5.

by EMW,[6] and as provided as "actuals" by EMW.[7] This first series looks at the average hourly load for each day of the indicated months:





[6] Provided in response to Staff DR No. 0379.
[7] EMW has performed a process it describes as "calibration" which modifies the load to the level in the EMW-determined billing determinants. Provided in response to Staff DR No. 0379.2.



Q. What do the gray areas of each graph indicate?

A. These areas are the current on-peak and super off-peak time blocks of the residential time-based rate plans, with super off-peak defined as midnight to 6 a.m., and on-peak defined as 4:00 p.m. – 8:00 p.m. The height of the on-peak block is defined by the highest level of load occurring in the 7:00 p.m. hour. The height of the super off-peak block is defined by the maximum load occurring throughout the super off-peak period.

Q. Did you also look at each billing season in greater detail?

A. Yes. I looked at each billing season, by month, by weekday load, and weekend load. The Summer season load graphs are provided below:

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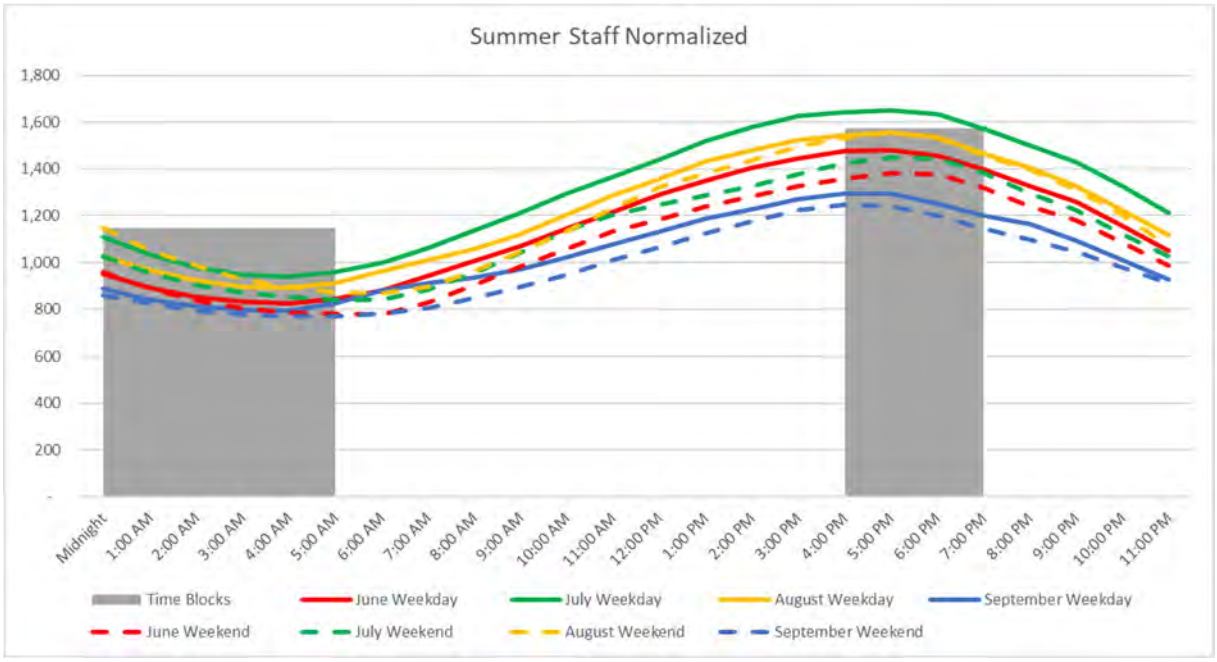
Summer Staff Normalized
1,800
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400
200
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Midnight
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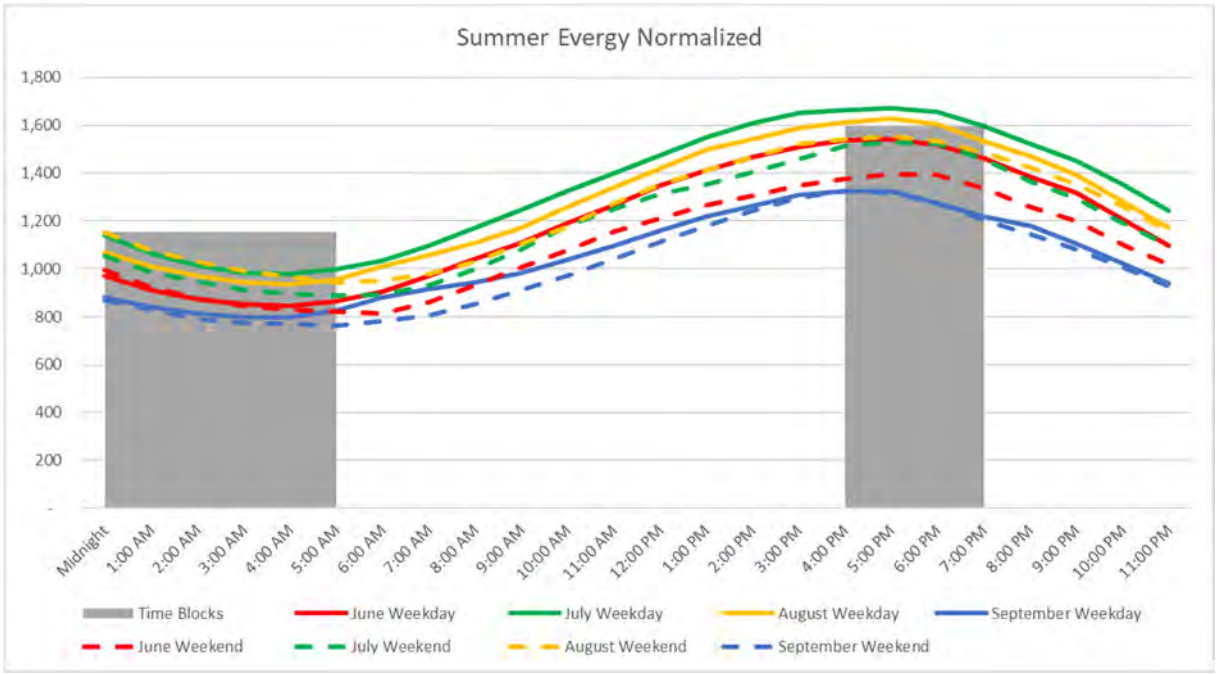
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Time Blocks
June Weekday
July Weekday
August Weekday
September Weekday
June Weekend
July Weekend
August Weekend
September Weekend


Summer Evergy Normalized
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2:00 AM
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August Weekday
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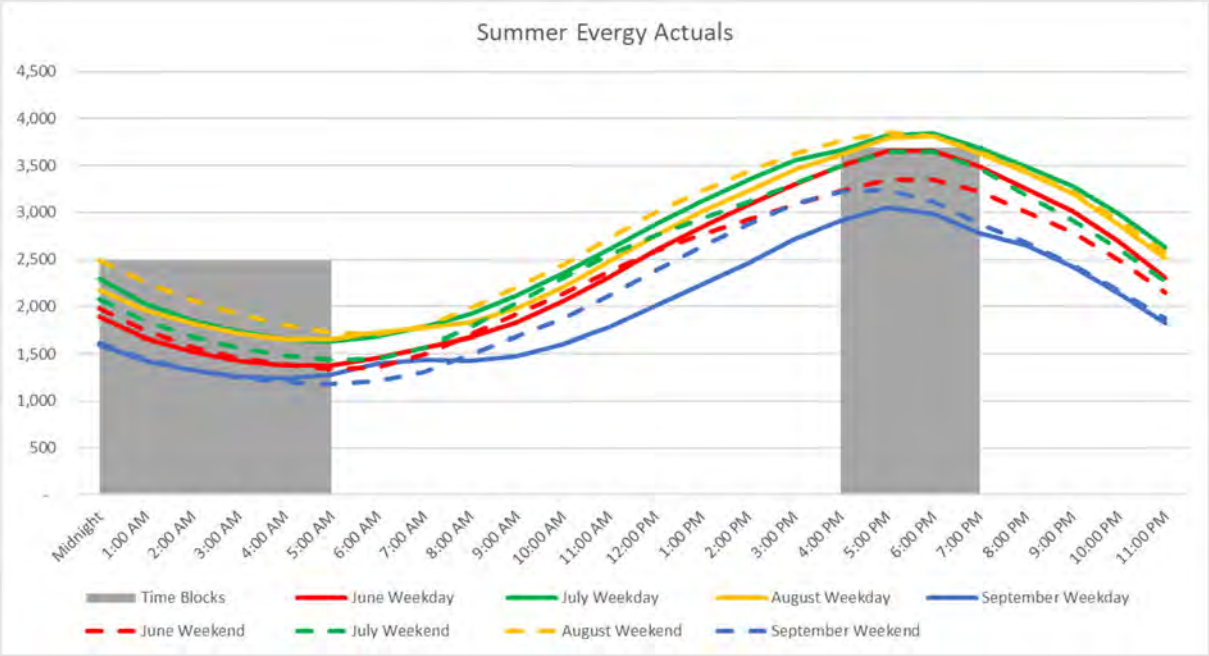
July Weekend
August Weekend
September Weekend



Q. What do these load graphs show about weekday and weekend usage?

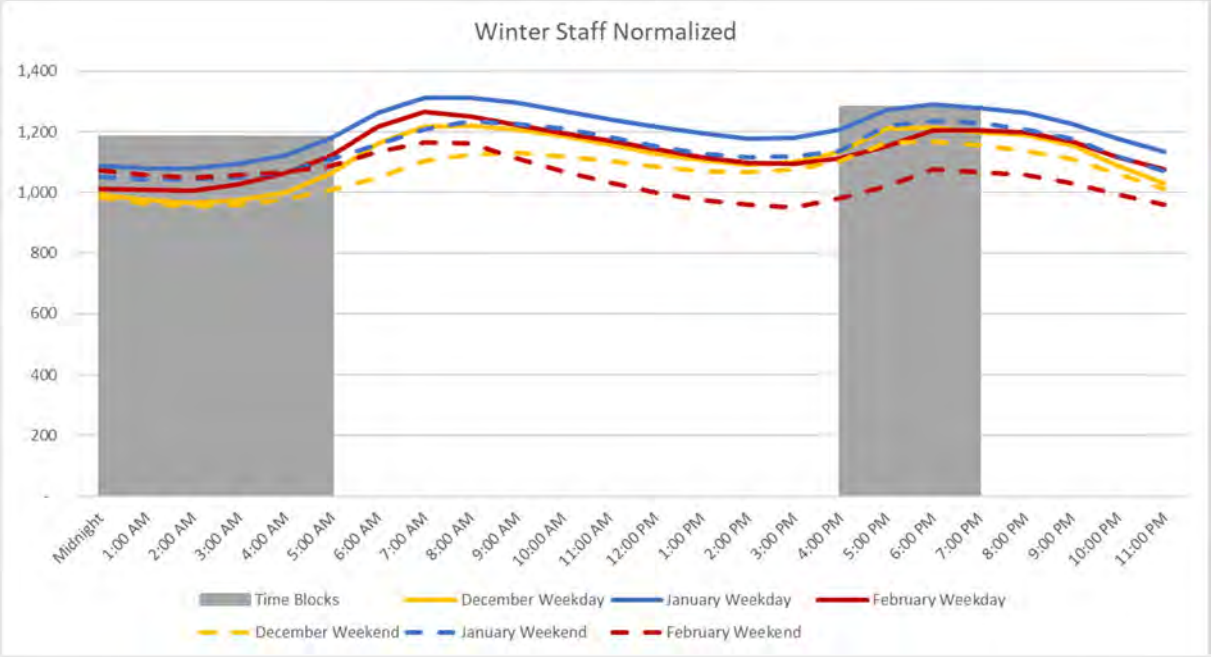
A. These graphs show that, while weekday and weekend usage is modestly divergent, the weekend usage of all months in the summer billing season is generally within the bounds of the weekday usage of all months in the summer billing season during the peak period, with the exception that Staff's normalized usage for September weekends is slightly lower during the peak period than the bounds of weekday usage. In other words, these graphs illustrate that system requirements for a weekday in September are less than for a weekend in June, July, and August.

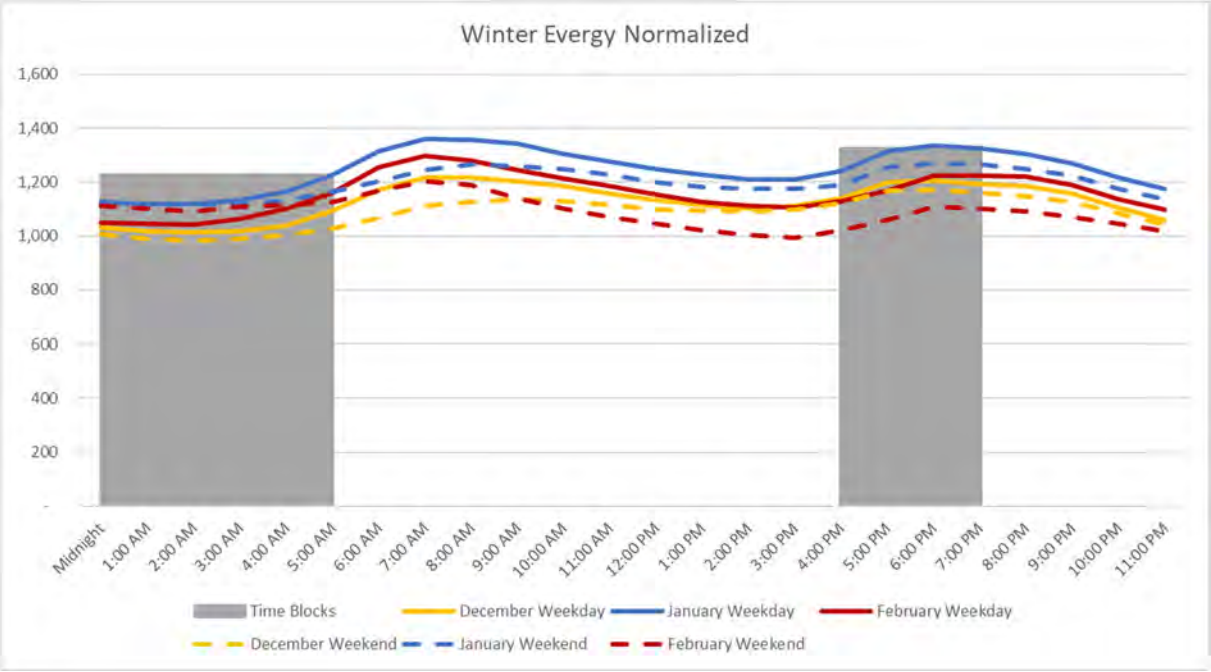
Q. What do these load graphs show us about selection of time periods for different pricing?

A. These load graphs show that the midnight-6:00 a.m. super off-peak period appears reasonable, but that the on-peak period likely starts too late. This will be discussed in greater detail.

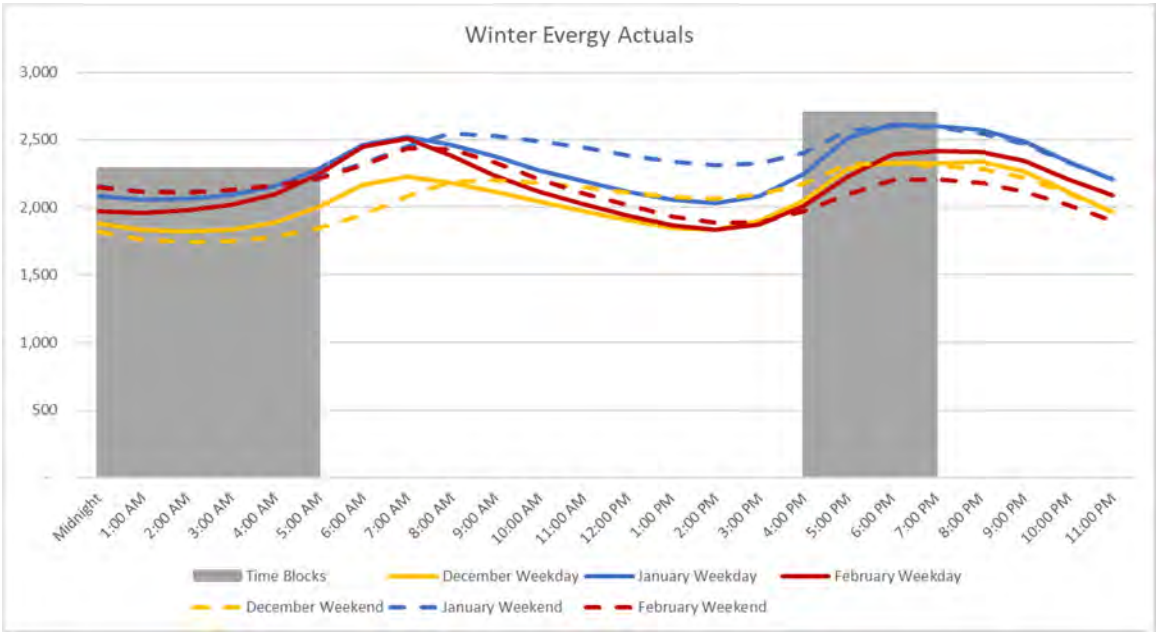
Q. What are the load characteristics for the non-summer billing months?

A. Those characteristics vary by shoulder months, and the winter months. The loads for the winter months of December, January, and February[8] are provided below:





[8] The "time blocks" heights in these winter month graphs are defined by the maximum values across all non-summer billing months.



These winter months demonstrate less overall volatility than the summer months, although they exhibit a double-peaking pattern, which remains evident, though at a lower magnitude, during weekends. The on-peak period appears to end a bit early, and the super off-peak period appears that it would be reasonable to consider ending a bit sooner.

Q. How do the loads for all non-summer billing months compare to the loads for the winter billing months displayed above?

A. The loads for all non-summer billing months are graphed below:

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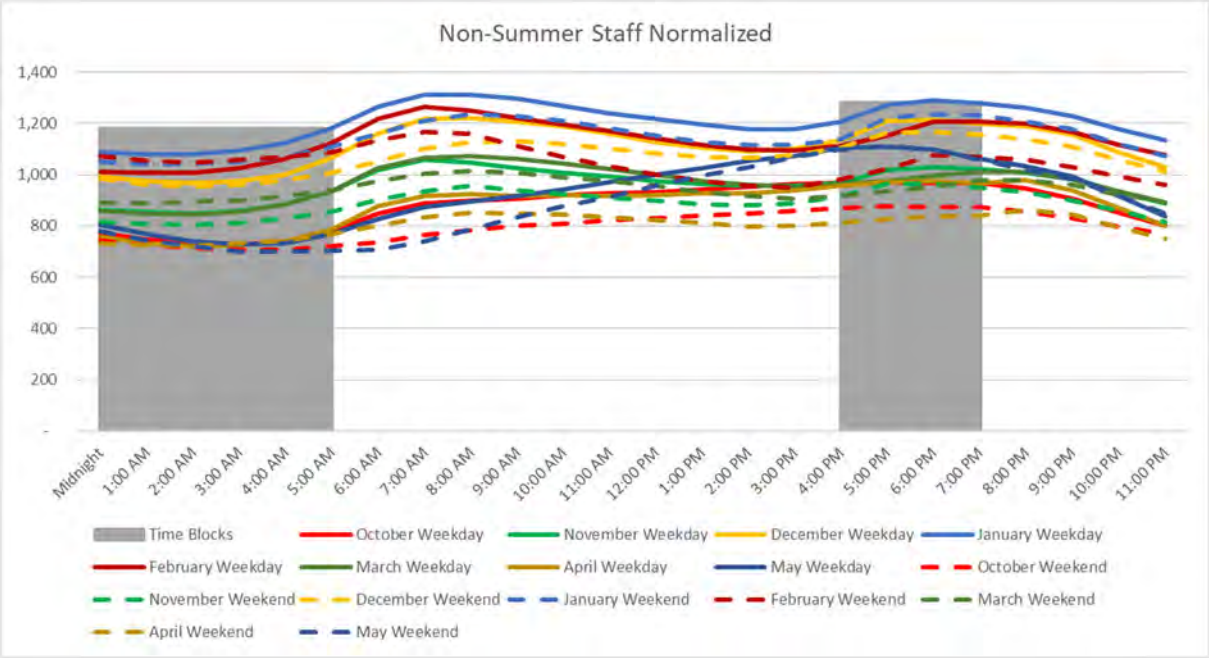
Non-Summer Staff Normalized
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Midnight
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4:00 AM
5:00 AM
6:00 AM
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9:00 AM
10:00 AM
11:00 AM
12:00 PM
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Time Blocks
October Weekday
November Weekday
December Weekday
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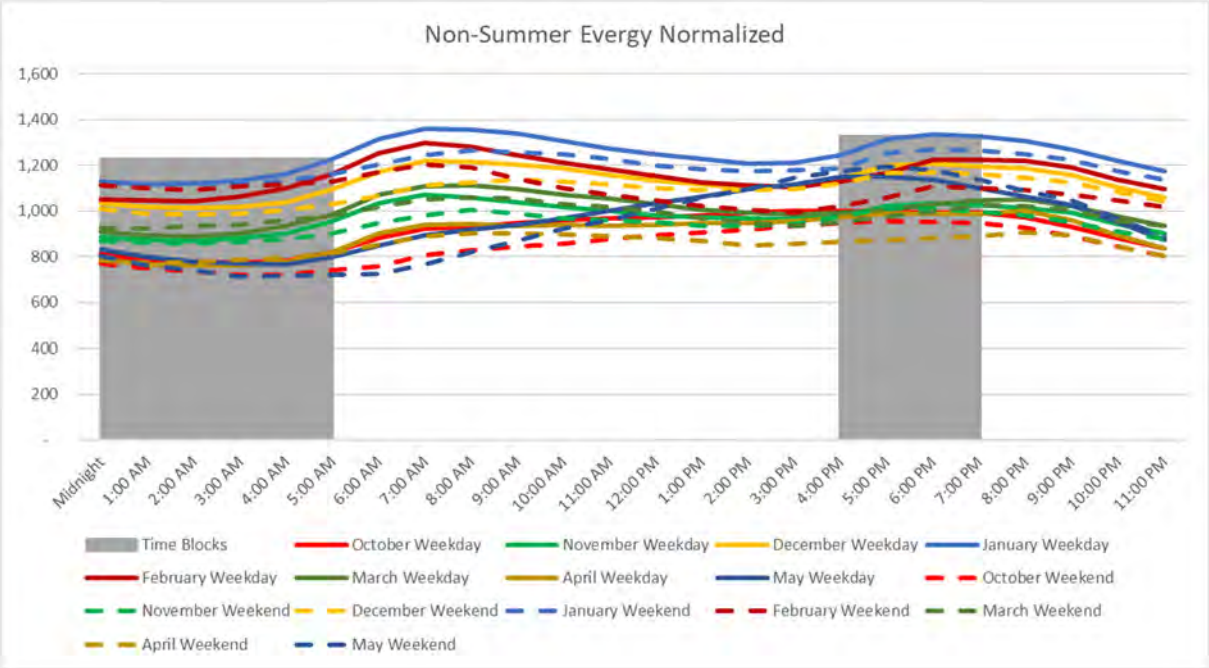
April Weekend
May Weekend


Non-Summer Evergy Normalized
1,600
1,400
1,200
1,000
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200
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Midnight
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3:00 AM
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5:00 AM
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Time Blocks
October Weekday
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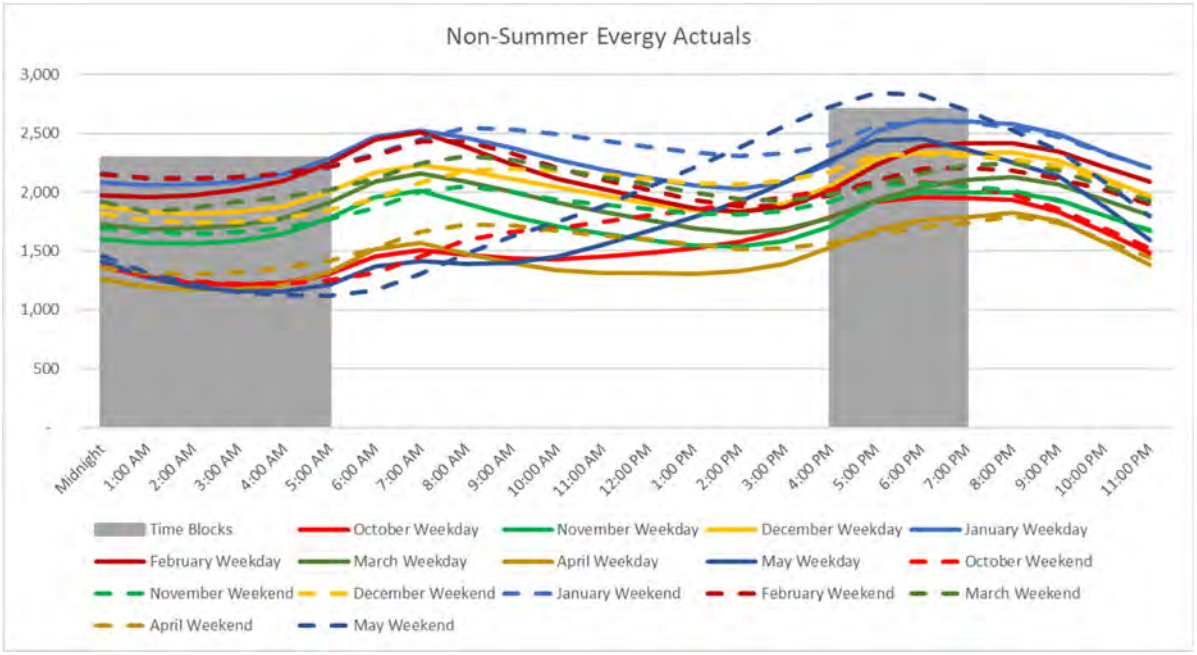
May Weekend



Spring and fall indicate usage that is generally flatter and lower than both summer and winter, but with weekend usage that exceeds weekday usage in some months both in magnitude and volatility. Also, the spring and fall months generally demonstrate an afternoon/evening peak, but also include a morning bump in usage.

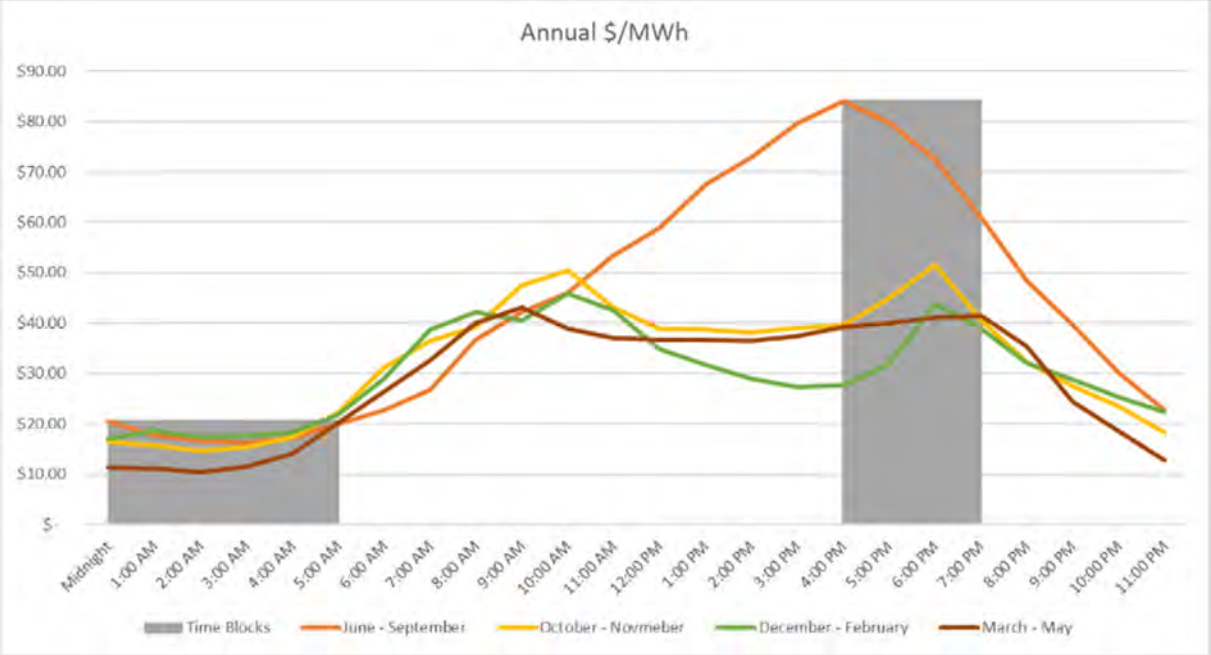
Q. Based on EMW's load characteristics for non-summer billing months, what conclusions do you draw?

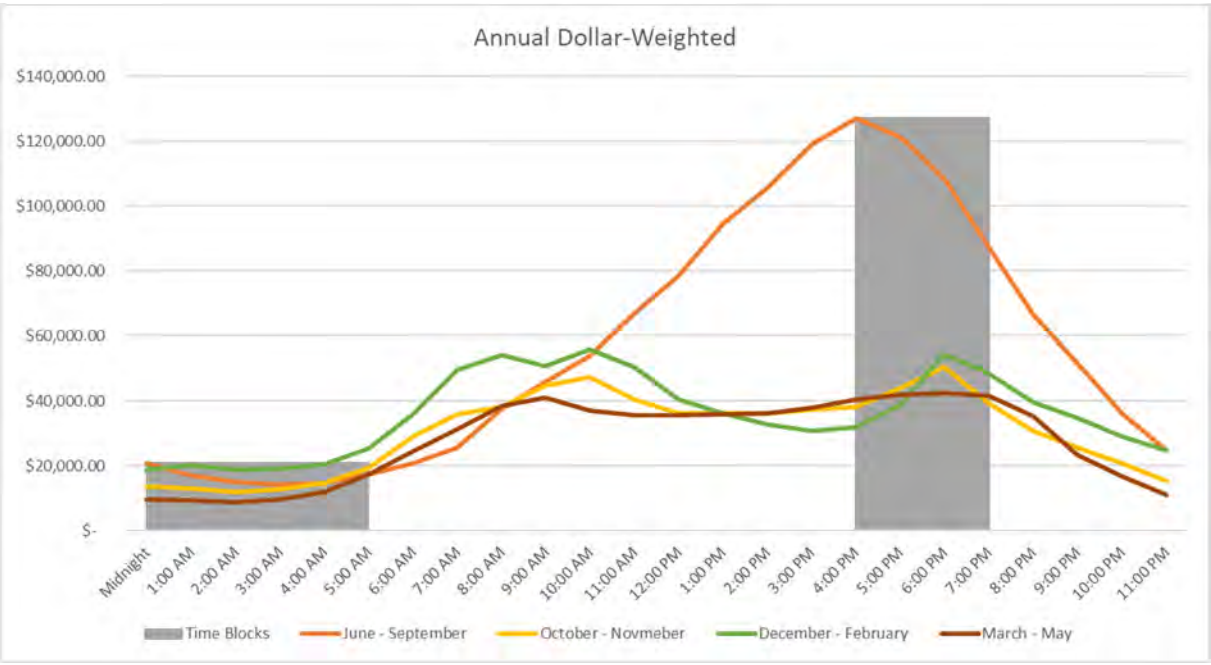
A. I conclude that the winter months have a strong morning peak in load, while the shoulder months included in the non-summer billing season have a load profile more consistent with summer loads.

Energy Cost Characteristics

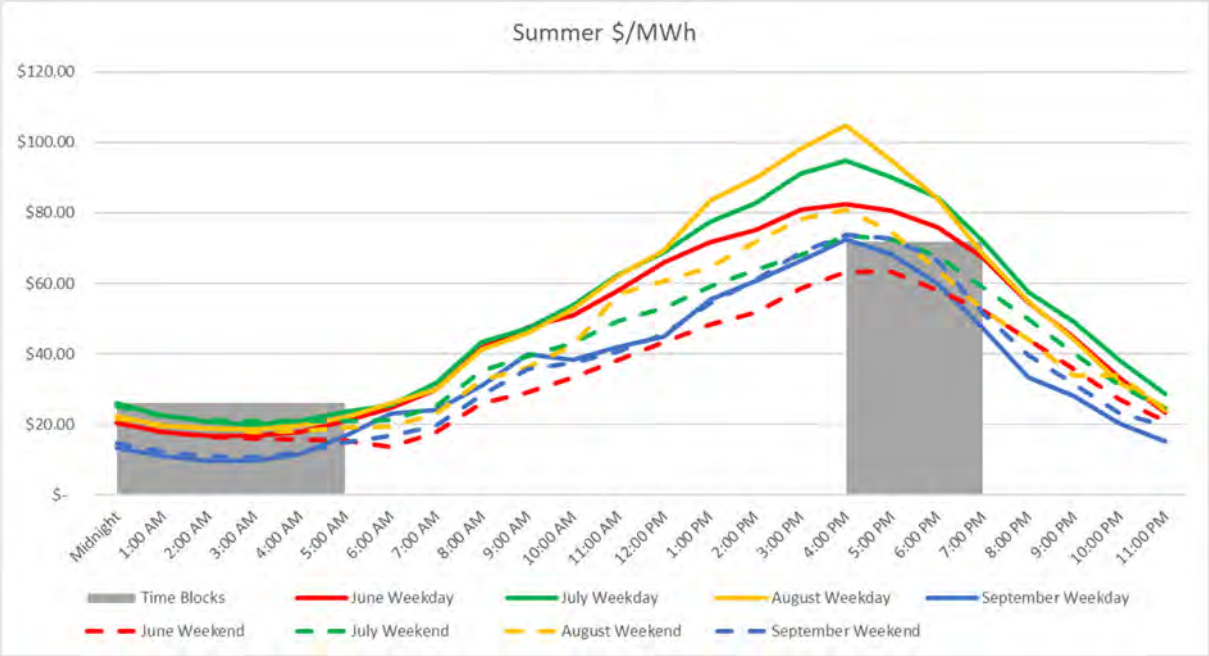
Q. What are the daily and seasonal characteristics of EMW's cost of energy at wholesale?

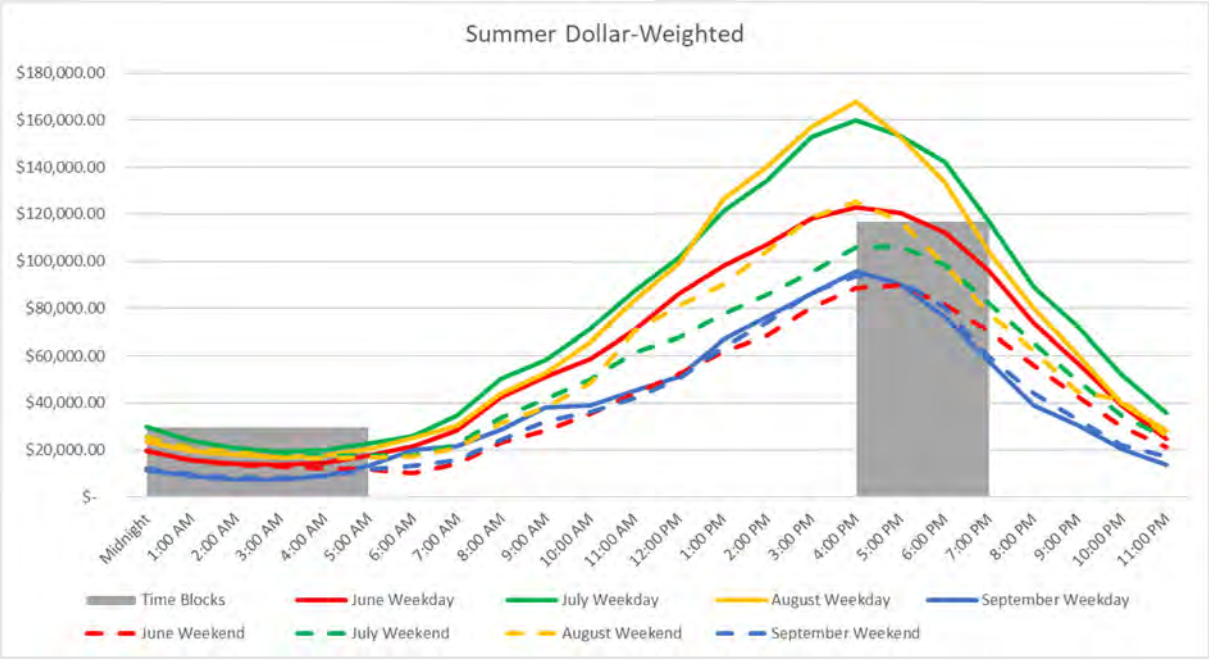
A. Below, I provide the average wholesale cost of energy by hour, as well as the cost of energy for EMW's load, which is calculated by multiplying the cost of energy in each hour by Staff's normalized calculation of load in each hour, first, annually:



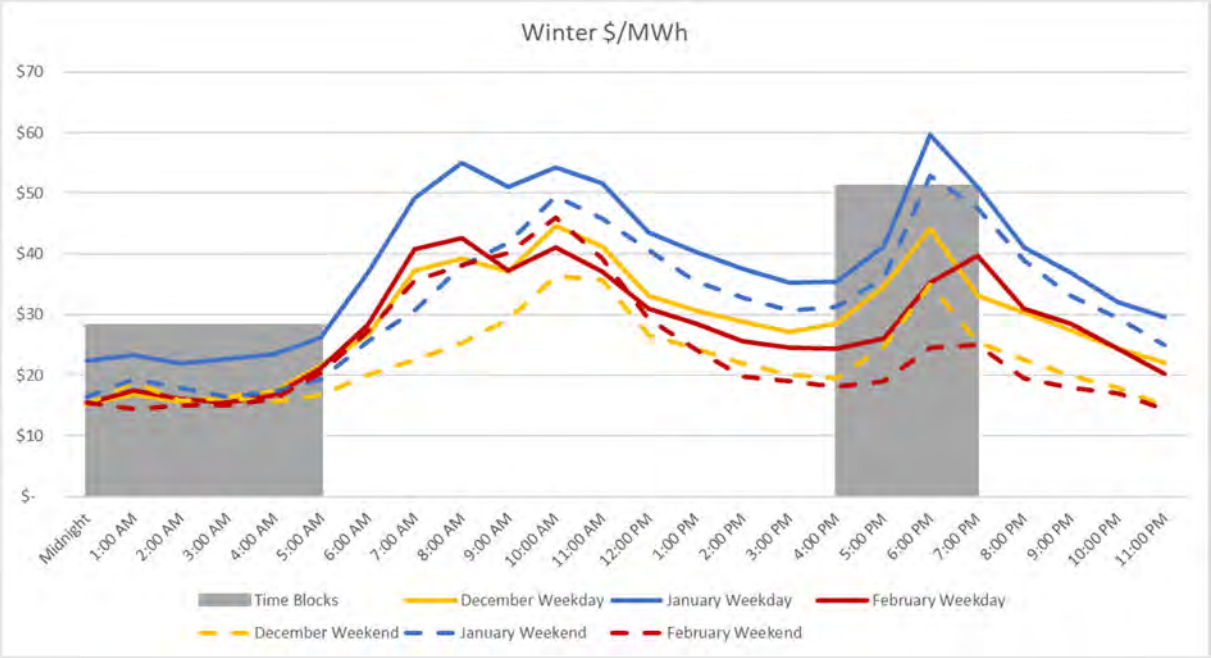


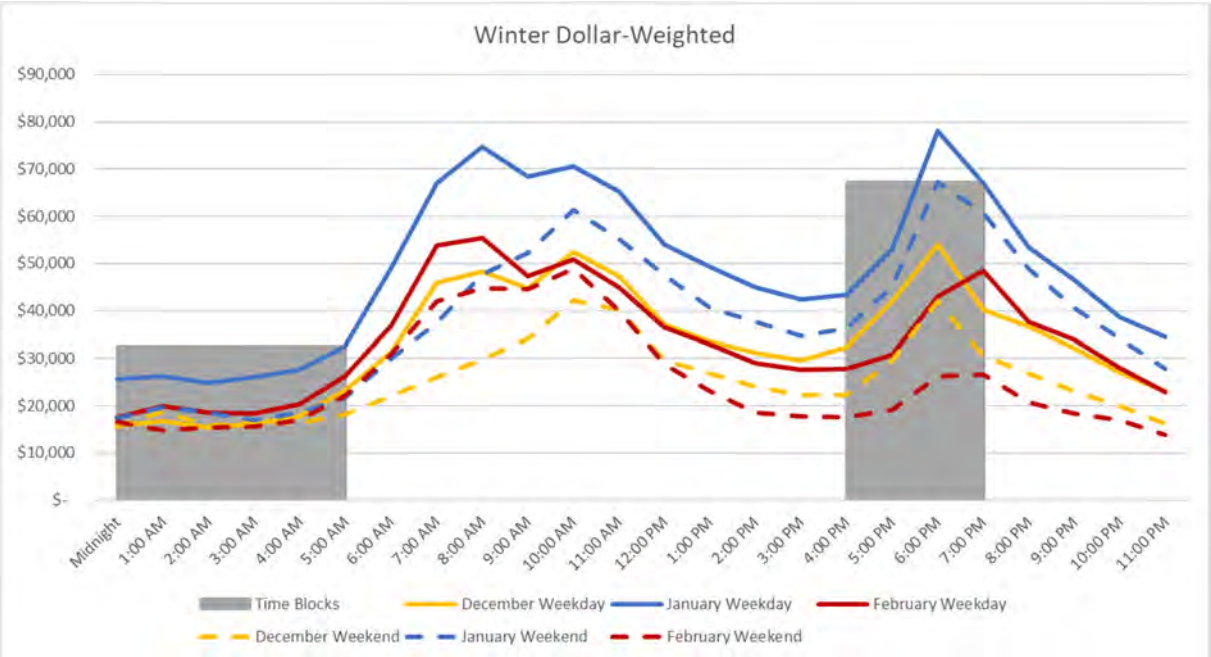
Second, for summer billing months, by weekday and weekend:



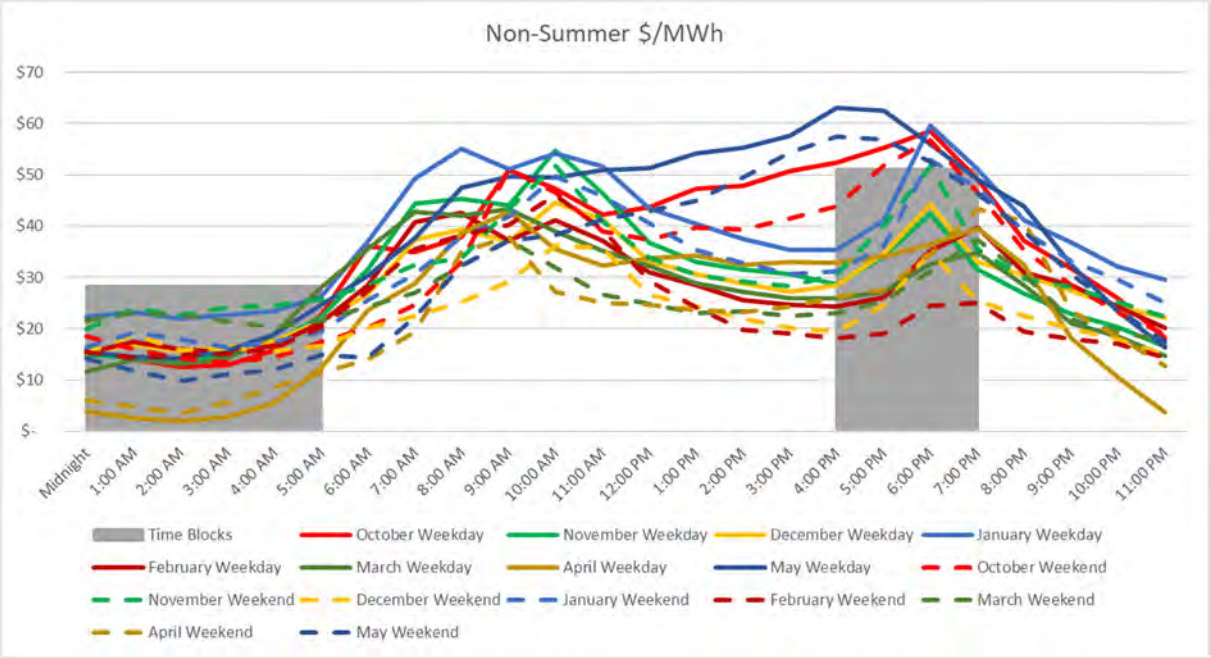


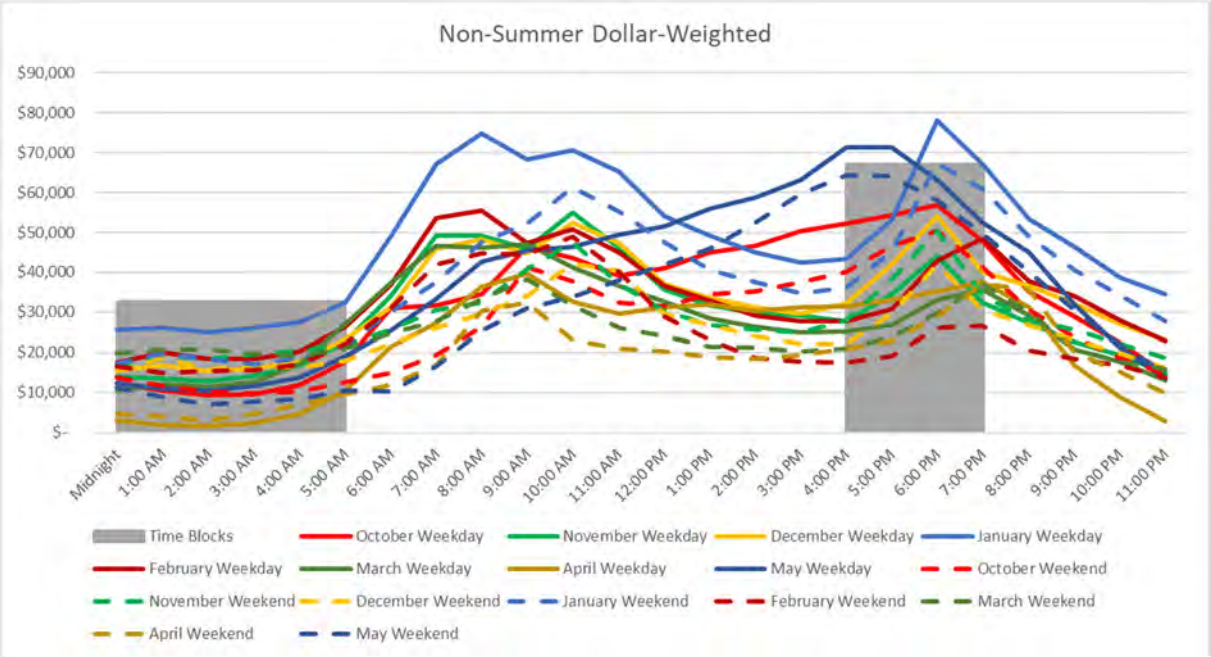
Third, for the winter months:





And, finally, for all non-summer billing months:





Q. Based on the wholesale cost of energy on average, and as applied to EMW's load, what conclusions do you draw from this information?

A. First, for summer months it is clear that the time of the on-peak rate is misplaced. The on-peak period should be several hours earlier. A period of approximately 2:00 p.m. until 8:00 p.m. would be consistent with the current inclusion of 7:00 p.m. in a peak period. A period of 3:00 p.m. to 7:00 p.m. would be reasonable to reflect a desire some may have to keep the on-peak period relatively brief.

Second, while more separation in the dollar-weighted cost of energy exists between summer weekends and weekdays than exists in the load relationship, the general relationship of weekdays and weekends that was present in summer loads remains, namely, that June, July, and August weekend values are at a higher magnitude than September weekday values.

Finally, the morning peaks in winter months and the afternoon peaks in shoulder months are evident.

Q. Based on load and cost characteristics, what time-based periods should be considered for non-summer billing months?

A. Recognizing the different load patterns present across the eight-month non-summer billing season, the load patterns discussed above would indicate that the super off-peak period should be shifted to an earlier end time, and possible an earlier start time, and that the dual-peak nature of peak winter days should be taken into consideration.

Going forward, different time-based periods should be developed for shoulder months that include price signals more consistent with the summer load shape, and separate charges for the winter months that are consistent with the winter dual peak. However, Staff recognizes this is not feasible at this time.

Rate Structure and Design

Q. Could a charge based on a customer's highest usage during certain hours be a useful tool in rate making for these customers?

A. Yes. Staff and industrial intervenors have recommended progress in developing determinants for application of an "on-peak" demand charge for several years. EMW has failed to progress in development of this determinant to date.

Q. In addition to, and in the absence of, information required to develop and bill an on-peak demand charge, what is Staff's recommendation for customers in the SGS, LGS, and Large Power (LP) rate classes?

A. Staff recommends that a time-based overlay, similar to the Residential Peak Adjustment rate plan, be incorporated into these rate structures. This would not be an optional rate plan for customers to select or avoid, it would simply be the applicable rate plan for each class. Coinciding with the incorporation of the time-based overlay, end-use rate discounts and seasonal energy and demand calculations should be eliminated.

Q. When should these changes take place?

A. These changes should occur simultaneously with the promulgation of new rates in this rate case. The customer impact of these changes is within typical rate case changes, pending study of information that is subject to the Commission's Orders to provide sample customer data in response to Staff Data Request (DR) Nos. 0159 and 0160. This recommendation is consistent with Staff's recommended rate structure changes in the last EMW rate case, and aligns with rate structure changes occurring in Evergy's Kansas jurisdictions.

Q. Are there lessons learned from Evergy's deployment of residential time-based rates that should be incorporated into this restructuring of EMW's non-residential rates?

A. Yes. The delay from January 2023 until November-December 2023 resulted in customer confusion that an additional rate change was occurring. Further, failure to inform customers of the elimination of the discounted residential heating rates caused customers to conclude that that time-based rates caused dramatic bill changes that were actually attributable to losing their space heating discount (or, for the benefit of the elimination of the discount to those who had not received the discount).

EMW should inform its customers who are billed on an end-use rate of the following content (or something substantially similar):

> On February 2, 2024, Evergy Missouri West requested an increase to its rates, which was granted on DATE. [ACCOUNT NAME] has received service on a rate schedule that provided discounts for usage due to use of electric heating equipment. That rate schedule has been eliminated, and the discount you have previously received will be spread to all customers in your customer class. The value of the discount will not be retained by Evergy Missouri West. Evergy Missouri West will also modify the rate structure for customers in your customer class to decrease the charges for energy at times when the wholesale cost of energy is lower, and to increase the charges for energy at times when the wholesale cost of energy is higher. The new charges are set out in the table below [Insert table.]

EMW should inform its customers who have been billed in the last calendar year using seasonal energy charges of the following content (or something substantially similar):

> On February 2, 2024, Evergy Missouri West requested an increase to its rates, which was granted on DATE. [ACCOUNT NAME] has received service on a rate schedule that provided discounts for relatively higher usage during winter months. That discount has been eliminated, and the discount you have previously received will be spread to all customers in your customer class. The value of the discount will not be retained by Evergy Missouri West. Evergy Missouri West will also modify the rate structure for customers in your customer class to decrease the charges for energy at times when the wholesale cost of energy is lower, and to increase the charges for energy at times when the wholesale cost of energy is higher. The new charges are set out in the table below [Insert table.]

EMW should inform its customers who do not meet either of the above criteria of the following content (or something substantially similar):

> On February 2, 2024, Evergy Missouri West requested an increase to its rates, which was granted on DATE. Some customers in your customer class have received discounts which have been eliminated and the value of that discount will be spread to all customers in your customer class. The value of the discount will not be retained by Evergy Missouri West. Evergy Missouri West will also modify the rate structure for customers in your customer class to decrease the charges for energy at times when the wholesale cost of energy is lower, and to increase the charges for energy at times when the wholesale cost of energy is higher. The new charges are set out in the table below [Insert table.]

Q. Is a workshop process necessary or appropriate?

A. No. EMW's non-residential customers should be provided with succinct, accurate information concerning the rate restructuring that is presented in a direct and timely manner. EMW should be ordered to file updates in this docket informing the Commission of what information it disseminates to its customers prior to dissemination of that information so that the Commission is kept adequately informed of EMW's progress.

Q. Based on the load and wholesale energy cost analysis you describe above, should weekends be excluded from on-peak periods?

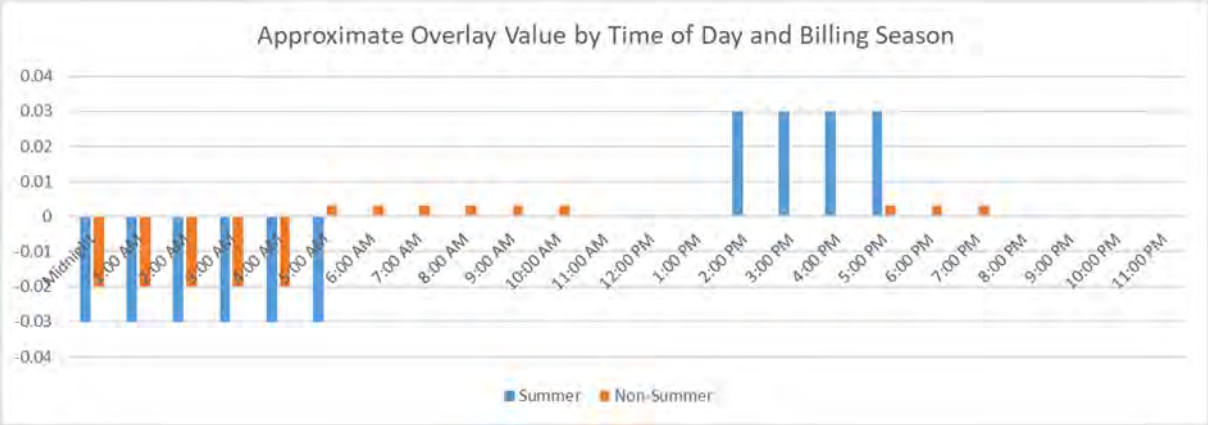
A. No.

Q. Based on the load and wholesale energy cost analysis you describe above, what are reasonable time periods and approximate magnitudes for each billing season?

A. Taking the factors discussed above into account to develop pricing periods, and then calculating the average daily difference in LMPs across those periods for each season, the following time-based overly design is reasonable in this case:[9]

[9] Indicated rates are at generation voltage and are subject to adjustment for losses, which will be discussed below.

		Super Off-Peak	Off-Peak	On-Peak
Time Periods	Summer	Midnight - 6:00 am	6:00 am - 2:00 pm; 6:00 pm - Midnight	2:00 pm - 6:00 pm
	Non-Summer	Midnight - 5:00 am	11:00 am - 5:00 pm	5:00 am - 11:am pm; 5:00 pm - 8:00 pm
Approximate Overlay Values	Summer	$ (0.030)	$ -	$ 0.030
	Non-Summer	$ (0.020)	$ -	$ 0.003



Q. Is there a benefit to staggering the start times of the non-residential and residential pricing periods?

A. Yes. While the time periods recommended above do generally differ from the periods in place for residential customers, they were selected using the best data available concerning EMW's load available at this time, and they are reasonable in and of themselves. In addition, as I will discuss below, Staff is not recommending any changes to the residential time periods at this time. This results in a slight staggering of time periods, which has a latent benefit of reducing the likelihood of significant spikes in energy consumption that could be economically reasonable at the start or end of a period if all time periods aligned for all customers.

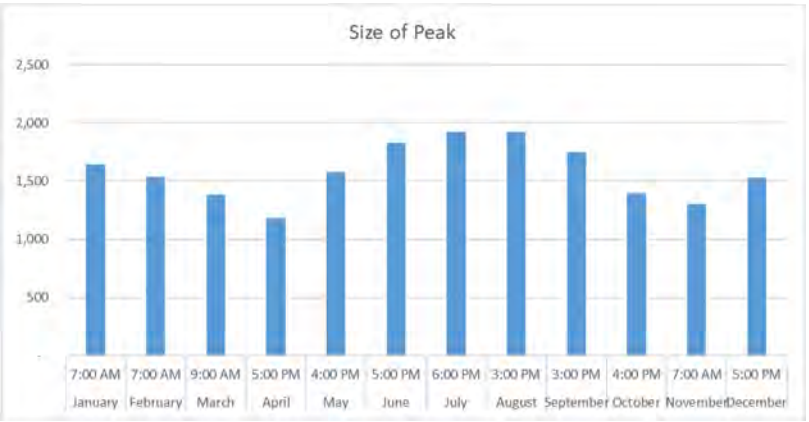
Q. Do you expect that customers will make significant changes in the timing of energy consumption based on these recommended rates?

A. No. Reasonable cost-based rates will better recover revenue from cost causers, but may not be of a magnitude to cause customers to change behavior to avoid costs. For example, while traveling by bicycle is less expensive than car ownership, millions of Americans own and drive cars. The goal of cost-based time-based energy rates is to better align cost causation with revenue responsibility, not to socially engineer the timing of energy consumption. However, a latent benefit of cost-based time-based energy rates is that some customers will modify usage to avoid increased revenue responsibility, or to actively decrease revenue responsibility. Because of this, it is important that care be taken to avoid providing a price incentive to increase usage at times, which would increase energy costs or potentially cause new distribution, transmission, or generation capacity costs.

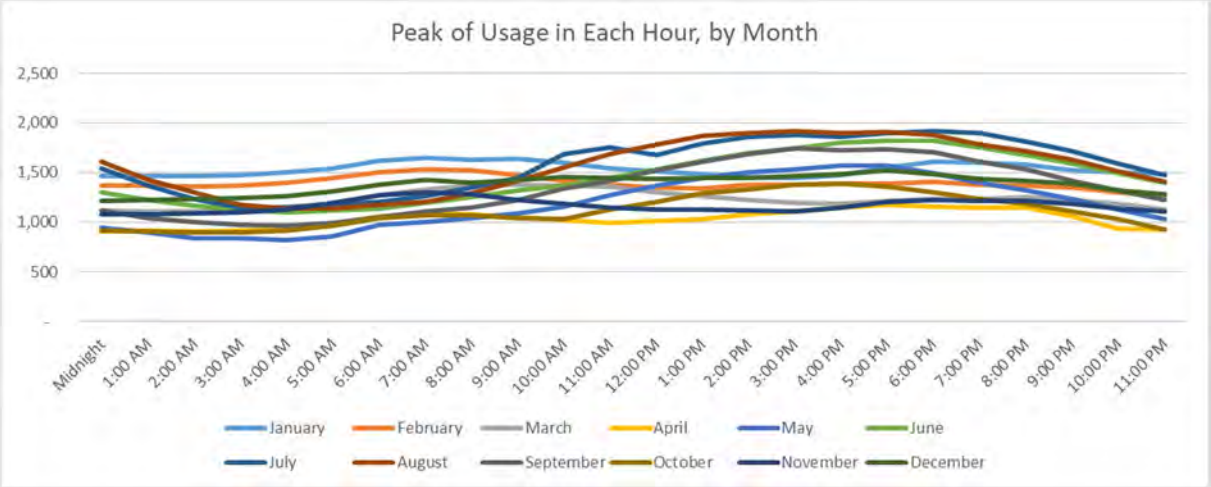
Q. What were the hours of EMW's overall system peaks?

A. EMW's overall peak of 1,922 MW occurred in July, at 6:00 p.m., with a secondary peak of 1,918 MW occurring in August at 3:00 p.m., prior to the EMW on-peak time period of 4:00 p.m. – 8:00 p.m. The peaks by month, and time, are set out below:

Month	Hour of Peak	Size of Peak
January	7:00 AM	1,642
February	7:00 AM	1,534
March	9:00 AM	1,380
April	5:00 PM	1,179
May	4:00 PM	1,573
June	5:00 PM	1,825
July	6:00 PM	1,922
August	3:00 PM	1,918
September	3:00 PM	1,744
October	4:00 PM	1,390
November	7:00 AM	1,298
December	5:00 PM	1,524



The peak usage in each hour, in each month, is graphed below:



Q. What was the hour of EMW's retail load peak?

A. If sales for resale are excluded, EMW's retail load peak was 3:00 p.m. on August 23, at 1,973.95 MW. EMW's retail load peaks are set out below:

Month	Hour of Peak	Size of Peak
January	7:00 AM	1,726
February	7:00 AM	1,626
March	9:00 AM	1,431
April	8:00 PM	1,158
May	4:00 PM	1,644
June	5:00 PM	1,933
July	5:00 PM	1,935
August	3:00 PM	1,974
September	3:00 PM	1,889
October	4:00 PM	1,523
November	7:00 AM	1,315
December	5:00 PM	1,499

Q. What does this information show us about incentives we do not want to include in designing rates?

A. This information shows us that we do not want to incent increasing energy consumption in summer billing months between the hours of 3:00 p.m. at 6:00 p.m., and

we do not want to incent increasing energy consumption at 5:00 p.m. or 7:00 a.m. during non-summer billing months, as those are hours when peaks have occurred. We should be cautious in designing rates not to incent shifting usage to these times.

Q. What is the net revenue impact of this time-based overlay of the existing rate structures for EMW's non-residential non-lighting customers?

A. I will address the direction and magnitude of the overlay, in each section below, and provide Staff's detailed recommendation for the rate design for each class.

SGS Determinants and Charges

Q. What is the revenue impact of the time-based overlay?

A. The overall impact of the time-based overlay is a revenue reduction of approximately $2 million, calculated as set out below, adjusting usage[10] to generation voltage:

EMW Small General Service		Super Off-Peak	Off-Peak	On-Peak	Revenue Impact by Season
Time Periods	Summer	Midnight - 6:00 am	6:00 am - 2:00 pm; 6:00 pm - Midnight	2:00 pm - 6:00 pm	
	Non-Summer	Midnight - 5:00 am	11:00 am - 5:00 pm	5:00 am - 11:am pm; 5:00 pm - 8:00 pm	
Percent of Season's Usage per Period	Summer	23.85%	57.56%	18.59%	
	Non-Summer	17.00%	41.70%	41.30%	
Usage per Period	Summer	130,144,837	314,112,735	101,441,550	
	Non-Summer	159,539,148	391,262,868	387,503,100	
Revenue Impact of Overlay per Period	Summer	$ (3,904,345)	$ -	$ 3,043,246	$ (861,099)
	Non-Summer	$ (3,190,783)	$ -	$ 1,162,509	$ (2,028,274)

Q. How should the remaining rate design for SGS be developed?

A. SGS customers can be served at secondary voltage without a demand charge, secondary voltage with a demand charge, and primary voltage with a demand charge. Each of

[10] To minimize potential disputes, I used Evergy's normalized loads for each class, as provided in response to Staff DR No. 0379.

these service types has separate energy rates within the SGS rate schedule, as well as customer charges, facilities charges, and demand charges, as applicable, that vary by the customer's service voltage. To mitigate customer rate impacts, all rate elements other than energy rate elements should be increased by an equal percent adjustment. Further, EMW is unable to provide the information necessary to reasonably study the relationship of cost causation and revenue responsibility as it pertains to the customer, facilities, and demand charges of customers served at various voltages within the class.

Q. How should energy rate elements be adjusted?

A. First, the non-summer energy rates are adjusted to remove the end-use discount and the seasonal discounts without changing the overall revenue collected by each voltage served within the SGS class within each season. Then, the tail block and first block rates should be adjusted to reduce the difference between those rates, without changing the overall revenue collected by each voltage served within the SGS class within each season. Next, the increase to be implemented (for purposes of illustration, 10% was used) should be combined with the net revenue impact of the time-based overlay by season. Because EMW was unable to produce hourly usage by rate code within the SGS rate schedule, this step is done for the entire SGS class by season. This net increase is applied as an equal percentage adjustment to the adjusted energy rates.

Q. What are the SGS energy rates and the time-based overlay rates that result from this example 10% increase?

A. The resulting energy rates and overlay rates for SGS, using an example 10% increase are provided below:

	Starting Rates	Determinants	Eliminate Seasonal & End Use Discounts		New Rates
	SGS	SGS	SGS	SGS	SGS
Sec. NonDemand-Summer-Block 1	$ 0.13902	70,339,988	$ 0.13902	70,339,988	$ 0.1504
Sec. NonDemand-Nonsummer-Block 1	$ 0.08734	110,517,477	$ 0.08048	131,806,247	$ 0.0858
Sec. NonDemand-Nonsummer-Seasonal	$ 0.04480	21,215,372			
Discounted-Nonsummer-Block 1	$ 0.06504	41,228			
Discounted-Nonsummer-Seasonal	$ 0.04480	32,170			
Secondary-Summer-Block 1	$ 0.09747	256,917,628	$ 0.09747	256,917,628	$ 0.1055
Secondary-Summer-Block 2	$ 0.07334	178,243,286	$ 0.07334	178,243,286	$ 0.0794
Secondary-Summer-Block 3				-	
Secondary-Nonsummer-Block 1	$ 0.07080	418,833,861	$ 0.07080	418,833,861	$ 0.0755
Secondary-Nonsummer-Block 2	$ 0.06390	261,834,028	$ 0.06052	318,079,396	$ 0.0645
Secondary-Nonsummer-Block 3					
Secondary-Nonsummer-Seasonal	$ 0.04480	56,245,368			
Primary-Summer-Block 1	$ 0.09144	371,224	$ 0.09144	371,224	$ 0.0989
Primary-Summer-Block 2	$ 0.06880	1,953,808	$ 0.06880	1,953,808	$ 0.0744
Primary-Summer-Block 3				-	
Primary-Nonsummer-Block 1	$ 0.06953	1,047,386	$ 0.06953	1,047,386	$ 0.0741
Primary-Nonsummer-Block 2	$ 0.06276	2,868,651	$ 0.05954	3,428,148	$ 0.0635
Primary-Nonsummer-Block 3					
Primary-Nonsummer-Seasonal	$ 0.04305	559,497			

			Revenue	Determinants	Rate @ Gen	Secondary	Primary
SGS	Summer Overlay Revenue	On Peak	$ 3,043,246	101,441,550	$ 0.03000	$ 0.03224	$ 0.03149
		Super Off-Peak	$ (3,904,345)	130,144,837	$ (0.03000)	$ (0.03224)	$ (0.03149)
	Non Summer Overlay Revenue	On Peak	$ 1,162,509	387,503,100	$ 0.00300	$ 0.00322	$ 0.00315
		Super Off-Peak	$ (3,190,783)	159,539,148	$ (0.02000)	$ (0.02149)	$ (0.02099)

The intermediate steps of these calculations are shown in Schedule SLKL-drd14.

LGS Determinants and Charges

Q. What is the revenue impact of the time-based overlay?

A. The overall impact of the time-based overlay is a revenue reduction of approximately $2.7 million, calculated as set out below, with usage[11] adjusted to generation voltage:

EMW Large General Service		Super Off-Peak	Off-Peak	On-Peak	Revenue Impact by Season
Time Periods	Summer	Midnight - 6:00 am	6:00 am - 2:00 pm; 6:00 pm - Midnight	2:00 pm - 6:00 pm	
	Non-Summer	Midnight - 5:00 am	11:00 am - 5:00 pm	5:00 am - 11:am pm; 5:00 pm - 8:00 pm	
Percent of Season's Usage per Period	Summer	23.85%	57.43%	18.72%	
	Non-Summer	18.41%	39.70%	41.89%	
Usage per Period	Summer	117,854,608	283,712,974	92,482,871	
	Non-Summer	154,636,064	333,488,578	351,836,985	
Revenue Impact of Overlay per Period	Summer	$ (3,535,638)	$ -	$ 2,774,486	$ (761,152)
	Non-Summer	$ (3,092,721)	$ -	$ 1,055,511	$ (2,037,210)

[11] To minimize potential disputes, I used Evergy's normalized loads for each class, as provided in response to Staff DR No. 0379.

Q. How should the remaining rate design for LGS be developed?

A. LGS customers can be served at secondary voltage or at primary voltage. Each of these service types has separate energy rates within the LGS rate schedule, as well as customer charges, facilities charges, and demand charges that vary by the customer's service voltage. To mitigate customer rate impacts, all rate elements other than energy rate elements should be increased by an equal percent adjustment. Further, EMW is unable to provide the information necessary to reasonably study the relationship of cost causation and revenue responsibility as it pertains to the customer, facilities, and demand charges of customers served at various voltages within the class.

Q. How should energy rate elements be adjusted?

A. First, the non-summer energy rates are adjusted to remove the seasonal discounts without changing the overall revenue collected by each voltage served within the LGS class within each season. Then, the tail block, second block, and first block rates should be adjusted to reduce the difference between those rates, without changing the overall revenue collected by each voltage served within the LGS class within each season. Next, the increase to be implemented (for purposes of illustration, 10% was used) should be combined with the net revenue impact of the time-based overlay by season. Because EMW was unable to produce hourly usage by rate code within the LGS rate schedule, this step is done for the entire LGS class by season. This net increase is applied as an equal percentage adjustment to the adjusted energy rates.

Q. What are the LGS energy rates and the time-based overlay rates that result from this example 10% increase?

A. The resulting energy rates and overlay rates for LGS, using an example 10% increase are provided below:

	Starting Rates	Determinants	Eliminate Seasonal & End Use Discounts		New Rates
	LGS	LGS	LGS	LGS	LGS
Secondary-Summer-Block 1	$ 0.08973	198,114,832	$ 0.08973	198,114,832	$ 0.0967
Secondary-Summer-Block 2	$ 0.06790	157,826,152	$ 0.06790	157,826,152	$ 0.0732
Secondary-Summer-Block 3	$ 0.04751	65,420,944	$ 0.04751	65,420,944	$ 0.0512
Secondary-Nonsummer-Block 1	$ 0.06836	339,980,230	$ 0.06836	339,980,230	$ 0.0723
Secondary-Nonsummer-Block 2	$ 0.06266	257,563,878	$ 0.06266	257,563,878	$ 0.0663
Secondary-Nonsummer-Block 3	$ 0.04291	90,878,745	$ 0.04181	114,367,872	$ 0.0442
Secondary-Nonsummer-Seasonal	$ 0.03753	23,489,127			
Primary-Summer-Block 1	$ 0.08701	18,141,138	$ 0.08701	18,141,138	$ 0.0938
Primary-Summer-Block 2	$ 0.06584	14,994,314	$ 0.06584	14,994,314	$ 0.0710
Primary-Summer-Block 3	$ 0.04606	6,133,088	$ 0.04606	6,133,088	$ 0.0496
Primary-Nonsummer-Block 1	$ 0.06588	29,684,254	$ 0.06588	29,684,254	$ 0.0697
Primary-Nonsummer-Block 2	$ 0.06038	25,436,584	$ 0.06038	25,436,584	$ 0.0639
Primary-Nonsummer-Block 3	$ 0.04132	8,581,021	$ 0.03909	16,216,632	$ 0.0414
Primary-Nonsummer-Seasonal	$ 0.03659	7,635,611			

			Revenue	Determinants	Rate @ Gen	Secondary	Primary
LGS	Summer Overlay Revenue	On Peak	$ 2,774,486	92,482,871	$ 0.03000	$ 0.03224	$ 0.03149
		Super Off-Peak	$ (3,535,638)	117,854,608	$ (0.03000)	$ (0.03224)	$ (0.03149)
	Non Summer Overlay Revenue	On Peak	$ 1,055,511	351,836,985	$ 0.00300	$ 0.00322	$ 0.00315
		Super Off-Peak	$ (3,092,721)	154,636,064	$ (0.02000)	$ (0.02149)	$ (0.02099)

The intermediate steps of these calculations are shown in Schedule SLKL-drd14.

LP Determinants and Charges

Q. What is the revenue impact of the time-based overlay?

A. The overall impact of the time-based overlay is a revenue reduction of approximately $6.4 million, calculated as set out below, with usage[12] adjusted to generation voltage:

EMW Large Power		Super Off-Peak	Off-Peak	On-Peak	Revenue Impact by Season
Time Periods	Summer	Midnight - 6:00 am	6:00 am - 2:00 pm; 6:00 pm - Midnight	2:00 pm - 6:00 pm	
	Non-Summer	Midnight - 5:00 am	11:00 am - 5:00 pm	5:00 am - 11:am pm; 5:00 pm - 8:00 pm	
Percent of Season's Usage per Period	Summer	26.53%	55.14%	18.33%	
	Non-Summer	21.96%	37.14%	40.90%	
Usage per Period	Summer	195,731,671	406,706,458	135,201,280	
	Non-Summer	315,269,710	533,272,118	587,152,015	
Revenue Impact of Overlay per Period	Summer	$ (5,871,950)	$ -	$ 4,056,038	$ (1,815,912)
	Non-Summer	$ (6,305,394)	$ -	$ 1,761,456	$ (4,543,938)

[12] To minimize potential disputes, I used Evergy's normalized loads for each class, as provided in response to Staff DR No. 379.

Q. How should the remaining rate design for LP be developed?

A. LPS customers can be served at secondary, primary, substation, or transmission voltage. Each of these service types has separate energy rates within the LPS rate schedule, as well as customer charges, facilities charges, and demand charges that vary by the customer's service voltage. To mitigate customer rate impacts, all rate elements other than energy rate elements should be increased by an equal percent adjustment. Further, EMW is unable to provide the information necessary to reasonably study the relationship of cost causation and revenue responsibility as it pertains to the customer, facilities, and demand charges of customers served at various voltages within the class.

Q. How should energy rate elements be adjusted?

A. First, the non-summer energy rates are adjusted to remove the seasonal discounts without changing the overall revenue collected by each voltage served within the LPS class within each season. Then, the tail block, second block, and first block rates should be adjusted to reduce the difference between those rates, without changing the overall revenue collected by each voltage served within the LGS class within each season. Next, the increase to be implemented (for purposes of illustration, 10% was used) should be combined with the net revenue impact of the time-based overlay by season. Because EMW was unable to produce hourly usage by rate code within the LPS rate schedule, this step is done for the entire LGS class by season. This net increase is applied as an equal percentage adjustment to the adjusted energy rates.

Q. What are the LPS energy rates and the time-based overlay rates that result from this example 10% increase?

A. The resulting energy rates and overlay rates for LPS, using an example 10% increase are provided below:

	Starting Rates	Determinants	Eliminate Seasonal & End Use Discounts		New Rates
	LPS	LPS	LPS	LPS	LPS
Secondary-Summer-Block 1	$ 0.05445	125,790,427	$ 0.05445	125,790,427	$ 0.0567
Secondary-Summer-Block 2	$ 0.04287	123,620,701	$ 0.04287	123,620,701	$ 0.0446
Secondary-Summer-Block 3	$ 0.03759	109,620,575	$ 0.03759	109,620,575	$ 0.0391
Secondary-Nonsummer-Block 1	$ 0.05083	224,436,137	$ 0.05083	224,436,137	$ 0.0514
Secondary-Nonsummer-Block 2	$ 0.03999	218,457,748	$ 0.03999	218,457,748	$ 0.0405
Secondary-Nonsummer-Block 3	$ 0.03507	189,046,379	$ 0.03500	194,734,017	$ 0.0354
Secondary-Nonsummer-Seasonal	$ 0.03274	5,687,638			
Primary-Summer-Block 1	$ 0.05279	53,302,401	$ 0.05279	53,302,401	$ 0.0550
Primary-Summer-Block 2	$ 0.04154	53,154,095	$ 0.04154	53,154,095	$ 0.0432
Primary-Summer-Block 3	$ 0.03642	51,871,228	$ 0.03642	51,871,228	$ 0.0379
Primary-Nonsummer-Block 1	$ 0.04930	96,443,601	$ 0.04930	96,443,601	$ 0.0499
Primary-Nonsummer-Block 2	$ 0.03879	96,330,756	$ 0.03879	96,330,756	$ 0.0393
Primary-Nonsummer-Block 3	$ 0.03400	91,261,800	$ 0.03394	94,174,548	$ 0.0343
Primary-Nonsummer-Seasonal	$ 0.03193	2,912,748			
Substation-Summer-Block 1	$ 0.05132	41,178,669	$ 0.05132	41,178,669	$ 0.0534
Substation-Summer-Block 2	$ 0.04041	41,178,669	$ 0.04041	41,178,669	$ 0.0421
Substation-Summer-Block 3	$ 0.03540	44,504,371	$ 0.03540	44,504,371	$ 0.0369
Substation-Nonsummer-Block 1	$ 0.04850	68,603,651	$ 0.04850	68,603,651	$ 0.0491
Substation-Nonsummer-Block 2	$ 0.03816	68,552,042	$ 0.03816	68,552,042	$ 0.0386
Substation-Nonsummer-Block 3	$ 0.03345	78,892,596	$ 0.03342	80,032,900	$ 0.0338
Substation-Nonsummer-Seasonal	$ 0.03159	1,140,304			
Transmission-Summer-Block 1	$ 0.05234	19,758,442	$ 0.05234	19,758,442	$ 0.0545
Transmission-Summer-Block 2	$ 0.04119	17,213,862	$ 0.04119	17,213,862	$ 0.0429
Transmission-Summer-Block 3	$ 0.03611	15,320,578	$ 0.03611	15,320,578	$ 0.0376
Transmission-Nonsummer-Block 1	$ 0.04727	37,503,998	$ 0.04727	37,503,998	$ 0.0478
Transmission-Nonsummer-Block 2	$ 0.03719	34,707,193	$ 0.03719	34,707,193	$ 0.0376
Transmission-Nonsummer-Block 3	$ 0.03259	39,756,210	$ 0.03255	41,132,477	$ 0.0329
Transmission-Nonsummer-Seasonal	$ 0.03132	1,376,268			

			Revenue	Determinants	Rate @ Gen	Secondary	Primary	Substation	Transmission
LPS	Summer Overlay Revenue	On Peak	$ 4,056,038	135,201,280	$ 0.03000	$ 0.03224	$ 0.03149	$ 0.03116	$ 0.03090
		Super Off-Peak	$ (5,871,950)	195,731,671	$ (0.03000)	$ (0.03224)	$ (0.03149)	$ (0.03116)	$ (0.03090)
	Non Summer Overlay Revenue	On Peak	$ 1,761,456	587,152,015	$ 0.00300	$ 0.00322	$ 0.00315	$ 0.00312	$ 0.00309
		Super Off-Peak	$ (6,305,394)	315,269,710	$ (0.02000)	$ (0.02149)	$ (0.02099)	$ (0.02077)	$ (0.02060)

The intermediate steps of these calculations are shown in Schedule SLKL-drd14.

RESIDENTIAL RATE DESIGN RECOMMENDATIONS

Residential Rate Design

Q. How should any changes to the revenue responsibility of residential customers be applied in this case?

A. Staff recommends that any changes to the revenue responsibility of residential customers be applied as an equal percentage increase to each rate element of each residential rate plan, except as may be ordered to improve the compatibility of rate plans with net metering, as discussed below.

Q. Why does Staff recommend an equal percentage increase to each rate element of each residential rate plan?

A. There are at least two reasons. First, EMW's customers have only been on time-based rate plans for a short amount of time, and that transition was tumultuous as best. Second, EMW has been unable to provide the information necessary to study the relationship of each rate plan (and each charge on each rate plan) to consumption characteristics.

Q. Does this mean that the rate plans should not be subject to modification in future cases?

A. No. The Commission is obligated to set just and reasonable rates in every rate case. At this time, reasonable means, effectively, staying the course to minimize customer impact.

Modification of Rate Structures for Compatibility with Net Metering

Q. Have you reviewed the Commission's May 15, 2024 Report and Order in File No. ET-2024-0182, concerning the Solar Subscription Rider tariffs of EMW and EMM?

A. Yes, at pages 24 – 25 the Commission included the following:

> **What are the appropriate billing provisions for SSP participants?**
>
> The next question before the Commission is how billing should be accomplished. For this small group of customers, the Commission is persuaded by Evergy that Staff's proposed billing methodology is too complex for the limited rates that these customers have access to. Since the Commission is not expanding access to the other TOU rates at this time, it finds that the potential cost and delay would not be reasonable for these 750 customers who have voluntarily paid a premium for the benefits of this program. However, the Commission appreciates Staff bringing forward what it believes to be and what Evergy admits is a logical and reasonable approach to allowing customers to get full benefit from TOU rates. **The Commission expects Evergy to be looking ahead to its next rate cases and revising its tariffs in ways that provide all of its customers, including the SSP participants, the opportunity to participate fully in the TOU rate schedules.** [Emphasis added.][13]

[13] On June 7, 2024, in this docket, the Commission's *Order Directing Filing*, directed that "In light of that Report and Order, the Commission will order Evergy, Staff, and any other party who wishes to comment, to make

Q. What is the statutory guidance on billing net metered customers?

A. Relevant provisions of Section 386.890, RSMo are excerpted below:

> 2.(5) "Net metering", using metering equipment sufficient to measure the difference between the electrical energy supplied to a customer-generator by a retail electric supplier and the electrical energy supplied by the customer-generator to the retail electric supplier over the applicable billing period;
>
> ***
>
> 3. (2) Offer to the customer-generator a tariff or contract that is identical in electrical energy rates, rate structure, and monthly charges to the contract or tariff that the customer would be assigned if the customer were not an eligible customer-generator but shall not charge the customer-generator any additional standby, capacity, interconnection, or other fee or charge that would not otherwise be charged if the customer were not an eligible customer-generator; and
>
> ***
>
> 5. Consistent with the provisions in this section, the net electrical energy measurement shall be calculated in the following manner:
>
> (1) **For a customer-generator, a retail electric supplier shall measure the net electrical energy produced or consumed during the billing period in accordance with normal metering practices for customers in the same rate class,** either by employing a single, bidirectional meter that measures the amount of electrical energy produced and consumed, or by employing multiple meters that separately measure the customer-generator's consumption and production of electricity;
>
> (2) **If the electricity supplied by the supplier exceeds the electricity generated by the customer-generator during a billing period, the customer-generator shall be billed for the net electricity supplied by the supplier in accordance with normal practices for customers in the same rate class;**
>
> (3) **If the electricity generated by the customer-generator exceeds the electricity supplied by the supplier during a billing period**, the customer-generator shall be billed for the appropriate customer charges for that billing period in accordance with subsection 3 of this section **and shall be credited an amount at least equal to the avoided fuel cost of the excess kilowatt-hours generated during the billing period**, with this credit applied to the following billing period;
>
> (4) Any credits granted by this subsection shall expire without any compensation at the earlier of either twelve months after their issuance or when the customer-generator disconnects service or terminates the net metering relationship with the supplier; [Emphasis added.]

proposals in their next rounds of testimony that allow all residential customers the ability to utilize all TOU rates (including net metering and solar subscription program customers)."

Q. Does EMW currently allow net metering (and Subscription Solar Rider) customers to select a preferred residential rate plan?

A. No. EMW limits customers who net meter or who participate in the Subscription Solar Rider to the Residential Peak Adjustment rate plan.

Q. How does EMW bill customers on the Residential Peak Adjustment ("RPKA") rate plan when they participate in Subscriber Solar or net metering?

A. The RPKA rate is structured so that there are charges per kWh without regard to the time energy is used, and then an additional charge for energy consumed during peak time and an offsetting credit for energy consumed during super off-peak times.[14] For Subscriber Solar customers on the RPKA rate plan, EMW nets the total quantity of energy consumed each month and the total quantity of energy subscribed each month, without regard to the Peak Adjustment Charge per On-Peak kWh or the Peak Adjustment Credit per Super Off-Peak kWh. Staff issued a DR requesting bill calculations to confirm how EMW bills net metering customers on the RPKA rate plan, but EMW did not provide any operable workpapers.

Staff also asked "Please clarify the billing calculations for net metering customers served on the Residential Peak Adjustment (Default Residential Rate Plan), specifically, does the amount of kWh in a given billing period subject to the on-peak charge reflect any net

[14] From EMW sheet 146.10:

RATE, General Use MORPA, With Net Metering MORPANM, With Parallel Generation MORPAPG

CUSTOMER CHARGE (Per month)	$12.00	
ENERGY CHARGE (Per kWh)		
	Summer Season	Winter Season
First 600 kWh:	$0.11829	$0.09784
Next 400 kWh:	$0.11829	$0.07718
Over 1000 kWh:	$0.12829	$0.07718
Peak Adjustment Charge per On-Peak kWh:	$0.01000	$0.00250
Peak Adjustment Credit per Super Off-Peak kWh:	$0.01000	$0.01000

generation that is provided from the net metered customer to the Evergy West system?" EMW stated in response "Net meter customers on the Residential Peak Adjustment plan are not billed any rate for generation they provide. As shown below kWhs generated by the customer (shown as Received) for On-Peak Summer and On-Peak Winter are subtracted from delivered kWh. On-Peak rates are applied to net generation, or amount of kWh delivered by Evergy that exceed the amount received from the customer."

Based on this response, EMW treats net meter customers differently than subscriber solar customers, and apparently does account for the Peak Adjustment Charge per On-Peak kWh or the Peak Adjustment Credit per Super Off-Peak kWh.

Q. Can the tariffs of other rate plans be modified to align with the structure of the Residential Peak Adjustment rate plan without further statutory changes?

A. Yes. EMW could simply include the following language on the more highly-differentiated rate plans:

> For bill calculation purposes, all kWh shall be billed at the off peak rate, with the difference between the on-peak and off-peak rate applied as a surcharge to the net kWh consumed during the on-peak period, and the difference between the super off-peak and off-peak rate applied as a credit to the net kWh consumed during the super off-peak period.

Q. Could the tariffs of other rate plans be explicitly modified to align with the structure of the Residential Peak Adjustment rate plan without further statutory changes?

A. Yes, the restructuring of each applicable rate plan, on a revenue neutral basis, is provided below:[15]

[15] This restructuring would not affect the existing excess generation crediting amounts and billing procedures.

Two Period ToU	Summer	Nonsummer
Energy Charge per kWh	$ 0.08103	$ 0.09466
Peak Adjustment Charge per On Peak kWh	$ 0.2431	
Peak Adjustment Credit per Super Off-Peak kWh		$ 0.0473
Three Period ToU	Summer	Nonsummer
Energy Charge per kWh	$ 0.10616	$ 0.08119
Peak Adjustment Charge per On Peak kWh	$ 0.1593	$ 0.1218
Peak Adjustment Credit per Super Off-Peak kWh	$ 0.0796	$ 0.0582
Legacy ToU	Summer	Nonsummer
Energy Charge per kWh	$ 0.09376	$ 0.09237
Peak Adjustment Charge per On Peak kWh	$ 0.1875	$ 0.0469
Peak Adjustment Credit per Super Off-Peak kWh	$ 0.0469	$ 0.0536

Q. Could you provide example bills using these rate structures?

A. Yes. In the first example, the customer uses more energy during the peak period than is generated.[16] In the second example, the customer generates more energy during the peak period than is used. The resulting net bills vary greatly across rate plans:

			Two Period ToU		Three Period ToU		Legacy ToU	
			Summer Month	Nonsummer Month	Summer Month	Nonsummer Month	Summer Month	Nonsummer Month
Example 1	kWh generated before 6am	0						
	kwh generated 6 - 4	500						
	kWh generated 4-8	400						
	kWh generated after 8	100						
	Usage before 6am	1200						
	Usage 6-4	2000						
	Usage 4-8	800						
	Usage after 8	800						
	Total used	4800						
	Total Generated	1000						
	Net Purchased	3800	$ 307.91	$ 359.71	$ 403.41	$ 308.52	$ 356.29	$ 351.01
	On Peak Generation	400	$ (97.24)	$ -	$ (63.70)	$ (48.72)	$ (75.01)	$ (54.62)
	Super Off-Peak Generation	0	0	0	0	0	0	0
	On Peak Usage	800	$ 194.47	$ -	$ 127.40	$ 97.44	$ 150.02	$ 109.24
	Super Off-Peak Usage	1200	0	-56.796	-95.544	-69.828	-56.256	-64.272
	Bill		**$ 405.15**	**$ 302.91**	**$ 371.56**	**$ 287.41**	**$ 375.04**	**$ 341.35**
Example 2	kWh generated before 6am	0						
	kwh generated 6 - 4	500						
	kWh generated 4-8	1600						
	kWh generated after 8	100						
	Usage before 6am	1200						
	Usage 6-4	2000						
	Usage 4-8	800						
	Usage after 8	800						
	Total used	4800						
	Total Generated	2200						
	Net Purchased	2600	$ 210.68	$ 246.12	$ 276.02	$ 211.09	$ 243.78	$ 240.16
	On Peak Generation	1600	$ (388.94)	$ -	$ (254.80)	$ (194.88)	$ (300.05)	$ (218.48)
	Super Off-Peak Generation	0	0	0	0	0	0	0
	On Peak Usage	800	$ 194.47	$ -	$ 127.40	$ 97.44	$ 150.02	$ 109.24
	Super Off-Peak Usage	1200	0	-56.796	-95.544	-69.828	-56.256	-64.272
	Bill		**$ 16.21**	**$ 189.32**	**$ 53.07**	**$ 43.83**	**$ 37.50**	**$ 66.65**

[16] As used in this calculation "kWh generated" is the amount of energy that flows to the grid, and does not include generation consumed on the customer side of the meter.

Q. Are these resulting net bills reflective of the alignment of cost causation and revenue responsibility?

A. No, they are not. However, they are consistent with Section 386.890, RSMo.

TARIFF CLEAN-UP

Q. What residential service tariff provisions should be modified or removed because they are no longer effective??

A. Sheets 146 – 146.2, titled "Residential Service" should be modified to reflect service under the default residential rate plan, RPKA, currently tariffed at sheet 146.9-146.11. The "Availability" provisions and "Applicability" provisions throughout the residential service tariff sheets should be revised to remove obsolete language related to rate plan transitions and eliminations.

The rates currently found at sheet 146.1, provision A as applicable to General Use rate code "MORG" should be increased consistent with the Commission's order in this case and retained on or around sheet 146.3 as "Monthly rate for customers who have opted out of AMI metering."

The rates for "Other Use," on sheet 146.3-146.4 should be removed from EMW's tariff book.

Q. Should Evergy's current marketing names for its residential rate plans be reflected in EMW's tariff?

A. Yes. Staff recommends that EMW incorporate the phrase "Marketed as [MARKETING NAME]" onto the tariff sheets applicable to each residential rate plan. A customer attempting to learn more about a marketed rate plan cannot reasonably link names like "Summer Peak Saver," to tariffed names like "Residential Two-Period Time of Use."

OTHER TARIFF PROVISIONS

Q. What non-residential service tariff provisions are no longer effective and should be removed from EMW's tariff book?

A. In addition to provisions associated with the end-use rates and seasonal discounts described above, the "Economic Development Rider," tariff at sheets 120-123, and the Real-Time Pricing program at sheet 73, may be removed.

Q. What additional items do you recommend be reflected in the Commission's Report and Order?

A. A number of routine updates are appropriate where required by the terms of the underlying tariff, or to otherwise incorporate the changes in ordered revenue requirements to retain internal consistency of related rate schedules or riders:

1. Update Missouri Energy Efficiency Investment Act (MEEIA) margin rates.
2. Update Standby Service Rider rates consistent with changes made to underlying rate schedules.
3. Update Community Solar distribution service rates.
4. Update Clean Charge Network rates, lighting rates, and other miscellaneous rate schedules to coincide with the overall ordered percentage increase.

Q. Has Staff reviewed the reasonableness of EMW's "Primary Discount Rider" at sheet 140?

A. No. Information is not available to review the interaction revenue responsibility and cost causation of EMW's tariffed rates for service at each voltage. The Primary Discount Rider further affects this relationship. Comprehensive study is needed of the revenue responsibility and cost causation of service of customer at various voltages.

CONCLUSION

Q. Does this conclude your class cost of service and rate design direct testimony?

A. Yes it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2024-0189

AFFIDAVIT OF SARAH L.K. LANGE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SARAH L.K. LANGE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Direct Testimony of Sarah L.K. Lange*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah L.K. Lange
SARAH L.K. LANGE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 2nd day of July 2024.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070

D Suzie Mankin
Notary Public

The Energy Charge component of KS Metro C&I customer bills will be calculated differently going forward. What is it? How will it be calculated?

Currently, the Energy Charge portion of the bill uses an 'Hours Use' calculation. Moving forward, customers will be assessed by on-peak and off-peak usage in both the summer and non-summer months. This move toward a time-based rate will more accurately capture real-time energy costs.

For example, old billing methodology:

Hours Use (per month)	Energy Charge (per kWh)	
	Summer Season	*Winter Season*
First 180 Hours	$0.14004	$0.11146
Next 180 Hours	$0.06150	$0.05254
Over 360 Hours	$0.05495	$0.04143

Moving forward, kWh hours will be billed by on-peak and off-peak usage rather than hours used. Energy charge calculations will feature four peak/off-peak periods, each assigned season-specific per kWh rate.

Summer Peak	3-7pm
Summer Off-Peak	7pm-3pm
Non-Summer Peak	3-7pm
Non-Summer Off-Peak	7pm-3pm

- Holidays are Independence Day, Labor Day, Thanksgiving Day, Christmas Day, New Year's Day, and Memorial Day.
- ***Pricing example below:***

Rate Component	Units	Small General Service				Medium General Service				Large General Service/Large Power Service				
		Primary / All-Electric Rate	Primary / Non-Electric Rate	Secondary / All-Electric Rate	Secondary / Non-Electric Rate	Primary / All-Electric Rate	Primary / Non-Electric Rate	Secondary / All-Electric Rate	Secondary / Non-Electric Rate	Primary / All-Electric Rate	Primary / Non-Electric Rate	Secondary / All-Electric Rate	Secondary / Non-Electric Rate	Substation Rate
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
Energy Charges														
Summer Peak	$/kWh	$ 0.38546	$ 0.38546	$ 0.28790	$ 0.28790	$ 0.09367	$ 0.09367	$ 0.10304	$ 0.10304	$ 0.07299	$ 0.07299	$ 0.07852	$ 0.07852	$ 0.06863
Summer Off	$/kWh	$ 0.15990	$ 0.15990	$ 0.12139	$ 0.12139	$ 0.05213	$ 0.05213	$ 0.05734	$ 0.05734	$ 0.03888	$ 0.03888	$ 0.04182	$ 0.04182	$ 0.03656
Winter Peak	$/kWh	$ 0.08056	$ 0.11011	$ 0.04770	$ 0.08586	$ 0.04521	$ 0.04942	$ 0.03723	$ 0.05436	$ 0.03409	$ 0.03854	$ 0.03417	$ 0.04146	$ 0.03624
Winter Off	$/kWh	$ 0.05280	$ 0.07066	$ 0.03288	$ 0.05666	$ 0.03946	$ 0.04385	$ 0.03266	$ 0.04760	$ 0.02600	$ 0.03288	$ 0.02615	$ 0.03588	$ 0.03092
Demand Charges														
Summer	$/kW	$ -	$ -	$ -	$ -	$ 8.27	$ 13.24	$ 9.83	$ 11.54	$ 8.55	$ 11.74	$ 9.82	$ 11.08	$ 12.56
Winter	$/kW	$ -	$ -	$ -	$ -	$ 1.05	$ 2.22	$ 1.33	$ 2.17	$ 3.61	$ 5.70	$ 3.62	$ 5.80	$ 5.80

	Starting Rates			Determinants		
	SGS	**LGS**	**LPS**	**SGS**	**LGS**	**LPS**
Sec. NonDemand-Summer-Block 1	$ 0.13902			70,339,988		
Sec. NonDemand-Nonsummer-Block 1	$ 0.08734			110,517,477		
Sec. NonDemand-Nonsummer-Seasonal	$ 0.04480			21,215,372		
Discounted-Nonsummer-Block 1	$ 0.06504			41,228		
Discounted-Nonsummer-Seasonal	$ 0.04480			32,170		
Secondary-Summer-Block 1	$ 0.09747	$ 0.08973	$ 0.05445	256,917,628	198,114,832	125,790,427
Secondary-Summer-Block 2	$ 0.07334	$ 0.06790	$ 0.04287	178,243,286	157,826,152	123,620,701
Secondary-Summer-Block 3		$ 0.04751	$ 0.03759		65,420,944	109,620,575
Secondary-Nonsummer-Block 1	$ 0.07080	$ 0.06836	$ 0.05083	418,833,861	339,980,230	224,436,137
Secondary-Nonsummer-Block 2	$ 0.06390	$ 0.06266	$ 0.03999	261,834,028	257,563,878	218,457,748
Secondary-Nonsummer-Block 3		$ 0.04291	$ 0.03507		90,878,745	189,046,379
Secondary-Nonsummer-Seasonal	$ 0.04480	$ 0.03753	$ 0.03274	56,245,368	23,489,127	5,687,638
Primary-Summer-Block 1	$ 0.09144	$ 0.08701	$ 0.05279	371,224	18,141,138	53,302,401
Primary-Summer-Block 2	$ 0.06880	$ 0.06584	$ 0.04154	1,953,808	14,994,314	53,154,095
Primary-Summer-Block 3		$ 0.04606	$ 0.03642		6,133,088	51,871,228
Primary-Nonsummer-Block 1	$ 0.06953	$ 0.06588	$ 0.04930	1,047,386	29,684,254	96,443,601
Primary-Nonsummer-Block 2	$ 0.06276	$ 0.06038	$ 0.03879	2,868,651	25,436,584	96,330,756
Primary-Nonsummer-Block 3		$ 0.04132	$ 0.03400		8,581,021	91,261,800
Primary-Nonsummer-Seasonal	$ 0.04305	$ 0.03659	$ 0.03193	559,497	7,635,611	2,912,748
Substation-Summer-Block 1			$ 0.05132			41,178,669
Substation-Summer-Block 2			$ 0.04041			41,178,669
Substation-Summer-Block 3			$ 0.03540			44,504,371
Substation-Nonsummer-Block 1			$ 0.04850			68,603,651
Substation-Nonsummer-Block 2			$ 0.03816			68,552,042
Substation-Nonsummer-Block 3			$ 0.03345			78,892,596
Substation-Nonsummer-Seasonal			$ 0.03159			1,140,304
Transmission-Summer-Block 1			$ 0.05234			19,758,442
Transmission-Summer-Block 2			$ 0.04119			17,213,862
Transmission-Summer-Block 3			$ 0.03611			15,320,578
Transmission-Nonsummer-Block 1			$ 0.04727			37,503,998
Transmission-Nonsummer-Block 2			$ 0.03719			34,707,193
Transmission-Nonsummer-Block 3			$ 0.03259			39,756,210
Transmission-Nonsummer-Seasonal			$ 0.03132			1,376,268

	Eliminate Seasonal & End Use Discounts						Revenue 2	
	SGS	**LGS**	**LPS**	**SGS**	**LGS**	**LPS**	**SGS**	**LGS**
Sec. NonDemand-Summer-Block 1	$ 0.13902			70,339,988			$ 9,778,665	
Sec. NonDemand-Nonsummer-Block 1	$ 0.08048			131,806,247			$ 10,607,168	
Sec. NonDemand-Nonsummer-Seasonal								
Discounted-Nonsummer-Block 1								
Discounted-Nonsummer-Seasonal								
Secondary-Summer-Block 1	$ 0.09747	$ 0.08973	$ 0.05445	256,917,628	198,114,832	125,790,427	$ 25,041,761	$ 17,776,844
Secondary-Summer-Block 2	$ 0.07334	$ 0.06790	$ 0.04287	178,243,286	157,826,152	123,620,701	$ 13,072,363	$ 10,716,396
Secondary-Summer-Block 3		$ 0.04751	$ 0.03759	-	65,420,944	109,620,575	$ -	$ 3,108,149
Secondary-Nonsummer-Block 1	$ 0.07080	$ 0.06836	$ 0.05083	418,833,861	339,980,230	224,436,137	$ 29,653,437	$ 23,241,049
Secondary-Nonsummer-Block 2	$ 0.06052	$ 0.06266	$ 0.03999	318,079,396	257,563,878	218,457,748	$ 19,250,987	$ 16,138,953
Secondary-Nonsummer-Block 3		$ 0.04181	$ 0.03500		114,367,872	194,734,017	$ -	$ 4,781,154
Secondary-Nonsummer-Seasonal								
Primary-Summer-Block 1	$ 0.09144	$ 0.08701	$ 0.05279	371,224	18,141,138	53,302,401	$ 33,945	$ 1,578,460
Primary-Summer-Block 2	$ 0.06880	$ 0.06584	$ 0.04154	1,953,808	14,994,314	53,154,095	$ 134,422	$ 987,226
Primary-Summer-Block 3		$ 0.04606	$ 0.03642	-	6,133,088	51,871,228	$ -	$ 282,490
Primary-Nonsummer-Block 1	$ 0.06953	$ 0.06588	$ 0.04930	1,047,386	29,684,254	96,443,601	$ 72,825	$ 1,955,599
Primary-Nonsummer-Block 2	$ 0.05954	$ 0.06038	$ 0.03879	3,428,148	25,436,584	96,330,756	$ 204,123	$ 1,535,861
Primary-Nonsummer-Block 3		$ 0.03909	$ 0.03394		16,216,632	94,174,548	$ -	$ 633,955
Primary-Nonsummer-Seasonal								
Substation-Summer-Block 1			$ 0.05132			41,178,669		
Substation-Summer-Block 2			$ 0.04041			41,178,669		
Substation-Summer-Block 3			$ 0.03540			44,504,371		
Substation-Nonsummer-Block 1			$ 0.04850			68,603,651		
Substation-Nonsummer-Block 2			$ 0.03816			68,552,042		
Substation-Nonsummer-Block 3			$ 0.03342			80,032,900		
Substation-Nonsummer-Seasonal								
Transmission-Summer-Block 1			$ 0.05234			19,758,442		
Transmission-Summer-Block 2			$ 0.04119			17,213,862		
Transmission-Summer-Block 3			$ 0.03611			15,320,578		
Transmission-Nonsummer-Block 1			$ 0.04727			37,503,998		
Transmission-Nonsummer-Block 2			$ 0.03719			34,707,193		
Transmission-Nonsummer-Block 3			$ 0.03255			41,132,477		
Transmission-Nonsummer-Seasonal								

	Decrease Decline			Revenue 3			New Rates	
	SGS	LGS	LPS	SGS	LGS	LPS	SGS	LGS
Sec. NonDemand-Summer-Block 1	$ 0.13902			$ 9,778,665			$ 0.1504	
Sec. NonDemand-Nonsummer-Block 1	$ 0.08048			$ 10,607,168			$ 0.0858	
Sec. NonDemand-Nonsummer-Seasonal								
Discounted-Nonsummer-Block 1								
Discounted-Nonsummer-Seasonal								
Secondary-Summer-Block 1	$ 0.09238	$ 0.08542	$ 0.04899	$ 23,734,525	$ 16,922,439	$ 6,161,942	$ 0.1055	$ 0.0967
Secondary-Summer-Block 2	$ 0.08067	$ 0.07130	$ 0.04501	$ 14,379,599	$ 11,252,216	$ 5,564,600	$ 0.0794	$ 0.0732
Secondary-Summer-Block 3		$ 0.05238	$ 0.04144		$ 3,426,734	$ 4,543,003		$ 0.0512
Secondary-Nonsummer-Block 1	$ 0.06988	$ 0.06713	$ 0.04944	$ 29,268,418	$ 22,822,646	$ 11,097,045	$ 0.0755	$ 0.0723
Secondary-Nonsummer-Block 2	$ 0.06173	$ 0.06391	$ 0.04079	$ 19,636,007	$ 16,461,732	$ 8,910,848	$ 0.0645	$ 0.0663
Secondary-Nonsummer-Block 3		$ 0.04264	$ 0.03570		$ 4,876,777	$ 6,952,391		$ 0.0442
Secondary-Nonsummer-Seasonal								
Primary-Summer-Block 1	$ 0.05523	$ 0.08269	$ 0.04709	$ 20,503	$ 1,500,144	$ 2,509,795	$ 0.0989	$ 0.0938
Primary-Summer-Block 2	$ 0.07568	$ 0.06913	$ 0.04362	$ 147,864	$ 1,036,587	$ 2,318,422	$ 0.0744	$ 0.0710
Primary-Summer-Block 3		$ 0.05078	$ 0.04015		$ 311,445	$ 2,082,788		$ 0.0496
Primary-Nonsummer-Block 1	$ 0.06563	$ 0.06442	$ 0.04786	$ 68,742	$ 1,912,202	$ 4,616,018	$ 0.0741	$ 0.0697
Primary-Nonsummer-Block 2	$ 0.06073	$ 0.06159	$ 0.03957	$ 208,205	$ 1,566,578	$ 3,811,403	$ 0.0635	$ 0.0639
Primary-Nonsummer-Block 3		$ 0.03987	$ 0.03461		$ 646,634	$ 3,259,823		$ 0.0414
Primary-Nonsummer-Seasonal								
Substation-Summer-Block 1			$ 0.04538			$ 1,868,604		
Substation-Summer-Block 2			$ 0.04243			$ 1,747,232		
Substation-Summer-Block 3			$ 0.03903			$ 1,736,939		
Substation-Nonsummer-Block 1			$ 0.04696			$ 3,221,459		
Substation-Nonsummer-Block 2			$ 0.03892			$ 2,668,265		
Substation-Nonsummer-Block 3			$ 0.03409			$ 2,728,479		
Substation-Nonsummer-Seasonal								
Transmission-Summer-Block 1			$ 0.04768			$ 941,999		
Transmission-Summer-Block 2			$ 0.04325			$ 744,491		
Transmission-Summer-Block 3			$ 0.03981			$ 609,932		
Transmission-Nonsummer-Block 1			$ 0.04587			$ 1,720,224		
Transmission-Nonsummer-Block 2			$ 0.03793			$ 1,316,576		
Transmission-Nonsummer-Block 3			$ 0.03320			$ 1,365,535		
Transmission-Nonsummer-Seasonal								