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State Corporation Commission
of Kansas

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of Westar Energy, Inc. and Kansas Gas and Electric Company Seeking Commission Approval to Implement Changes in their Transmission Delivery Charges Rate Schedules.	)	Docket No. 16-WSEE-375-TAR
In the Matter of Westar Energy, Inc. and Kansas Gas and Electric Company Seeking Commission Approval to Implement Changes in their Transmission Delivery Charges Rate Schedules.	)	Docket No. 17-WSEE-377-TAR

NOTICE OF FILING OF STAFF'S REPORT AND RECOMMENDATION

COMES NOW, the Staff of the State Corporation Commission of the State of Kansas (Staff and Commission, respectively), and files its Report and Recommendation on Westar Energy, Inc. and Kansas Gas and Electric Company's (Westar) 2016 and 2017 Applications to implement changes in its Transmission Delivery Charges (TDC) rate schedules. Staff adopts its consultant's, Dr. George McCollister, analysis and conclusions regarding Westar's 12 Coincident Peak (12-CP) load research sample and allocator. Staff agrees Westar's 12-CP allocator must be adjusted due to sample bias created by Westar's method of supplementing its load research sample. Accordingly, Staff adopts Dr. McCollister's corrected 12-CP allocator, which Staff used to recalculate Westar's TDC for the years 2016 and 2017.

Staff recommends the Commission accept Dr. McCollister's methodology and approve Staff's revised amount of $244,687,518 in TDC revenues, consisting of Westar's request to recover $244,621,574 in TDC revenues plus Staff's calculation of the refund/charge to collect and additional $65,944 in TDC revenues. Staff further recommends Westar bill the refund/charge portion of the combined rate over a 17-month period.

Further, Staff recommends future load research samples be drawn at least once every five years and Westar provide a detailed outline of the sample design methodology to Staff and the Commission before implementing a new load research in the future. A more detailed discussion of the entirety of Staff's findings and recommendations is found in the attached Report and Recommendation.

WHEREFORE, Staff submits its Report and Recommendation for Commission review and consideration and for such other relief as the Commission deems just and proper.

Respectfully submitted,

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Pat Apple, Chairman
Shari Feist Albrecht, Commissioner
Jay Scott Emler, Commissioner

Sam Brownback, Governor

REPORT AND RECOMMENDATION
UTILITIES DIVISION

TO: Chairman Pat Apple
Commissioner Shari Feist Albrecht
Commissioner Jay Scott Emler

FROM: Andria Jackson, Managing Auditor
Chad Unrein, Senior Auditor
Lana Ellis, Deputy Chief of Economics and Rates
Justin Grady, Chief of Accounting and Financial Analysis
Bob Glass, Chief of Economic Policy and Planning
Jeff McClanahan, Utilities Director

DATE: September 22, 2017

SUBJECT: Docket No. 16-WSEE-375-TAR: In the Matter of Westar Energy, Inc. and Kansas Gas and Electric Company Seeking Commission Approval to Implement Changes in their Transmission Delivery Charges Rate Schedules.

Docket No. 17-WSEE-377-TAR: In the Matter of Westar Energy, Inc. and Kansas Gas and Electric Company Seeking Commission Approval to Implement Changes in their Transmission Delivery Charges Rate Schedules.

EXECUTIVE SUMMARY:

Over the past two years, Westar Energy, Inc. and Kansas Gas and Electric Company, d/b/a Westar Energy (Westar) have made multiple filings for recovery of transmission-related costs. The latest Application and request occurring in early 2017 was for $244,621,574 in Transmission Delivery Charge (TDC) revenues, which represents a $12,673,550 increase since Westar's last TDC filing. On April 3, 2017, Westar began billing the updated TDC rates to its retail customers on a subject-to-refund basis per K.S.A. 66-1237(c), pending the conclusion of Staff's investigation and the Commission's final determination.

Staff has concluded its investigation and performed an audit of Westar's TDC tariff filing and recommends the Commission approve the Company's requested increase in TDC revenues and the refund/collection of revenue generated from interim rates since Westar's last TDC filing. The revenue that Staff recommends should be refunded/charged to true-up the interim rates totals

$65,943 and should be refunded/collected over a 17-month period. If approved, Westar's revised TDC would decrease an average residential monthly customer bill by $1.51.[1]

BACKGROUND:

On February 15, 2016, Westar submitted an Application seeking Commission approval to implement changes in its TDC rate schedules in Docket No. 16-WSEE-375-TAR (16-375 Docket).[2] In accordance with K.S.A. 66-1237(c), Westar sought implementation of the new TDC tariffs within 30 business days, requesting April 1, 2016, as the desired effective date.[3]

In its initial Application, Westar's TDC rates were calculated to recover $250,211,278 from retail customers, which represented a $25,349,548 increase since the Company's prior TDC filing in Docket No. 15-WSEE-366-TAR (15-366 Docket). On March 31, 2016, the Commission issued an Order, pursuant to K.S.A. 66-1237, permitting Westar to implement the requested changes in its TDC rates on a subject-to-refund basis.

Subsequently, Westar filed an update to its original TDC filing on June 21, 2016, to reflect the reduction in revenue requirement that occurred as a result of FERC's acceptance of a settlement

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[1] The decrease in the residential monthly customer bill reflects the combined effect of revising Westar's existing TDC rates (Staff's recommended rates from this Docket due to Staff's recommended change in 16-375 Docket rates) plus the refund Staff calculated to true-up the difference between interim rates billed in both TDC Dockets versus the rates Staff recommends in both Dockets.

[2] The TDC tariff is designed to recover charges the Southwest Power Pool (SPP) assesses to Westar for service to Westar's retail load. In other words, the approved TDC tariff recovers Westar's retail transmission service cost. Westar is a Transmission-owning member (TO) of Southwest Power Pool (SPP), a nonprofit Regional Transmission Organization (RTO) that serves the function of a Transmission Provider (TP) to its member-entities. In its role as a TP, SPP acts as an agent for and on behalf of its TOs. One of SPP's functions as a TP is administering the billing for the wholesale transmission service provided over member-owned transmission facilities under its Open Access Transmission Tariff (OATT). Accordingly, SPP will collect for the transmission service from the wholesale transmission customers requesting such service over Westar's transmission facilities. SPP will then remit these charges back to the Company.
Westar's retail customers also utilize Westar's transmission system to receive desired energy load. Westar's cumulative retail demand is incorporated within the Company's total Network Load designated under the Network Integrated Transmission Service (NITS) Agreement with SPP. Under its NITS Agreement, Westar, in essence, "purchases" the transmission service on behalf of its native load, thus acting as a wholesale transmission network customer under the SPP OATT. Subsequently, as a TO on behalf of its native load, Westar incurs charges from the SPP. The approved TDC rates under the current tariff are based on Westar's annual transmission revenue requirement (ATRR), which is derived from Westar's annual Transmission Formula Rate, which has been approved by FERC. In addition to the retail portion of that amount, the current TDC tariff recovers the retail-allocated portion of other SPP charges associated with transmission service.

[3] K.S.A. 66-1237(c) states that "[a]ll transmission-related costs incurred by an electric utility and resulting from any order of a regulatory authority having legal jurisdiction over transmission matters, including orders setting rates on a subject-to-refund basis, shall be conclusively presumed prudent for purposes of the transmission delivery charge and an electric utility may change its transmission delivery charge whenever there is a change in transmission-related costs resulting from such an order. The Commission may also order such a change if the utility fails to do so. An electric utility shall submit a report to the commission at least 30 business days before changing the utility's transmission delivery charge. If the commission subsequently determines that all or part of such charge did not result from an order described by the subsection, the commission may require changes in the transmission delivery charge and impose appropriate remedies, including refunds."

altering the Return On Equity (ROE) component of Westar's transmission formula rate.[4] As such, Westar's Annual Transmission Revenue Requirement (ATRR) was revised to $231,948,024—a reduction of approximately $18.3 million compared to its initial Application.

On August 2, 2016, Staff filed its Report and Recommendation (R&R) regarding Westar's updated TDC rate schedules.[5] Staff's R&R provided a comparison of the 12-CP (12 month coincidental peak) allocators from the previous two rate cases (2010 and 2014) along with the energy sales allocator, which pointed to potential problems with the 2014 12-CP allocator.[6] The most notable difference was the increase in the allocation to Residential customers from 40.71% to 47.51% and the reduction in allocation to Small General Service customers allocation from 23.39% to 17.04%. Thus, the 2014 12-CP allocator shifted $15.8 million to the Residential Class revenue requirement.

Westar and Staff investigated the change in the 12-CP allocator but were unable to identify the underlying cause of the change. Nonetheless, Staff identified two biases in Westar's sampling methodology for its load research sample used to estimate the 12-CP allocator—survivor bias and non-probabilistic sampling bias—that required further investigation. As a result, Staff recommended that a consultant be hired to identify the cause of the change in the 12-CP allocator and determine whether the change is justified.

Staff further recommended the Commission continue to allow Westar to collect its updated TDC rate schedule on a subject-to-refund basis.[7] However, Staff recommended the Commission withhold its final decision on Westar's TDC until a third-party consultant could investigate the load research sample used to generate the 12-CP allocator and determine whether further action is warranted.[8]

On August 11, 2016, Westar filed a Response to Staff's R&R, taking two issues with Staff's proposal.[9] Westar claimed Staff's proposal deviates from the Settlement Agreement reached in Docket No. 15-WSEE-115-RTS (15-115 Docket), and Staff's proposal contradicts Westar's TDC Tariff and past Commission Orders.[10]

On August 22, 2016, Staff responded that the Commission should reject Westar's request to issue a Final Order on Westar's TDC and instead allow Westar to continue to collect its updated

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[4] On March 30, 2016, FERC issued a Letter Order accepting a Settlement Agreement between, among others, Westar and the Commission. The Settlement Agreement set the base ROE for Westar's transmission services at 9.8 percent, with 11.0 percent as the maximum total ROE for any transmission project of Westar to which FERC has granted or will grant transmission incentives. The Settlement Agreement also provided that the base and maximum ROE be retroactively effective August 20, 2014.

[5] Notice of Filing of Staff's Report and Recommendation (Aug. 2, 2016) (R&R).

[6] Since the last TDC filing, Westar's last general rate case Docket No. 15-WSEE-115-RTS (15-115 Docket) was completed. The test year used in Westar's last general rate case is the same test year utilized in Westar's current TDC tariff. This new test year results in a new twelve coincidental peak (12-CP) allocator for Westar when compared to previous TDC proceedings.

[7] *See* R&R at p. 7.

[8] *See id.*

[9] Westar Energy, Inc. and Kansas Gas and Electric Company's Response to Staff's Report and Recommendation, (Aug. 11, 2016) (Westar Response).

[10] *See* Westar Response, pp. 2-5.

TDC rate schedule on a subject-to-refund basis while a third-party consultant conducts additional inquiry regarding Westar's load research sample.[11]

In its Order Adopting Staff's August 2, 2016 Recommendation, the Commission found that Staff had raised uncertainty regarding the appropriateness of Westar's load research sample. The Commission also found that such uncertainty, in conjunction with the $15.8 million revenue requirement shift to the Residential Class, requires further investigation and analysis. Thus, the Commission concluded that hiring a third-party consultant to further investigate the load research sample used to generate the 12-CP allocator is in the public interest since it would provide evidence that the proposed rates included in Westar's TDC Application are just and reasonable and not unduly discriminatory.

The Commission further found that neither the 15-115 Settlement Agreement nor the TDC tariff precludes Staff from conducting further analysis of the 12-CP allocators.[12] Similarly, the Commission found that the 15-115 Settlement Agreement and the TDC tariff do not preclude the Commission from making a determination of whether the rates included in Westar's TDC Application are just and reasonable or unduly discriminatory.[13]

The Commission also concluded it is in the public interest to continue to allow Westar's updated TDC rate schedules to be collected on a subject-to-refund basis until it can be determined whether further action is needed. And, to address the due process concerns raised by Westar, the Commission directed that all parties to the 15-115 Docket receive service of the Order and be added to the service list in this Docket.[14]

On February 15, 2017, Westar submitted an Application seeking Commission approval to implement changes in its 2017 TDC rate schedules in Docket No. 17-WSEE-377-TAR (17-377 Docket). Westar's filing represents an update to the prior TDC approved in the 16-375 Docket. Supplemental to its filed request, Westar enclosed an original and copies of its proposed TDC tariffs, as well as workpapers supporting the calculations. Westar's calculations for the updated TDC tariffs used the 2014 12-CP allocator, which makes the updates subject to the same biases as identified before. In accordance with K.S.A. 66-1237(c), Westar sought implementation of the new TDC tariffs within 30 business days, requesting April 3, 2017, as the desired effective date.[15]

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[11] Staff's Response to Westar Energy, Inc. and Kansas Gas and Electric Company Response to Staff's Report and Recommendation. (August 22, 2016).

[12] Order Adopting Staff's August 2, 2016 Recommendation, ¶¶ 15-16 (Nov. 8, 2016).

[13] *See id.*

[14] *See id.*

[15] K.S.A. 66-1237(c) states that "[a]ll transmission-related costs incurred by an electric utility and resulting from any order of a regulatory authority having legal jurisdiction over transmission matters, including orders setting rates on a subject-to-refund basis, shall be conclusively presumed prudent for purposes of the transmission delivery charge and an electric utility may change its transmission delivery charge whenever there is a change in transmission-related costs resulting from such an order. The commission may also order such a change if the utility fails to do so. An electric utility shall submit a report to the commission at least 30 business days before changing the utility's transmission delivery charge. If the commission subsequently determines that all or part of such charge did not result from an order described by the subsection, the commission may require changes in the transmission delivery charge and impose appropriate remedies, including refunds."

In its Application, Westar's TDC rates were calculated to recover $244,621,574 from retail customers, which represents a $12,673,550 increase since the Company's prior TDC filing, as amended by a reduction in the ROE component in the 16-375 Docket. On March 30, 2017, the Commission issued an Order pursuant to K.S.A. 66-1237 permitting Westar to implement the requested changes in its TDC rates on a subject-to-refund basis.

ANALYSIS:

The Analysis Section covers three major interrelated issues: Staff's consultant's examination of Westar's load research sample and the 12-CP allocator derived from the sample; the calculation of the 17-377 TDC rates; and the calculation of the refunds/charges resulting from Staff's recommendation to correct the 12-CP allocator used in the 16-375 and 17-377 TDC rate calculations. Each of these issue will be discussed separately below.

Economics and Rates Section: Consultant Load Research and 12-CP Report

12-CP Analysis

The annual transmission revenue requirement (ATRR) is allocated to customer classes based on the 12-CP from the twelve months of the test year ending September 30, 2014. The test year ending September 30, 2014, is the same test year period as Westar's last general rate case (Docket No. 15-WSEE-115-RTS). However, Staff's August 2, 2016 Report and Recommendation called into question the accuracy of the 12-CP allocator from Docket No. 15-WSEE-115-RTS (115 Allocator). Staff became skeptical of Westar's 115 Allocator when Staff noted that the resulting allocation to Residential customers was significantly higher (47.51%) than it was with the previous 12-CP allocator from the 12-WSEE-112-RTS rate case (112 Allocator) (40.71%).

In preparation for the 115 Docket, Westar reviewed the load research sample it had used to create its estimate of the 115 Allocator and found that slightly more than 30% of its original residential customers had left the sample. The loss of these customers from the sample created the potential for survivorship bias in the sample.[16] The best solution for correcting survivorship bias is a completely new random load research sample.[17] However, historically new samples have been expensive to create and, as a result, a more cost effective method is to replace the lost members with a new random sample from the population. Instead, Westar refreshed its load research sample with customers that had AMI meters. At the time the refreshing occurred, only Lawrence and a small part of Wichita had AMI meters. Thus, other urban areas and rural areas were not represented in the refresh sampling done by Westar. In other words, the technique for refreshing the load research sample was non-probabilistic rather than probabilistic. As a result,

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[16] *Survivorship bias* refers to the loss of members of the sample originally selected for research. Assuming the original Westar sample was randomly drawn, then in Westar's case, the loss of customers moving out of the Westar territory was probably well represented by the loss in the original sample. However, during the same period, new customers moved into the Westar area and, in some cases, purchased new houses. These new customers and the new houses are not represented in the load research sample.

[17] One of Dr. McCollister's recommendations is to develop a new load research sample every five years.

Westar did not eliminate the survivorship bias and, instead, introduced a non-probabilistic sampling bias.[18]

Staff noted in its August 2, 2016 Report and Recommendation that it found two biases in the Westar Load Research Sample used to estimate the 115 Allocator—survivorship bias and non-probabilistic sampling bias. Because Staff did not have the necessary expertise, Staff recommended the Commission hire a third-party consultant to investigate whether the biases could be corrected. If the biases could be corrected, then the consultant was to correct the biases using the best method possible.

Staff hired Dr. George McCollister to perform the analysis. Attached is his report that agrees with Staff's analysis that survivorship bias and non-probabilistic sampling bias existed in Westar's Load Research Sampling. In addition, Dr. McCollister was able to correct for part of the biases' effects but was unable to correct for all of the biases' effects. Due to the complexity associated with evaluating Westar's load research sampling, Staff provided an advanced and preliminary copy of Dr. McCollister's report to the intervenors of the 16-375 Docket. The recommendations contained within this Report and Recommendation are derived from the final version of Dr. McCollister's report. As discussed in greater detail below, Staff is adopting the final version of Dr. McCollister's report in Staff's recommendations.

Dr. McCollister's Analysis

A load research sample is designed to provide more detailed information about the electricity consumption patterns of customers than can be provided by billing data. In particular, a load research sample is designed to provide information about the daily load shape of customers—i.e. daily usage patterns of customers. These daily patterns are usually summarized by the customer demand, the greatest electricity usage during a short period of the day (e.g. hourly), and the total electricity usage for the day. The two biases identified by Staff, and confirmed by Dr. McCollister, affect both demand and usage.

Dr. McCollister was able to partially correct for the effect of the biases on the level of customer usage by calibrating customer usage in the load research sample to accrued billing usage. The calibration of load research data to accrued billing data ensures that the totals or levels of electricity usage match. In addition, Dr. McCollister found that Westar had only weather normalized the peak demand for the month of August in their 12-CP analysis. Dr. McCollister weather normalized the monthly peak demand for all the months in the test year except March and April[19] by using hourly usage, hourly minimum and maximum temperatures, and 30-year average temperatures for Westar North and South.[20] Thus, Dr. McCollister was able to partially correct for the effect of the biases on the total usage of the load research sample by calibrating it with accrued billing data and then weather normalizing the calibrated peak demands.

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[18] *Non-probabilistic sampling bias* refers to the use of a non-random technique for sampling.

[19] The peak in March occurred on the 2nd, a Sunday. The peak for April occurred on the 14th, a Monday at 11 am. Because there are fewer weekend days and peaks rarely occur at 11 a.m., more years of data would be needed to get a good regression fit for these two periods.

[20] Westar North encompasses the old Kansas Power and Light service territory and Westar South refers to the old Kansas Gas and Electric service territory. Topeka weather data was used to weather normalize Westar North, and Wichita weather data was used to weather normalize Westar South.

Based on these corrections, Dr. McCollister recommends Staff acknowledge the sample bias, reflected in the 115 Allocator that resulted from Westar's sample supplementation using AMI data. Dr. McCollister further recommends Staff adopt his corrected allocations to recalculate the TDC approved by Commission's Order pursuant to K.S.A. 66-1237 on March 31, 2016, on a subject-to-refund basis, for the years 2016 and 2017.

While Dr. McCollister was able to partially correct for the biases on the usage levels, he was unable to correct for the effect of the biases on the customer load shape. To correct for the effect on load shape, additional randomly sampled refresh data would need to be available. Unfortunately, Westar cannot go back to 2013 and redo its refreshment of the load research sample. The only possible hourly data that does exist would be for customers with the AMI meters, which would still exclude rural customers from the sample.

Below is Dr. McCollister's summary of the problems created by the non-probabilistic sampling and potential solutions.

> These areas [from which the refresh data was drawn] are largely urban and may not be representative of the whole service area and, if not representative, may create a bias in the sample toward the characteristics of those two areas. If the sample is not representative of the entire service area, then the load shape for the sample may have too much or too little load or it may not have the same shape as the class. Improper load measurement may be remedied in part by calibrating the sample load shape to the billed kWh for the class. It is much more difficult to remedy the shape (the distribution of load across the hours of the day) if it is incorrect.[21]

Therefore, Dr. McCollister recommends load research samples should be drawn at least once every five years and, before implementing a new load research sample in the future, Westar provide a detailed outline of the methodology for the design of the sample to the Staff and Commission.

Staff's Agreement with Dr. McCollister

Staff supports all of Dr. McCollister's analysis and conclusions and concurs with his recommendations. Dr. McCollister has reduced the effect of the biases on the load research sample through his adjustments. However, the adjusted load research sample is not without potential bias since Dr. McCollister was unable to make adjustments for the effect of the biases on the customer load shape. But, Dr. McCollister was able to adjust the sample so that it was more representative of all of Westar's customers' total electricity usage. A more representative sample should give better estimates of the 12-CP allocator.

Further evidence that Dr. McCollister's adjustments to the load research sample improved the 115 Allocators is provided by a comparison of his 12-CP estimation with Westar's 12-CP estimation in the 12-WSEE-112-RTS Docket (12-112 Docket) which used 2010 as the test year while the 115 Docket which used October 2013 through September 2014 as the test year.

In the case of the 115 Docket, we know that McCollister's partial correction moved the percentage allocated to residential customers from 47.51% to 44.28%. To move the percentage allocation back toward 47.51%, the correction for the customer load shape would need to be in

[21] Dr. George McCollister, Report to Kansas Corporation Commission, September 18, 2017, pp. 5-6.

the opposite direction of the usage level correction. However, no direct evidence exists of the effect of correcting for the load shape error. The only quantitative evidence for the effect of correcting the load shape error is to look back to the 112 Docket.

In the 112 Docket, the percentage allocation for residential customers was 40.71%, which is significantly less than 44.28%. This suggests that a correction for the load shape would reduce the percentage allocation to residential customers below 44.28%, not toward 47.51%.

Finally, the evidence provided by the 112 Allocator does not suggest further reducing below 44.28%, the portion of Westar's ATRR allocated to residential customers. The 112 Docket load research sample and the 12-CP estimation resulting from it are based on a 2010 test year. Between 2010 and the test year for the 115 Docket load research sample and estimated 12-CP (October 2013 to September 2014), customers left the load research sample and additional customers moved into Westar's service territory creating the survivorship bias discussed earlier. Accordingly, the older 112 Allocator does not represent Westar's residential customers in 2014 very well and, as a result, should not be used as a basis to move Dr. McCollister's Allocator further toward the 112 Allocator.

Thus, the evidence provided by the 112 Allocator is strong enough to support rejecting the probability of compensating errors in McCollister's 12-CP estimation, but the same evidence is not strong enough to support reducing the residential percentage of Westar's ATRR allocation below 44.28%. Thus, Dr. McCollister's adjusted load research sample and his allocator are preferred to Westar's original load research sample and the initial 115 Allocator of 47.51%. However, in the future, load research samples should be drawn at least once every five years as recommended by Dr. McCollister and, before implementing a new load research sample in the future, Westar should provide a detailed outline of the methodology for the design of the sample to the Staff and Commission.

Auditing Section: Calculation of the TDC ATRR, Rates and Refunds

To facilitate its review of Westar's TDC filing, Staff solicited from Westar various information requests including recent copies of SPP billing statements, billing determinants and usage data used to determine the amount of the TDC Westar is responsible for, residential bill impact analysis, etc.

Calculation of the ATRR for use in the TDC Calculation

The tariff Westar included in the Application contains transmission charges for the following cost elements of the OATT from SPP:

- Schedule 1A – Tariff Administration Service
- Schedule 9 – Network Integration Transmission Service
- Schedule 10 – Wholesale Distribution Service
- Schedule 11 – Base Plan Charge
- Schedule 12 – FERC Assessment Charge
- Other cost associated with Schedule 1 fees for transmission service provided on foreign wires

In addition to verifying the total input costs, Staff also examined a few supplementary processes performed by the Company to arrive at the individual retail transmission delivery charges. Staff reviewed invoices, spreadsheets with the load measurements, etc., to verify the Company's Load Ratio Share (LRS) calculations.

Staff has reviewed the data provided by Westar through the information requests issued, including the SPP invoices and the load and usage data submitted by Westar in support of its revised TDC calculation. Additionally, Staff has verified the information provided by reviewing the published data on the SPP website. Staff finds that Westar's TDC filing accurately reflects the nature of the costs it incurs from SPP on behalf of its retail customers to provide transmission service and that its TDC charges were calculated correctly in its Application.

Calculation of 2016 Refund/Charge

As discussed above, Staff supports Dr. McCollister's analysis and conclusions and concurs with his recommendations. Thus, Staff agrees the 12-CP allocator needs to be adjusted because of the sample bias created by Westar's supplementation methodology. As a consequence, Staff adopts Dr. McCollister's corrected 12-CP allocator and used it to recalculate the TDC for the years 2016 and 2017. A copy of Dr. McCollister's report is attached to this Report and Recommendation and, as discussed above, adopted by Staff.

In June 2016, approximately three months into billing its 2016 TDC rates subject-to-refund, Westar filed an update to its original TDC filing to reflect the reduction in revenue requirement that occurred as a result of FERC's acceptance of the settlement lowering the ROE component of Westar's Transmission Formula Rate. The updated filing resulted in new TDC rates that reflected the lower ATRR. To derive the new TDC amount to be collected, Westar started by using the updated, lower revenue requirement and then subtracted out the amount already collected through the original TDC rates effective subject-to-refund between April 1, 2016, and June 30, 2016. The remaining amount of the lower revenue requirement left to be collected during the effective period for the 2016 TDC was then used to calculate new TDC rates to be billed during the months of July 1, 2016, through March 31, 2017.

Because there were two different TDC rates effective for the 2016 TDC period, there are two parts to Staff's calculation of the refunds/charges between customer classes associated with Staff's recommended change to the 12-CP used to allocate the TDC charges. The two steps to this calculation are as follows:

1. Staff calculated the refund/charges per customer class for the months of April 2016 through June 2016 by using Staff's revised 12-CP allocators to establish new rates per customer class. Staff then multiplied the rate differential between the new (recalculated to reflect Staff's revised 12-CP allocators) and old rates (original rates implemented on a subject-to-refund basis) by the historical billing determinants from the period of April 2014 through June 2014 (the same billing determinants that were used to calculate the original rates) for the total refund and charges during this three-month period. As shown in the table below, the impact of the total refund/charges for all customer classes for this period is $397,808.

Customer Class	New Rate	Old Rate	Rate Differential	Billing Determinants	Refund/Charge
Residential (RS, RSDG, RESTOU)	$0.017421	$0.018689	($0.001268)	1,231,004,031	($1,560,961)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$0.011906	$0.011848	$0.000058	809,007,082	$46,783
MGS	$4.204635	$3.636601	$0.568035	1,799,875	$1,022,391
Schools (PS-R,SES,REIS,RTESC)	$0.012937	$0.009309	$0.003628	135,345,702	$491,068
Restricted Time of Day (RITODS)	$0.016148	$0.015382	$0.000766	2,769,381	$2,121
Lighting (SAL, SL, TS, Pilot LED)	$0.007768	$0.008385	($0.000618)	47,486,627	($29,339)
LGS/ILP (Formerly HLF)	$4.461235	$4.329188	$0.132048	2,546,133	$336,211
LTM	$4.609099	$4.472674	$0.136424	64,948	$8,860
ICS	$0.007593	$0.007368	$0.000225	10,867,888	$2,443
Special Contract	$0.009335	$0.009059	$0.000276	283,134,000	$78,231
Total					**$397,808**

2. Staff calculated the refund/charges per customer class for the months of July 2016 through March 2017. To calculate these new rates per customer class, Staff replicated the calculation methodology that was used to calculate the initial TDC charges for the period of July 2016 through March 2017. That is, Staff calculated the amount of revenue to be charged to each customer class by first spreading the total ATRR of $231,948,023 to the classes using Staff's revised 12-CP allocators. From this per-class amount, Staff subtracted the revised amounts that would have been billed during the months of April, May, and June of 2016, if Staff's recommended 12-CP had been used to bill those rates (the "new rates" calculated in Step 1 above). The rate differentials between the new and original rates were then multiplied by the historical billing determinants from the period of July 2014 through March 2015 (the same billing determinants used to calculate the original rates) to calculate the revenue amount per customer class to refund/charge for this nine-month period. As depicted in the table below, the total impact of the refund/charges for all customer classes is ($397,395).

Customer Class	New Rate	Old Rate	Rate Differential	Billing Determinants	Refund/Charge
Residential (RS, RSDG, RESTOU)	$0.015844	$0.016997	($0.001153)	5,129,389,330	($5,915,225)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$0.010785	$0.010732	$0.000052	2,790,113,143	$146,166
MGS	$3.795046	$3.282345	$0.512700	5,379,286	$2,757,961
Schools (PS-R,SES,REIS,RTESC)	$0.011722	$0.008435	$0.003287	472,219,197	$1,552,407
Restricted Time of Day (RITODS)	$0.014686	$0.013989	$0.000697	11,518,837	$8,024
Lighting (SAL, SL, TS, Pilot LED)	$0.007012	$0.007570	($0.000558)	142,813,137	($79,676)
LGS/ILP (Formerly HLF)	$4.025715	$3.906558	$0.119157	7,544,921	$899,029
LTM	$4.160844	$4.037687	$0.123156	195,385	$24,063
ICS	$0.006826	$0.006624	$0.000202	28,290,422	$5,711
Special Contract	$0.008418	$0.008169	$0.000249	818,927,000	$204,144
Total					**($397,395)**

Detailed support of these calculations can be found in the attached Exhibits ANJ-1 and ANJ-2. Because the calculation of refunds/charges is a change in the collection of revenue between customer classes over a 12-month period (and because the same billing determinants used to calculate the original rates were used to calculate the refunds/charges), the total impact of the refunds/charges is almost revenue neutral, as would be expected.

Calculation of 2017 Refund/Charge

Pursuant to the TDC tariff, the calculation of the TDC rate for the period of April 2017 through March 2018 is a function of applying an adjustment factor to the rates approved for the 2016 TDC. Staff calculated the refund/charges per customer class for the months of April 2017

through October 2017 by changing the existing rates from the 16-375 Docket to the new rate calculated for the months of July 2016 and March 2017 discussed in step two of the 2016 TDC refund/charge calculation above. The adjustment factor was then applied to the revised 2016 TDC rate for each customer class, with the product being the revised 2017 TDC rates. The rate differentials between the revised 2017 TDC rates and the original 2017 TDC rates (implemented subject-to-refund) were then multiplied by the historical billing determinants from the period of April 2014 through October 2014 to calculate the revenue amount per customer class to refund/charge for this six-month period. This methodology requires an assumed date upon which the new 2017 TDC rates can be billed and, thus, the per-class refunds/charges no longer need to be calculated. For purpose of this analysis, Staff assumes that the Commission will implement for billing the new 2017 TDC rates by November 1, 2017. As depicted in the table below, and in more detail in the attached Exhibit ANJ-3, the total impact of the refund/charges for all customer classes is $65,531.

Customer Class	Old Rate	New Rate	Rate Differential	Billing Determinants	Refund/Charge
Residential (RS, RSDG, RESTOU)	$ 0.017882	$0.016668	(0.001214)	3,775,088,113	$ (4,582,957)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$ 0.011291	$0.011346	0.000055	2,144,330,734	$ 117,938
MGS	$ 3.453161	$3.992543	0.539382	4,388,723	$ 2,367,198
Schools (PS-R,SES,REIS,RTESC)	$ 0.008874	$0.012332	0.003458	363,866,468	$ 1,258,250
Restricted Time of Day (RITODS)	$ 0.014717	$0.015450	0.000733	9,120,100	$ 6,685
Lighting (SAL, SL, TS, Pilot LED)	$ 0.007964	$0.007377	(0.000587)	110,513,355	$ (64,871)
LGS/ILP (Formerly HLF)	$ 4.109859	$4.235217	0.125358	6,103,411	$ 765,111
LTM	$ 4.247812	$4.377378	0.129566	155,564	$ 20,156
ICS	$ 0.006969	$0.007181	0.000212	23,202,230	$ 4,919
Special Contract	$ 0.008594	$0.008856	0.000262	660,694,000	$ 173,102
Total					**$ 65,531**

Staff recommends the Commission approve the total combined 2016 and 2017 TDC refund/charge amount of $65,944 as presented in the table below to be reflected in the calculation of the 2017 TDC rates in the current TDC filing.

Customer Class	April 16 - June 16	July 16 - March 17	April 17 - November 17	Total Refund/Charge
Residential (RS, RSDG, RESTOU)	($1,560,961)	($5,915,225)	($4,582,957)	($12,059,143)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$46,783	$146,166	$117,938	$310,887
MGS	$1,022,391	$2,757,961	$2,367,198	$6,147,551
Schools (PS-R,SES,REIS,RTESC)	$491,068	$1,552,407	$1,258,250	$3,301,725
Restricted Time of Day (RITODS)	$2,121	$8,024	$6,685	$16,831
Lighting (SAL, SL, TS, Pilot LED)	($29,339)	($79,676)	($64,871)	($173,887)
LGS/ILP (Formerly HLF)	$336,211	$899,029	$765,111	$2,000,352
LTM	$8,860	$24,063	$20,156	$53,079
ICS	$2,443	$5,711	$4,919	$13,072
Special Contract	$78,231	$204,144	$173,102	$455,477
Total	**$397,808**	**($397,395)**	**$65,531**	**$65,944**

Staff's recommendation is to combine the per-class refund/charge amounts discussed above spread over a 17-month period from November 1, 2017, through March 31, 2019.[22] This 17-month period allows the refunds/charges calculated herein to conclude once Westar's 2019 TDC rates take effect. Of course, this also assumes that Staff's recommendations can be implemented

[22] *See* Exhibit ANJ-4.

by the Commission by November 1, 2017. If the 2017 TDC rates can be revised by that date, then the 17-month time period for refund/charge will approximate the 19 months the subject-to-refund rates were originally billed (April 2016 through October 2017) without having to continue the refunds/charges into the 2019 TDC year. If the 2017 TDC rates are not revised after November 1, 2017, or if the Commission desires a different length of time over to bill the refunds/charges, the calculation of the refund/charge amounts will need to change correspondingly. Staff can supplement the record with these additional calculations if necessary.

RECOMMENDATIONS:

Staff supports Dr. McCollister's analysis and conclusions and concurs with his recommendations. Thus, Staff agrees the 12-CP allocator needs to be adjusted because of the sample bias created by Westar's method of supplementing its load research sample. As a consequence, Staff adopts Dr. McCollister's corrected 12-CP allocator and used it to recalculate the TDC for the years 2016 and 2017.

Staff recommends the Commission accept Dr. McCollister's methodology and approve Staff's revised amount of $244,687,518 in TDC revenues, consisting of Westar's request to recover $244,621,574 in TDC revenues plus Staff's calculation of the refund/charge rates presented in Exhibit ANJ-4 to collect an additional $65,944 in TDC revenues. Staff also recommends Westar bill the refund/charge portion of the combined rate over a 17-month period.

Staff further recommends future load research samples be drawn at least once every five years and Westar provide a detailed outline of the sample design methodology to Staff and the Commission before implementing a new load research in the future.

Westar Energy, Inc.
Docket No. 16-WSEE-375-TAR
TDC Rate Calculation for April 2016 - June 2016

Customer Class	Staff Revised 12-CP	TDC Revenue Requirement $250,211,277.92	15-115 Docket Billing Determinants	New Rate	Old Rate	Rate Differential	April 2014 - June 2014 Billing Determinants	Refund/Charge
Residential (RS, RSDG, RESTOU)	44.2835%	$110,802,367.07	6,360,393,363	**$0.017421**	$0.018689	($0.001268)	1,231,004,031	($1,560,960.85)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	17.1257%	$42,850,446.09	3,599,120,221	**$0.011906**	$0.011848	$0.000058	809,007,082	$46,782.63
MGS	12.0641%	$30,185,752.19	7,179,161	**$4.204635**	$3.636601	$0.568035	1,799,875	$1,022,391.13
Schools (PS-R,SES,REIS,RTESC)	3.1415%	$7,860,315.58	607,564,901	**$0.012937**	$0.009309	$0.003628	135,345,702	$491,068.24
Restricted Time of Day (RITODS)	0.0922%	$230,723.84	14,288,218	**$0.016148**	$0.015382	$0.000766	2,769,381	$2,121.23
Lighting (SAL, SL, TS, Pilot LED)	0.5908%	$1,478,173.88	190,299,764	**$0.007768**	$0.008385	($0.000618)	47,486,627	($29,339.50)
LGS/ILP (Formerly HLF)	17.9922%	$45,018,565.02	10,091,054	**$4.461235**	$4.329188	$0.132048	2,546,133	$336,210.86
LTM	0.4796%	$1,199,900.49	260,333	**$4.609099**	$4.472674	$0.136424	64,948	$8,860.48
ICS	0.1188%	$297,336.84	39,158,310	**$0.007593**	$0.007368	$0.000225	10,867,888	$2,442.56
Special Contract	4.1116%	$10,287,696.91	1,102,061,000	**$0.009335**	$0.009059	$0.000276	283,134,000	$78,231.22
Total								**$397,807.99**

Westar Energy, Inc.
Docket No. 16-WSEE-375-TAR
TDC Rate Calculation for July 2016 - March 2017

Rate Calculation with lower ROE for April 2016 through March 2017

	Staff Revised 12-CP	TDC Revenue Requirement $231,948,023.92	15-115 Docket Billing Determinants
Residential (RS, RSDG, RESTOU)	44.2835%	$102,714,754.91	6,360,393,363
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	17.1257%	$39,722,735.03	3,599,120,221
MGS	12.0641%	$27,982,453.98	7,179,161
Schools (PS-R,SES,REIS,RTESC)	3.1415%	$7,286,580.69	607,564,901
Restricted Time of Day (RITODS)	0.0922%	$213,883.00	14,288,218
Lighting (SAL, SL, TS, Pilot LED)	0.5908%	$1,370,280.01	190,299,764
LGS/ILP (Formerly HLF)	17.9922%	$41,732,600.07	10,091,054
LTM	0.4796%	$1,112,318.16	260,333
ICS	0.1188%	$275,633.83	39,158,310
Special Contract	4.1116%	$9,536,784.23	1,102,061,000
	100.0000%	$231,948,023.92	

Calculation using historical billing determinants from most recent test year

	April 2014 Historical Billing Determinants	Revised Rates (1)	Total	May 2014 Historical Billing Determinants	Revised Rates	Total	June 2014 Historical Billing Determinants	Revised Rates	Total	Total Historical Billing Determinants	Total Dollars
Residential (RS, RSDG, RESTOU)	369,455,512	$ 0.017421	$ 6,436,165.65	361,527,944	$ 0.017421	$ 6,298,062.03	500,020,575	$ 0.017421	$ 8,710,697.61	1,231,004,031	$ 21,444,925.29
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	252,126,373	$ 0.011906	$ 3,001,769.01	256,373,514	$ 0.011906	$ 3,052,334.67	300,507,195	$ 0.011906	$ 3,577,781.95	809,007,082	$ 9,631,885.64
MGS	560,322	$ 4.204635	$ 2,355,949.54	603,584	$ 4.204635	$ 2,537,850.46	635,969	$ 4.204635	$ 2,674,017.57	1,799,875	$ 7,567,817.56
Schools (PS-R,SES,REIS,RTESC)	42,602,603	$ 0.012937	$ 551,167.30	47,862,530	$ 0.012937	$ 619,217.12	44,880,569	$ 0.012937	$ 580,638.27	135,345,702	$ 1,751,022.70
Restricted Time of Day (RITODS)	813,179	$ 0.016148	$ 13,131.08	816,047	$ 0.016148	$ 13,177.40	1,140,155	$ 0.016148	$ 18,411.04	2,769,381	$ 44,719.52
Lighting (SAL, SL, TS, Pilot LED)	15,886,422	$ 0.007768	$ 123,399.49	15,774,852	$ 0.007768	$ 122,532.86	15,825,353	$ 0.007768	$ 122,925.13	47,486,627	$ 368,857.48
LGS/ILP (Formerly HLF)	815,355	$ 4.461235	$ 3,637,490.40	842,211	$ 4.461235	$ 3,757,301.33	888,567	$ 4.461235	$ 3,964,106.35	2,546,133	$ 11,358,898.09
LTM	20,944	$ 4.609099	$ 96,532.96	21,639	$ 4.609099	$ 99,736.29	22,365	$ 4.609099	$ 103,082.49	64,948	$ 299,351.74
ICS	3,390,408	$ 0.007593	$ 25,744.04	3,562,622	$ 0.007593	$ 27,051.70	3,914,858	$ 0.007593	$ 29,726.30	10,867,888	$ 82,522.04
Special Contract	87,638,000	$ 0.009335	$ 818,097.35	100,278,000	$ 0.009335	$ 936,091.26	95,218,000	$ 0.009335	$ 888,856.36	283,134,000	$ 2,643,044.96
			$ 17,059,446.83			$ 17,463,355.12			$ 20,670,243.07		$ 55,193,045.02

2016 Rate Calculation for July 2016 through March 2017

	TDC Rev. Requirement Less Already Billed $176,754,978.90	15-115 Docket Billing Determinants Less Already Billed	New Rate	July 2014 - March 2015 Old Rate (2)	Rate Differential	Billing Determinants	Refund/Charge
Residential (RS, RSDG, RESTOU)	$81,269,829.62	5,129,389,332	**$0.015844**	$0.016997	($0.001153)	5,129,389,330	($5,915,224.88)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$30,090,849.40	2,790,113,139	**$0.010785**	$0.010732	$0.000052	2,790,113,143	$146,165.90
MGS	$20,414,636.42	5,379,286	**$3.795046**	$3.282345	$0.512700	5,379,286	$2,757,961.45
Schools (PS-R,SES,REIS,RTESC)	$5,535,558.00	472,219,199	**$0.011722**	$0.008435	$0.003287	472,219,197	$1,552,406.69
Restricted Time of Day (RITODS)	$169,163.49	11,518,837	**$0.014686**	$0.013989	$0.000697	11,518,837	$8,024.43
Lighting (SAL, SL, TS, Pilot LED)	$1,001,422.52	142,813,137	**$0.007012**	$0.007570	($0.000558)	142,813,137	($79,676.31)
LGS/ILP (Formerly HLF)	$30,373,701.98	7,544,921	**$4.025715**	$3.906558	$0.119157	7,544,921	$899,029.30
LTM	$812,966.42	195,385	**$4.160844**	$4.037687	$0.123156	195,385	$24,062.88
ICS	$193,111.79	28,290,422	**$0.006826**	$0.006624	$0.000202	28,290,422	$5,711.02
Special Contract	$6,893,739.26	818,927,000	**$0.008418**	$0.008169	$0.000249	818,927,000	$204,144.24
Total							**($397,395.27)**

Note (1): The Revised Rates represent the new TDC rates calculated for April 2016 through June 2016. *See* Exhibit ANJ-1.
Note (2): The Old Rate represents the rates calculated for July 2016 through March 2017 effectuated from the change in the original TDC rates.

Westar Energy, Inc.
Docket No. 17-WSEE-377-TAR
2017 TDC Refund/Charge Calculation

2017 Rate Calculation

Rate Adjustment Factor **1.05204**

TRANSMISSION DELIVERY CHARGE	Revised Existing Rate		New Rate		Old Rate		
Rate schedule	$ per kW	$ per kWh	$ per kW	$ per kWh	$ per kW	$ per kWh	Rate Differential
Special Contracts		0.008418		0.008856		0.008594	0.000262
Dedicated Off-Peak Service		0.010785		0.011346		0.011291	0.000055
Generation Substitution Service		0.010785		0.011346		0.011291	0.000055
Large General Service	4.025715		4.235217		4.109859		0.125358
Industrial and Large Power Service	4.025715		4.235217		4.109859		0.125358
Interruptible Contract Service		0.006826		0.007181		0.006969	0.000212
Large Tire Manufacturing (per KVa)	4.160844		4.377378		4.247812		0.129566
Medium General Service	3.795046		3.992543		3.453161		0.539382
Off Peak Service		0.010785		0.011346		0.011291	0.000055
Pilot LED Street Lighting		0.007012		0.007377		0.007964	-0.000587
Security Area Lighting Service		0.007012		0.007377		0.007964	-0.000587
Restricted Institution Time Of Day Service		0.014686		0.015450		0.014717	0.000733
Residential Service		0.015844		0.016668		0.017882	-0.001214
Residential Service - Distributed Generation		0.015844		0.016668		0.017882	-0.001214
Restricted Educational Institution Service		0.011722		0.012332		0.008874	0.003458
Restricted Service to Schools		0.011722		0.012332		0.008874	0.003458
Restricted Total Electric – School and Church Service		0.011722		0.012332		0.008874	0.003458
Short-Term Service		0.010785		0.011346		0.011291	0.000055
Small General Service		0.010785		0.011346		0.011291	0.000055
Small General Service – Church Option		0.010785		0.011346		0.011291	0.000055
Standard Educational Service		0.011722		0.012332		0.008874	0.003458
Street Lighting		0.007012		0.007377		0.007964	-0.000587
Time of Use - Pilot		0.015844		0.016668		0.017882	-0.001214
Traffic Signal Service		0.007012		0.007377		0.007964	-0.000587

April 2014 - October 2014

Customer Class	Old Rate	New Rate	Rate Differential	Billing Determinants	Refund/Charge
Residential (RS, RSDG, RESTOU)	$ 0.017882	$ 0.016668	(0.001214)	3,775,088,113	$ (4,582,957)
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$ 0.011291	$ 0.011346	0.000055	2,144,330,734	$ 117,938
MGS	$ 3.453161	$ 3.992543	0.539382	4,388,723	$ 2,367,198
Schools (PS-R,SES,REIS,RTESC)	$ 0.008874	$ 0.012332	0.003458	363,866,468	$ 1,258,250
Restricted Time of Day (RITODS)	$ 0.014717	$ 0.015450	0.000733	9,120,100	$ 6,685
Lighting (SAL, SL, TS, Pilot LED)	$ 0.007964	$ 0.007377	(0.000587)	110,513,355	$ (64,871)
LGS/ILP (Formerly HLF)	$ 4.109859	$ 4.235217	0.125358	6,103,411	$ 765,111
LTM	$ 4.247812	$ 4.377378	0.129566	155,564	$ 20,156
ICS	$ 0.006969	$ 0.007181	0.000212	23,202,230	$ 4,919
Special Contract	$ 0.008594	$ 0.008856	0.000262	660,694,000	$ 173,102
Total					**$ 65,531**

Westar Energy, Inc.
Docket No. 17-WSEE-377-TAR
Calculation of Refund/Charge Rates

Customer Class	April 16 - June 16	July 16 - March 17	April 17 - November 17	Total Refund/Charge	Historical Billing Determinants (1)	Refund/Charge Rates
Residential (RS, RSDG, RESTOU)	($1,560,961)	($5,915,225)	($4,582,957)	($12,059,143)	8,945,698,609	**($0.001348)**
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	$46,783	$146,166	$117,938	$310,887	5,053,909,716	**$0.000062**
MGS	$1,022,391	$2,757,961	$2,367,198	$6,147,551	9,969,599	**$0.616630**
Schools (PS-R,SES,REIS,RTESC)	$491,068	$1,552,407	$1,258,250	$3,301,725	851,263,330	**$0.003879**
Restricted Time of Day (RITODS)	$2,121	$8,024	$6,685	$16,831	19,456,336	**$0.000865**
Lighting (SAL, SL, TS, Pilot LED)	($29,339)	($79,676)	($64,871)	($173,887)	270,086,173	**($0.000644)**
LGS/ILP (Formerly HLF)	$336,211	$899,029	$765,111	$2,000,352	14,078,697	**$0.142084**
LTM	$8,860	$24,063	$20,156	$53,079	365,102	**$0.145382**
ICS	$2,443	$5,711	$4,919	$13,072	55,114,390	**$0.000237**
Special Contract	$78,231	$204,144	$173,102	$455,477	1,543,428,000	**$0.000295**
Total	**$397,808**	**($397,395)**	**$65,531**	**$65,944**		

Note (1): The historical billing determinants are based on 17 months of actual billing determinants from the 15-115 Docket, including the time periods of November through December, January through December, and January through March.

Proof Using Test Year Billing Determinants
Historical Billing Determinants

	April	May	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March
Residential (RS, RSDG, RESTOU)	369,455,512	361,527,944	500,020,575	722,704,381	734,012,064	662,610,202	424,757,435	380,241,786	566,421,022	634,833,172	544,758,444	459,050,824
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	252,126,373	256,373,514	300,507,195	354,609,666	355,158,437	343,368,156	282,187,393	263,617,457	311,528,412	318,970,931	289,057,487	271,615,204
MGS	560,322	603,584	635,969	652,911	656,484	659,127	620,326	573,538	557,853	551,094	542,534	565,419
Schools (PS-R,SES,REIS,RTESC)	42,602,603	47,862,530	44,880,569	48,395,325	56,854,059	67,807,379	55,464,003	46,985,485	51,339,293	50,067,531	48,902,881	46,403,241
Restricted Time of Day (RITODS)	813,179	816,047	1,140,155	1,763,426	1,855,241	1,654,622	1,077,430	855,971	1,103,811	1,208,535	1,053,782	946,019
Lighting (SAL, SL, TS, Pilot LED)	15,886,422	15,774,852	15,825,353	15,790,411	15,757,306	15,717,605	15,761,406	15,959,539	16,021,918	15,998,332	15,919,819	15,886,801
LGS/ILP (Formerly HLF)	815,355	842,211	888,567	894,761	906,597	893,340	862,580	803,120	855,856	732,464	789,028	807,175
LTM	20,944	21,639	22,365	22,262	23,497	21,968	22,889	21,979	21,083	20,634	20,513	20,560
ICS	3,390,408	3,562,622	3,914,858	3,375,600	2,989,811	3,529,633	2,439,298	2,584,046	2,875,737	3,013,265	3,875,005	3,608,027
Special Contract	87,638,000	100,278,000	95,218,000	98,504,000	102,274,000	83,925,000	92,857,000	89,150,000	91,466,000	97,543,000	82,302,000	80,906,000

	Nov	Dec	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	Total
Residential (RS, RSDG, RESTOU)	380,241,786	566,421,022	634,833,172	544,758,444	459,050,824	369,455,512	361,527,944	500,020,575	722,704,381	734,012,064	662,610,202	424,757,435	380,241,786	566,421,022	634,833,172	544,758,444	459,050,824	8,945,698,609
SGS (Includes SGS, SGSCO, ST, GSS, OPS, DOR)	263,617,457	311,528,412	318,970,931	289,057,487	271,615,204	252,126,373	256,373,514	300,507,195	354,609,666	355,158,437	343,368,156	282,187,393	263,617,457	311,528,412	318,970,931	289,057,487	271,615,204	5,053,909,716
MGS	573,538	557,853	551,094	542,534	565,419	560,322	603,584	635,969	652,911	656,484	659,127	620,326	573,538	557,853	551,094	542,534	565,419	9,969,599
Schools (PS-R,SES,REIS,RTESC)	46,985,485	51,339,293	50,067,531	48,902,881	46,403,241	42,602,603	47,862,530	44,880,569	48,395,325	56,854,059	67,807,379	55,464,003	46,985,485	51,339,293	50,067,531	48,902,881	46,403,241	851,263,330
Restricted Time of Day (RITODS)	855,971	1,103,811	1,208,535	1,053,782	946,019	813,179	816,047	1,140,155	1,763,426	1,855,241	1,654,622	1,077,430	855,971	1,103,811	1,208,535	1,053,782	946,019	19,456,336
Lighting (SAL, SL, TS, Pilot LED)	15,959,539	16,021,918	15,998,332	15,919,819	15,886,801	15,886,422	15,774,852	15,825,353	15,790,411	15,757,306	15,717,605	15,761,406	15,959,539	16,021,918	15,998,332	15,919,819	15,886,801	270,086,173
LGS/ILP (Formerly HLF)	803,120	855,856	732,464	789,028	807,175	815,355	842,211	888,567	894,761	906,597	893,340	862,580	803,120	855,856	732,464	789,028	807,175	14,078,697
LTM	21,979	21,083	20,634	20,513	20,560	20,944	21,639	22,365	22,262	23,497	21,968	22,889	21,979	21,083	20,634	20,513	20,560	365,102
ICS	2,584,046	2,875,737	3,013,265	3,875,005	3,608,027	3,390,408	3,562,622	3,914,858	3,375,600	2,989,811	3,529,633	2,439,298	2,584,046	2,875,737	3,013,265	3,875,005	3,608,027	55,114,390
Special Contract	89,150,000	91,466,000	97,543,000	82,302,000	80,906,000	87,638,000	100,278,000	95,218,000	98,504,000	102,274,000	83,925,000	92,857,000	89,150,000	91,466,000	97,543,000	82,302,000	80,906,000	1,543,428,000

BATES WHITE
ECONOMIC CONSULTING

Report and Recommendation

Review of Westar's 12-CP Allocator

Docket No. 16-WSEE-375-TAR

Report to

Kansas Corporation Commission

Prepared by

George McCollister, Ph.D.

Bates White, LLC

September 18, 2017

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I. Executive Summary

In an order issued on November 8, 2016 in this docket, the Kansas Corporation Commission (KCC or Commission) adopted the KCC Staff's August 2, 2016, Report and Recommendation (Report).[1] The Report recommended "that a consultant be hired to identify the cause of the change in the 12-CP allocator and determine whether the changes are justified."[2] I have been retained to conduct this investigation.

In Appendix 2 of the Report, the Staff identifies several potential problems with the 12-CP allocators. First, compared to the three previous transmission rate filings,[3] the percentage 12-CP allocation to the residential class has risen from between 40 and 41 percent to 47.5 percent. The Staff identified a potential problem with the load research sample as a possible explanation for this change. The problem identified is that the load research sample was selected based on billing records from July 2006, and since that time, many of the customers in that sample have terminated their service. Westar replaced these customers, not from a random sample of existing customers, but from two much smaller and discrete groups of customers having AMI meters that record loads on a 15-minute or hourly basis. These groups of customers with AMI meters were identified as residing in either the City of Lawrence or "a small part of Wichita".[4] Westar did not comment on this issue in its response.[5]

This method of filling in the sample could bias the entire sample if these two customer groups are not representative of the whole service area. Important characteristics that affect residential electricity usage include the average size of homes, the age of the home (newer homes are generally better insulated), the average number of occupants, the fuel used for electric space and water heating, and household income. The two customer groups selected apparently exclude rural customers that may have very different characteristics than urban customers.

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[1] Order Adopting Staff's August 2, 2016 Recommendation (November 8, 2016).

[2] Docket No. 16-WSEE-375-TAR, Notice of Filing of Staffs Report and Recommendation (August 2, 2016) (R&R).

[3] See R&R at page 13.

[4] *See* R&R at page 11.

[5] Westar Energy, Inc. and Kansas Gas and Electric Company's Response to Staff's Report and Recommendation, (Aug. 11, 2016) (Westar Response).

Two additional potential problems that I have identified are 1) Westar weather normalized the peak for only one month (August) and 2) there is a significant discrepancy between the sum of the hourly loads used in peak allocation and the accrued billed sales.

Both the summer and winter peaks should be weather normalized. Summer loads are highly sensitive to temperature due to air conditioning. Winter loads are highly sensitive to temperature due to electric space heating. I weather normalized the monthly peaks for all but two months, March and April. I discuss this in another section of this report.

As I will explain further on in this report, it is difficult to measure and even more difficult to correct for any bias in the sample from selecting replacements only from areas that have AMI meters. However, I was able to estimate the 12-CP allocations after correcting for both the improper weather normalization and the discrepancy between the sum of hourly loads used in peak allocation and accrued billed sales. The results of these corrections are shown in Table 1 below. The residential 12-CP allocation drops from 47.5% to 44.3%, still significantly above the averages in the prior filings of approximately 40% to 41%. The allocation for Small General Service (SGS) is almost unchanged from the filing, rising from 17.0% to 17.1%, but lower than in previous filings where it ranged from 18.8 to 23.4%. Medium General Service (MGS), Schools and Large General Service (LGS) all show significant increases in their allocation as a result of the corrections.

Table 1: 12-CP Allocators As Filed and As Corrected

	Residential	SGS	MGS	Schools	Religious	Lighting	LGS
As Filed	47.51%	17.04%	10.43%	2.26%	0.09%	0.64%	22.03%
Corrected	44.28%	17.13%	12.06%	3.14%	0.09%	0.59%	22.70%

II. Westar's Load Research Sample

Utilities have traditionally metered hourly loads for small samples of customers to estimate load shapes and peak loads, which are used as allocators. Small samples are used because special metering is required for these customers and, historically, this metering has been much more labor intensive than standard metering that records only cumulative kWh and, for larger customers, the monthly peak load. In the not too distant future, it is likely that samples will no longer be necessary to develop the statistics used in load research as utilities switch to electronic meters that can record hourly loads.

The load research sample used in this case was selected in 2007 based on billing records from July 2006 and thus it is more than a decade out of date. Since July 2006, new homes, apartments and commercial structures have been built and these structures are likely to be more energy efficient than older buildings. New federal energy efficiency standards have been rolled out over the last several decades and some of these have a major impact on the efficiency of new equipment and appliances. A new standard[6] that became effective in 2006 substantially raised the minimum efficiency of residential central air conditioners and this has caused the average efficiency of these units to rise over time. Based on responses to data requests, it does not appear that Westar tried to incorporate new buildings into their sample when the AC Standards were updated. Westar did replace terminated customers by selecting customers that had AMI meters located in either the City of Lawrence or "a small part of Wichita".[7] These areas are largely urban and may not be representative of the whole service area and, if not representative, may create a bias in the sample toward the characteristics of those two areas. If the sample is not representative of the entire service area, then the load shape for the sample may have too much or too little load or it may not have the same shape as the class. Improper load measurement may be remedied in part by calibrating the sample load shape to the billed kWh for the class. It is much more difficult to remedy the shape (the distribution of load across the hours of the day) if it is incorrect.

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[6] USDOE, Office of Energy Efficiency and Renewable Energy, 10 CFR Part 430, [Docket Number EE–RM–98–440], RIN 1904–AB46, Energy Conservation Program for Consumer Products; Central Air Conditioners and Heat Pumps Energy Conservation Standard, Federal Register / Vol. 69, No. 158 / Tuesday, August 17, 2004, required the energy efficiency of all new air conditioning equipment sold in the United States to comply with a SEER 13 standard by January 2006, up from a SEER of 10; a 30 percent improvement from the prior standard.

[7] *See* R&R at page 11.

The sample's measured load is expanded to the population of customers. Software packages for managing load research data provide two methods for this expansion based on either the number of customers or the volume of kWh in the sample relative to the population.

III. Comparison of Load Research Data to Billed Sales (Annual by Class)

To check for any bias in the total amount of load derived from the sample, I first compared the sum of the hourly loads for each class not including line losses to the billed sales for that class. To convert billed sales to a calendar basis, I added the unbilled accrual.[8] The bottom line in Table 2 below shows that there is a significant discrepancy for the residential, MGS, schools and lighting classes. Westar expanded the sample loads in each class to the service area based on the number of customers in both the sample and the service area. Many utilities expand the sample loads based on the kWh in both the sample and the service area to avoid these discrepancies. Westar did calibrate the sample loads including losses to system loads but the calibration was proportional to the loads in each class.[9]

Table 2: Comparison of Westar's Hourly Loads to Billed Sales

Comparison of Westar's Hourly Loads to Billed Sales									
Hourly Loads Excluding Losses but with Westar's Calibration to System Load									
mWh		Residential	SGS	MGS	Schools	Religious	Lighting	LGS	Total
Sum hourly	North	3,845,359	2,018,882	1,432,867	240,634	3,496	144,850	2,453,194	10,139,283
Sum hourly	South	3,290,964	1,707,480	964,331	218,291	11,056	67,198	3,676,545	9,935,866
Sum hourly	Total	**7,136,323**	**3,726,362**	**2,397,199**	**458,925**	**14,553**	**212,048**	**6,129,739**	20,075,149
Sch 16A	Total	6,660,334	3,645,365	4,114,577	610,560	14,756	190,299	4,686,629	19,922,520
MGS-->LGS	Total			-1,472,444				1,472,444	0
unbilled accrual	Total	16,000	5,652	6,379	947	23			
calendar basis	Total	**6,676,334**	**3,651,017**	**2,648,512**	**611,507**	**14,779**	**190,299**	**6,159,073**	19,922,520
difference	Total	459,989	75,346	-251,313	-152,581	-226	21,749	-29,334	152,629
difference %	Total	6.9%	2.1%	-9.5%	-25.0%	-1.5%	11.4%	-0.5%	0.8%

In order to determine what effect calibration would have on the 12-CP allocators, I used the same spreadsheets used by Westar in this filing and made adjustments to calibrate the load research data to billed sales. The adjustment factors are shown in Table 3 below. I started with the sum of the hourly loads from Westar's spreadsheets before line losses were added and before the data were calibrated to system loads. I

[8] See Schedules 16 and 8-F from Westar's application in 15-WSEE-115-RTS.

[9] The difference between system load and the sum of the hourly loads was added to each class that was calibrated in proportion to that class's load to all class loads being calibrated. The classes that were adjusted are residential, SGS, MGS, schools and, in the South, religion.

then took the billed sales numbers from Schedule 16A[10] and added the unbilled accrual from Schedule 8-F[11] to restate billed sales on a calendar basis. Schedule 8-F provides two unbilled billed accrual numbers, one for residential and one for all other classes. I proportioned out the latter to SGS, MGS, schools and religious in proportion to their sales. The adjustment factors are calculated as the ratio of billed sales on a calendar basis to the sum of hourly loads. Hourly loads in the spreadsheets were multiplied by these factors.

Table 3: Calibration Factors to be Applied to Hourly Loads

Calibration Factors to be Applied to Hourly Loads									
Hourly Loads Excluding Losses and Westar's Calibration to System Load									
mWh		Residential	SGS	MGS	Schools	Religious	Lighting	LGS	Total
Sum hourly	North	4,001,582	2,116,366	1,454,710	258,530	3,496	144,850	2,453,194	10,432,728
Sum hourly	South	3,409,361	1,803,428	994,002	266,664	12,357	67,198	3,676,538	10,229,548
Sum hourly	Total	7,410,943	3,919,794	2,448,712	525,194	15,853	212,048	6,129,732	20,662,277
Sch 16A	Total	6,660,334	3,645,365	4,114,577	610,560	14,756	190,299	4,686,629	19,922,520
MGS-->LGS	Total			-1,472,444				1,472,444	0
unbilled accrual	Total	16,000	5,652	6,379	947	23			
calendar basis	Total	6,676,334	3,651,017	2,648,512	611,507	14,779	190,299	6,159,073	19,922,520
hourly adj factor	Total	**0.901**	**0.931**	**1.082**	**1.164**	**0.932**	**0.897**	**1.005**	**0.964**

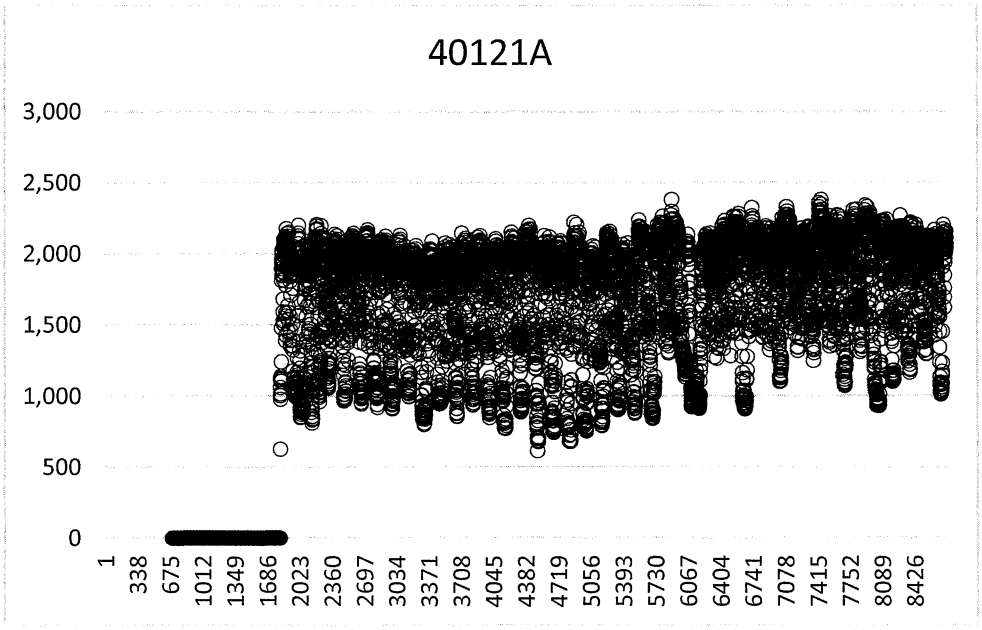
[10] Schedule 16 from Westar's application in 15-WSEE-115-RTS.

[11] Schedule 8-F from Westar's application in 15-WSEE-115-RTS.

IV. Quality Check of Load Research Data

To assess the quality of the load research data, I examined the plots of the 8760 hourly loads for the large customers to look for dropouts where the meter failed to record. Some periods with missing load could be picked up by a meter replacement, so I looked for that when there were dropouts. Some of the plots showed substantial periods of time when no load was recorded, but these cases might be explained by new customers coming online during the test year. **Error! Reference source not found.**below shows an example of a single meter with missing load. To investigate these cases further, I asked for and received the monthly billing records for the large customers and then compared the billed kWh to the sum of the hourly loads for the same period.[12] The results are shown in Table A-1 of the Appendix to this report. The vast majority of cases show small differences of no more than a percent or two. A few accounts show occasional dropouts of the hourly loads that result in the hourly loads falling substantially below the billed sales.

Figure 1: Hourly Loads for Large Customer Meter 40121A



[12] The monthly billing records included the dates the meters were read and the hourly loads were summed between the previous read date and the current read date.

The account represented by the figure above had two meters[13] and for the months of October, November and December the hourly loads for the two meters summed were 63%, 68% and 31% less than the billed sales for this account. Thus, it seems likely that the meter shown in the figure simply stopped recording for a period of time or there could have been issues in transferring the data to computers. During the other months, the hourly loads were close to the billed sales. Therefore, for large customers, meter problems can be an issue affecting the load research data. Even though all large customers are metered, calibrating the load research data for this class to billed kWh sales is likely to improve the accuracy of the expanded data for this class.

[13] No problems were visible in the plot for the other meter.

V. Weather Normalization of Coincident Peak Loads

Westar weather normalized the peaks for only one month, August, stating, "This peak is the most varying with normalized weather."[14] However, on any hot day in Kansas, there is a significant amount of air conditioning load and there can be very hot days in June, July, August and occasionally September. Further, there are very cold days in December, January, and February, as well as in March and November during which there would be significant electric load for space heating. Because the 12-CP allocators sum up the peak loads for each month in the test year, it makes sense to weather normalize these other months as well.

In the last retail rate case,[15] Staff and Westar agreed on a methodology for weather normalizing kWh sales in which adjustments were applied to all 12 months.[16] The adjustments for peak loads are different from those for kWh sales. Peak loads are even more sensitive to weather since peak loads occur during extreme weather. The point of weather normalization is to adjust billing allocators to reflect normal weather so that the allocators do not reflect any extreme hot or cold conditions that might occur during a test year. It is my opinion that all of the summer and winter peaks used for allocation in this case should be adjusted to normal weather conditions.

To see what effect weather normalizing all winter and summer peaks would have on the results, I built a model to weather normalize hourly loads for each class except lighting using temperature data. I calculated a weather adjustment as the predicted load using normal weather minus the predicted load using actual weather. Normal weather was computed over the 1981 to 2010 period.

The weather adjustments, shown in Figure 2, reflect a cold winter, as the numbers are negative.

[14] Westar response to data request KCC-13.

[15] Docket 15-WSEE-115-RTS.

[16] *See* Adjustment IS-1 in Direct Testimony of Tyler J. Page, 15-WSEE-115-RTS.

Figure 2: Weather Adjustments

mW	Residential	SGS	MGS	Schools	Rel	LGS	Contract
12CP	-1,034	-197	-84	-39	-2	-30	-6
2013-10-04 16	-72	-14	-7	-5	0	-3	-1
2013-11-22 18	-124	-21	-8	-3	0	0	0
2013-12-09 19	-84	-18	-7	-2	0	0	0
2014-01-06 19	-134	-26	-10	-4	0	0	0
2014-02-05 19	-177	-35	-15	-4	0	0	0
2014-03-02 20	0	0	0	0	0	0	0
2014-04-14 11	0	0	0	0	0	0	0
2014-05-29 17	-232	-41	-20	-13	-1	-14	-4
2014-06-30 17	27	2	0	1	0	0	1
2014-07-22 17	-14	-3	-1	0	0	0	1
2014-08-25 17	-87	-15	-5	-4	0	-3	0
2014-09-04 17	-137	-27	-11	-6	0	-9	-2

VI. The Results of Calibration and Weather Normalization

The results of calibrating the hourly loads to billed sales and weather normalizing all the summer and winter peaks is shown in the table below. The allocator for the residential class dropped by 3.2% whereas there were increases for MGS of 1.6%, Schools of 0.9% and LGS of 0.7%.

Table 4: Calibration and Weather Normalization Results

	12-CP Allocators						
	Residential	SGS	MGS	Schools	Religious	Lighting	LGS
As Filed	47.51%	17.04%	10.43%	2.26%	0.09%	0.64%	22.03%
Corrected	44.28%	17.13%	12.06%	3.14%	0.09%	0.59%	22.70%

VII. Conclusions and Recommendations

The load research sample used in this 2016 filing was originally drawn using customer billing records from July 2006 and supplemented with data obtained from customers with AMI meters. At the time, Westar had only installed AMI meters in two relatively urban areas. Thus, due to its age and supplementation based on AMI data availability, the sample may no longer be considered statistically representative of the service area or scientific. It is thus recommended that, in the future, load research samples should be drawn at least once every five years.

I also wish to recommend the following:

1. All summer and winter peaks should be weather normalized for those classes that are weather sensitive. That would exclude lighting and perhaps LGS during the winter.
2. Load research data should be calibrated to accrued billed kWh sales. Calibrations should be done separately for the north and south areas, and by class.
3. That the Commission accept the corrected allocations in Table 1 above.
4. That Commission Staff adopt the corrected 12-CP allocators in Table 1, and that these allocators be used to recalculate the TDC for the years 2016 and 2017.
5. That before implementing a new load research sample in the future, Westar provide a detailed outline of the methodology for the design of the sample to the Staff and Commission.

Appendix

Table A-1 Percent Difference of Hourly Loads and Monthly Billed Sales

	Billing Month											
Account No.	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
******		0%	-1%	1%	0%	0%	0%	1%	0%	0%	0%	-1%
******845	1%	-1%	-1%	1%	1%	-2%	0%	1%	0%	-1%	0%	-3%
******588		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%
******465		16%	0%	-14%	13%	-20%	0%	0%	-2%	15%	-2%	6%
******246		0%	0%	0%	-1%	1%	-2%	2%	0%	-1%	1%	0%
******343		0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
******662		-59%	-37%	0%	0%	-1%	-59%	-59%	-61%	-61%	-60%	-59%
******103	#N/A	#N/A	#N/A	#N/A	#N/A	4%	-1%	-3%	64%	0%	3%	0%
******0683		0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%
******8503		0%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	0%
******4756		0%	0%	0%	0%	-1%	0%	0%	0%	1%	0%	0%
******6763	0%	0%	0%	1%	-1%	0%	1%	-1%	-1%	0%	1%	-5%
******9692	0%	-1%	-1%	-1%	-4%	4%	1%	-1%	0%	-1%	1%	-3%
******2416	-4%	-2%	1%	-2%	3%	-29%	31%	-18%	31%	0%	2%	-28%
******6881		-1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	-1%
******6336		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
******7852		-2%	1%	1%	0%	0%	0%	0%	-1%	1%	0%	1%
******4309		-63%	-60%	-61%	-59%	-66%	-71%	-61%	-44%	-44%	-45%	-47%
******8539		0%	0%	0%	0%	0%	0%	1%	-1%	0%	0%	0%
******5273	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	1%	1%	-1%	0%	0%
******9847	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	0%	0%	0%	0%	0%
******0412		3%	-1%	1%	-1%	2%	2%	1%	0%	2%	17%	-2%
******9450		4%	-2%	2%	-1%	1%	3%	1%	-1%	3%	2%	1%

	Billing Month											
******2734		-1%	2%	0%	0%	0%	-2%	0%	1%	-1%	-1%	1%
******7120		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
******4283		3%	-2%	0%	-1%	0%	0%	0%	0%	0%	1%	0%
******3922	0%	0%	0%	0%	0%	0%	0%	0%	0%	-3%	5%	-3%
******2380		13%	12%	12%	12%	13%	13%	14%	14%	14%	14%	13%
******0331		3%	0%	1%	1%	2%	1%	2%	1%	1%	1%	1%
******1136	0%	0%	4%	16%	17%	51%	23%	0%	0%	7%	2%	-4%
******0909		0%	0%	0%	0%	1%	-1%	1%	0%	0%	-2%	2%
******5321		0%	0%	0%	0%	0%	0%	1%	0%	-1%	1%	-1%
******3770	#N/A	#N/A	#N/A	#N/A	#N/A	7%	2%	-1%	0%	0%	1%	0%
******9980	-48%	-47%	-50%	-42%	-43%	-44%	-45%	-41%	-43%	-47%	-42%	-42%
******0868	-63%	-68%	-31%	0%	0%	1%	0%	0%	1%	0%	-1%	-2%
******0164	#N/A	#N/A	#N/A	#N/A	19%	-19%	-1%	3%	-3%	4%	-16%	0%
******8618		-1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
******7698		0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	-1%
******5619		3%	0%	-1%	0%	-1%	-1%	1%	0%	0%	0%	-1%
******6451	82%	86%	74%	62%	67%	70%	72%	67%	90%	86%	77%	69%
******6812		-61%	-46%	-44%	-46%	-42%	-42%	-46%	-60%	-61%	-62%	-63%
******1083	#N/A	#N/A	#N/A	#N/A	#N/A	0%	1%	0%	0%	0%	0%	0%
******0336		0%	-1%	0%	0%	1%	0%	0%	0%	0%	0%	0%
******4071		0%	-1%	0%	1%	0%	0%	-1%	1%	0%	0%	0%
******2003		1%	-2%	0%	2%	-1%	-1%	0%	0%	1%	-1%	1%
******6628	#N/A	#N/A	#N/A	#N/A	#N/A	12%	0%	1%	-1%	-1%	1%	-1%
******5256	#N/A	#N/A	#N/A	#N/A	#N/A	7%	0%	0%	0%	0%	0%	0%
******2672	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	0%	0%	0%	-1%	0%
******0544		0%	-1%	1%	0%	0%	0%	0%	0%	-1%	1%	0%

	Billing Month											
******9004	0%	-4%	0%	3%	0%	1%	0%	0%	1%	-1%	-4%	0%
******6575		-1%	2%	-1%	1%	-1%	0%	1%	0%	0%	0%	0%
******3781	#N/A	#N/A	#N/A	#N/A	#N/A	1%	0%	-3%	-1%	5%	5%	-3%
******5988		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
******6258	1%	1%	2%	2%	2%	2%	1%	-42%	-100%	-100%	-100%	-100%
******2335		0%	0%	0%	2%	-1%	0%	1%	0%	-1%	0%	0%
******3090		0%	0%	0%	0%	0%	0%	1%	0%	-1%	0%	-1%
******7652		2%	-1%	1%	0%	-1%	0%	0%	0%	1%	0%	-1%
******9451		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
******5987	#N/A	#N/A	#N/A	#N/A	#N/A	1%	-14%	7%	1%	4%	-6%	7%
******6022	-4%	3%	0%	-2%	2%	2%	-3%	2%	1%	-4%	2%	-3%
******2662	0%	-1%	-1%	1%	-1%	-2%	0%	1%	0%	-1%	0%	-2%
******6023	#N/A	#N/A	#N/A	#N/A	#N/A	1%	0%	0%	-1%	1%	0%	-2%
******2379		0%	0%	0%	0%	0%	0%	0%	1%	-1%	0%	0%
******9987		-1%	0%	1%	0%	1%	0%	0%	0%	1%	0%	0%
******1743	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	0%	0%	0%	0%	0%
******9373		-1%	0%	0%	0%	1%	-1%	0%	1%	0%	0%	0%
******1887		1%	-2%	2%	0%	-3%	2%	1%	-2%	0%	0%	0%
******3335		0%	0%	0%	-1%	1%	0%	0%	-1%	0%	-1%	1%
******2294	0%	0%	-4%	3%	0%	0%	0%	-2%	2%	0%	-2%	-1%
******2536		0%	-1%	-1%	0%	1%	0%	1%	1%	-1%	1%	0%
******5139		1%	-2%	2%	0%	0%	0%	1%	1%	-1%	0%	0%
******5897	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
******8505		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
******5133		0%	-4%	4%	0%	0%	0%	0%	1%	-4%	891%	0%
******8589	-5%	2%	3%	-5%	4%	1%	-3%	-2%	4%	1%	-1%	-4%

	Billing Month											
******3613		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
******2844		0%	0%	-1%	1%	1%	-3%	0%	0%	0%	1%	1%
******9300		0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	-1%
******5916		-1%	0%	0%	0%	0%	0%	0%	-1%	1%	0%	-3%
******6855		0%	1%	0%	1%	0%	0%	-1%	0%	0%	2%	-2%
******7326		0%	0%	0%	0%	0%	0%	0%	-3%	-55%	0%	0%
******6897		-1%	-1%	0%	0%	1%	0%	1%	1%	0%	0%	0%
******6360		0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%
******9451		0%	1%	1%	1%	2%	1%	2%	1%	1%	1%	1%
******1376		0%	-1%	1%	0%	-1%	0%	2%	0%	0%	0%	0%
******4418		-1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
******2213	#N/A	#N/A	#N/A	#N/A	#N/A	12%	0%	0%	0%	0%	0%	0%
******1214	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	0%	0%	0%	0%	0%
******6093		-1%	0%	0%	0%	0%	0%	1%	0%	0%	1%	-1%
******5937	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	1%	0%	0%	-1%	0%
******6226	#N/A	#N/A	#N/A	#N/A	#N/A	75%	32%	32%	25%	56%	52%	36%
******1412		-5%	4%	-1%	1%	-3%	4%	-1%	0%	0%	0%	0%
******0732	0%	-4%	0%	2%	0%	1%	0%	-1%	1%	0%	-3%	-1%
******9669	#N/A	#N/A	#N/A	#N/A	#N/A	-82%	-85%	-58%	-81%	-83%	-83%	-82%
******1425		-1%	2%	-2%	-3%	-1%	4%	1%	-6%	3%	-2%	3%
******3954		0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
******7925		0%	1%	1%	1%	1%	1%	0%	0%	1%	1%	0%
******1846	#N/A	#N/A	#N/A	#N/A	#N/A	0%	2%	-2%	0%	0%	0%	1%
******5652	#N/A	#N/A	#N/A	#N/A	#N/A	9%	-13%	0%	-1%	0%	-1%	-1%
******4109	#N/A	#N/A	#N/A	#N/A	#N/A	3%	-3%	3%	1%	-1%	-1%	1%
******5889		-1%	1%	0%	-1%	0%	0%	2%	0%	0%	0%	0%

	Billing Month											
******2207	#N/A	#N/A	#N/A	#N/A	#N/A	6%	-4%	5%	-1%	0%	-3%	0%
******7262	-1%	5%	-2%	1%	1%	0%	-4%	3%	0%	0%	0%	-5%
******7663	#N/A	#N/A	#N/A	#N/A	#N/A	0%	0%	0%	-2%	0%	0%	0%
******9905		0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	-1%
******5802		-1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%

STATE OF KANSAS)
) ss.
COUNTY OF SHAWNEE)

VERIFICATION

Robert E. Vincent, being duly sworn upon his oath deposes and states that he is Litigation Counsel for the State Corporation Commission of the State of Kansas, that he has read and is familiar with the foregoing *Notice of Filing of Staff's Report and Recommendation* and that the statements contained therein are true and correct to the best of his knowledge, information and belief.

Robert E. Vincent, Litigation Counsel # 26028
Kansas Corporation Commission of the
State of Kansas

Subscribed and sworn to before me this 26th day of September, 2017.

PAMELA J. GRIFFETH
Notary Public - State of Kansas
My Appt. Expires 08-17-2019

Notary Public

My Appointment Expires: August 17, 2019

CERTIFICATE OF SERVICE

16-WSEE-375-TAR

I, the undersigned, certify that a true and correct copy of the above and foregoing Notice of Filing of Staff's Report and Recommendation was served by electronic service on this 26th day of September, 2017, to the following:

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