THE STATE CORPORATION COMMISSION OF THE STATE OF KANSAS

In the Matter of the Joint Application of) Great Plains Energy Incorporated, Kansas) City Power & Light Company and Westar) Energy, Inc. for approval of the Acquisition) of Westar Energy, Inc. by Great Plains) Energy Incorporated.)

Docket No. 16-KCPE-593-ACQ

NOTICE OF RE-FILING STAFF'S PRE-FILED DIRECT TESTIMONY WITHOUT REDACTIONS

The Staff of the Kansas Corporation Commission (Staff and Commission or KCC, respectively), pursuant to the Commission's January 26, 2017, *Order on Prehearing Motions*, hereby files un-redacted versions of the same testimony Staff filed with redactions on December 16, 2016. Staff also states the following:

1. The Commission's *Order on Prehearing Motions* ordered redaction removal from all parties' testimony except for information that fell into one of the following categories: (1) attorney-client privilege, (2) attorney work-product, or (3) critical infrastructure information which poses a security risk if made public.

2. Relevant to Staff, Attachment 1 of the *Joint Applicants' Response to Staff's Motion to Declassify All Staff Testimony and Exhibits* (Joint Applicant's Response), filed January 20, 2016, contained an itemized list, categories (1)-(7), identifying the particular confidential classifications claimed by the Joint Applicants included in Staff's pre-filed direct testimony. Category (4) was listed as "Advice of counsel or other outside experts, advisors or consultants." Category (7) was listed as "Critical infrastructure information that poses a security risk if made public." 3. The Joint Applicants did not designate any information in Staff's direct testimony under category (4).

4. Category (7), pertaining to critical infrastructure, referenced KCC Staff Data Requests (DRs) 47, 50, and 52. These are addressed solely in the pre-filed direct testimony of Walter Drabinski. Staff has kept redacted the portions of testimony pertaining to these DRs, but un-redacted the remainder of his testimony.

WHEREFORE, Staff respectfully submits its un-redacted pre-filed direct testimony for Justin Grady, Adam Gatewood, Walter Drabinski, Ann Diggs, Casey Gile, and Robert Glass. Note that Jeff McClanahan and Scott Hempling also filed on December 16, 2016, but their testimony did not contain any confidential information.

Respectfully Submitted,

Miller

Michael Neeley, S. Ct. #25027 Litigation Counsel Amber Smith, S. Ct. #23911 Chief of Litigation Andrew French, S. Ct. #24680 Senior Litigation Counsel Kansas Corporation Commission 1500 S.W. Arrowhead Road Topeka, Kansas 66604-4027 E-mail: m.neeley@kcc.ks.gov Phone: 785-271-3173

STATE OF KANSAS)) ss. COUNTY OF SHAWNEE)

VERIFICATION

Michael Neeley, 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 Re-filing Staff's Pre-Filed Direct Testimony Without Redactions* and that the statements contained therein are true and correct to the best of his knowledge, information and belief.

A. May

Michael Neeley # 25027 Kansas Corporation Commission of the State of Kansas

Subscribed and sworn to before me this 27rd day of January, 2017.

VICKI D. JACOBSEN Notary Public - State of Kansas My Appt. Expires 6-30

Vicki D. Jacolisen

My Appointment Expires: June 30, 2018

In the Matter of the Joint Application of Great Plains Energy Incorporated, Kansas City Power & Light Company and Westar Energy, Inc. for approval of the Acquisition of Westar Energy, Inc. by Great Plains Energy Incorporated

Docket No. 16-KCPE-593-ACQ

DIRECT TESTIMONY

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PREPARED BY

Robert H. Glass, PhD

UTILITIES DIVISION

KANSAS CORPORATION COMMISSION

December 16, 2016

This Testimony was unredacted and resubmitted on January 27, 2017 to

comply with Commission Order issued on January 26, 2017.

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18		I. STATEMENT OF QUALIFICATIONS
19	Q.	What is your name and business address?
20	A.	Robert H. Glass, Kansas Corporation Commission (Commission), 1500 S.W.
21		Arrowhead Road, Topeka, Kansas, 66604-4027.
22	Q.	What is your position at the Commission?
23	A.	I am employed as Chief of the Economics and Rates Section of the Utilities
24		Division.
25	Q.	What is your educational background and professional experience?
26	A.	I have a B.A. from Baker University with a major in history. I also have an
27		M.A. and a Ph.D. in economics from the University of Kansas. For 22 years prior

1		to my employment at the Commission, I was employed at the University of
2		Kansas by the Institute for Business and Economic Research, which later became
3		the Institute for Public Policy and Business Research. My primary duty was
4		performing economic research.
5	Q.	Have you previously testified before the Commission?
6	A.	Yes. I provided testimony as a Staff consultant for Docket Nos. 91-KPLE-
7		140-SEC and 97-WSRE-676-MER. As an employee of the Commission, I have
8		testified in numerous rate case and non-rate case dockets.
9		II. INTRODUCTION
10	Q.	Which merger standards are addressed in your testimony?
11	A.	I will apply the following merger standards to the integration of Westar
12		Energy, Inc. (Westar) with Great Plains Energy, Inc. (GPE) (the Transaction):
13		• (c): The economic effect of the Transaction on state and local economies and
14		labor markets;
15		• (a) (v): The effect of the Transaction on competition;
16		• (f): Whether the Transaction maximizes the use of Kansas energy resources;
17		and
18		• (g): Whether the Transaction reduces the possibility of economic waste.
19	Q.	What are your findings with respect to the merger standards you addressed?
20	A.	Following is a summary of my findings with respect to each of the merger
21		standards I addressed:
22 23		(c): The economic effect of the Transaction on state and local economies and labor markets

1 The Transaction's primary effect on the state and local economies is from the 2 savings generated by eliminating jobs. There are three channels through which 3 the elimination of jobs will affect the Kansas Economy: (1) The eliminated jobs 4 will result in a loss of wages, salaries, and benefits for the Kansas Economy; (2) 5 GPE plans to return some of the savings back to ratepayers through a reduction in electric rates; and (3) The remaining savings will flow to shareholders. The 6 7 reduced wages, salaries, and benefits will have a negative effect on the Kansas 8 Economy. The reduction in electric rates will be a positive benefit to the Kansas 9 Economy. The savings flowing to shareholders will have a minimum effect on 10 the Kansas Economy because less than 2% of shareholders live in Kansas. The 11 net effect of all three of these channels is a negative impact on the Kansas 12 Economy.

13 The Transaction's elimination of jobs will negatively affect state and local 14 labor markets. The Kansas Labor Market is tied to the performance of the Kansas 15 Economy, and the Kansas Economy has only performed better than the United 16 States Economy when there has been a substantial external shock, such as World 17 War II. The last period of strong growth was during the 1990s; since 2000, the 18 Kansas Economy and Labor Market have performed worse than the United States 19 Economy and Labor Market. The major exception has been Johnson County, and 20 even Johnson County's economic performance has sagged since 2000. Jobs in the 21 electric power generation, transmission, and distribution industry have declined 22 almost 30% in Kansas since 1990. The result is that people that lose technical

utility jobs are probably not going to find equivalent paying jobs in Kansas and					
will need to leave the state for similar employment.					
(a) (v): The effect of the Transaction on competition					
Because of the SPP's Integrated Marketplace, the Transaction should not					
affect the competitiveness of wholesale markets in Kansas. The one concern that					
Staff has is that the closing of a generation plant for savings could create					
transmission congestion. SPP would monitor the situation, but it does not have					
the ability to prevent the closure. Thus, Staff recommends that if the Commission					
approves the Transaction, the Commission should require GPE to seek					
Commission approval of all plant closings.					
(f): Whether the Transaction maximizes the use of Kansas energy resources; and (g): Whether the Transaction reduces the possibility of economic waste.					
Staff views maximizing energy resources and reducing economic waste of					
energy resources as mirrored concepts that fall into the category of economic					
efficiency. Again, Staff's concern is the premature closing of a power plant that					
is still economically efficient. Staff used dispatch by the SPP as an indicator of					
the economic efficiency of a generating plant because the SPP uses economic					
dispatch with a reliability constraint. The economic efficiency standard					

19

Q. What are your recommendations?

A. I recommend that the Commission reject the Transaction because of GPE's
failure to meet merger standards (c), (a) (v), (f), and (g) as discussed in detail
below and summarized above. I further recommend, if the Commission does

determines that the **Lawrence Energy Center** should not be closed.

1		approve the Transaction, that it add a requirement that any plant closings by GPE					
2		must be approved by the Commission prior to the plant closing. In addition, I					
3		support all Staff recommendations.					
4		III. ANALYSIS					
5	<u>A. M</u>	erger Standards					
6	Q.	What is the basis of the current Commission's merger standards?					
7	A.	On August 9, 2016, the Commission issued an Order on Merger Standards					
8		wherein the Commission reaffirmed the merger standards as enumerated in the					
9		November 14, 1991, order approving Kansas Power & Light and Kansas Gas &					
10	Electric merger in consolidated dockets 172,745-U and 174,155-U and as						
11		modified in the September 28, 1999, order in docket no. 97-WSRE-676-MER. ¹					
12		The Commission's August 9, 2016, Order on Merger Standards set out the					
13		standards to be used in determining whether a proposed merger will promote the					
14		public interest. ²					
15	Q.	Which merger standards will you be addressing in your testimony?					
16	A.	I will evaluate the Transaction by applying the merger standards that require					
17		specific economic analysis. Therefore, I will discuss merger standard (c): the					
18		economic impact of the Transaction on the state and local economies and on the					
19		state and local labor markets.					
20		I will also apply merger standards (a) (v), (f) and (g) to the Transaction.					
21		Merger standard (a) (v) requires an analysis of the impact of the Transaction on					

 $^{^1}$ Order on Merger Standards, (Aug. 9, 2016), Docket No. 16-KCPE-593-ACQ. 2 Id. at ¶5.

1	existing competition. Merger standards (f) and (g) are the mirror image of each
2	other. Merger standard (f) asks whether the Transaction will result in the
3	maximization of Kansas energy resources and merger standard (g) asks whether
4	the Transaction will reduce the possibility of economic waste. In the case of
5	merger standards (f) and (g), I will only analyze these standards from an
6	economic perspective or, more specifically, in terms of economic efficiency.
7	Direct testimony provided by other Staff witnesses will discuss the issues of
8	efficiently using Kansas energy resources and preventing waste from an
9	engineering perspective.

10B. Merger Standard (c): Effect on Kansas and Local Economies and Labor11Markets

12 Q. What specific criteria does merger standard (c) establish for evaluating the

13 **Transaction**?

14 A. Merger standard (c) states:

15 Whether the proposed transaction will be beneficial on an overall basis 16 to state and local economies and to communities in the area served by 17 the resulting public utility operations in the state. Whether the proposed 18 transaction will likely create labor dislocations that may be particularly 19 harmful to local communities, or the state generally, and whether 20 measures can be taken to mitigate the harm.³

22 Thus, merger standard (c) establishes two different economic criteria for

- 23 evaluating the economic consequences of the Transaction:
- 24 1. The effect of the Transaction on the state and local economies in Kansas;
- 25 and

³ Order on Merger Standards, (Aug. 9, 2016), Docket No. 16-KCPE-593-ACQ, page 3.

1		2. Whether the result of the Transaction will create labor dislocations in the						
2		state and local labor markets.						
3	Q.	What are your conclusions about the effect of the Transaction on state and						
4		local economies and state and local labor markets specifically?						
5	А.	My conclusions from applying merger standard (c) to the Transaction focus						
6		on the savings generated by the reduction in employment and the elimination of						
7		job positions. These conclusions are:						
8		1. The Transaction savings from reducing employment that are not returned						
9		to rate payers or Kansas shareholders will negatively affect the Kansas						
10		Economy and the local economies in Kansas where the job losses take						
11		place and the job positions are eliminated, and						
12		2. Those positions that are eliminated will, for the most part, be permanently						
13		lost to the state and local labor markets. The people who lose technical						
14		utility jobs in Kansas will face a difficult time trying to find similar jobs in						
15		Kansas. Thus, the Transaction will have a negative effect on state and						
16		local labor markets.						
17	Q.	How is your examination of merger standard (c) structured?						
18	А.	First, I will analyze the effect of the Transaction's projected savings generated						
19		by reducing employment and eliminating job positions on the state and local						
20		economies.						
21		Second, I will analyze the effect of the projected job losses on the state and						
22		local labor markets.						

I would like to note that because the Joint Applicants have not finalized their
 expected savings, my analysis will be cursory.

How did you estimate the economic impact of the Transaction on the state

3 <u>1. The Effect of the Transaction on State and Local Economies in Kansas</u>

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Q.

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and local economies in Kansas?

A. Because the projected savings are generated from eliminating jobs, the
economic impact of the Transaction will primarily come from the subsequent
reductions in wages, salaries, and benefits. I identified the economic channels
through which the reductions in wages, salaries, and benefits will flow through
the Kansas and local area economies. Then using savings estimates from GPE for
2020, I mapped the estimated savings as it flowed through the different channels
in the Kansas Economy.

The first channel the reductions will flow through is a direct reduction in demand for goods and services in the Kansas Economy.

15 The second channel is the result of GPE's statement that the savings will be 16 shared with the customers through lower electric rates in Kansas. The lower 17 electric rates will reduce the cost of electricity consumption, and that will free up 18 consumer income for expenditures on other items. The increased consumer 19 consumption will result in an increase in demand for goods and services that will 20 flow through the Kansas Economy and have a positive impact on the economy.

The third channel is for the portion of savings that are not shared with consumers and instead will go to shareholders as increased profits. For shareholders who live in Kansas, the additional income they receive will result in additional consumption, which will also raise final demand in Kansas and provide
 a positive impact on the state's economy.

To summarize, the economic impact of the Transaction on the Kansas Economy will flow through three different channels: reduced wages, salaries, and benefits; reduced electric rates for customers, and increased profits for shareholders who live in Kansas.

Q. Can you estimate the impact on the Kansas Economy of the flow through the three channels?

9 A. Yes. GPE has 2020 estimates for labor savings deflated to 2016 dollars, thus
all of the following discussion will be done in 2016 dollars. Total 2020 labor
savings is **\$92.2** million with approximately **\$55.4** million coming from
Kansas. So, the reduction in Kansas demand due to the labor savings is
\$55.4 million.⁴

GPE estimates sharing **\$27.79** million with Kansas ratepayers via lower rates. That leaves **\$27.61** million that goes to shareholders. Assume that 2% of GPE shareholders will be Kansans after the Transaction, which is probably a high estimate,⁵ then the amount for Kansas shareholders is **\$0.55** million. Thus, the total savings returned to Kansans is **\$28.34** million.

https://www.snl.com/web/client?auth=inherit#company/profile?id=4057005

⁴ All of the data is from either Data Request 36 or 404 or is from calculations based on the data in the two data requests.

⁵ Currently GPE has 215,295,002 shares of stock outstanding with about 2.4 million owned by Kansans. See Staff Data Request No. 443 and SNL.

This could change with the merger since about 7.4% of Westar shares are owned by Kansans. If the Westar shareholders keep their new GPE shares from the Transaction, the percentage of Kansans owned shares

1		Subtracting the savings returned to Kansans from the total savings causing the
2		reduction in demand will result in an estimated net loss to the Kansas Economy,
3		in 2020 (in 2016 dollars), of **\$27.06** million.
4	Q.	Why doesn't KCP&L share all the savings with ratepayers?
5	А.	Staff witness Justin Grady explains, in his testimony that for the Transaction
6		to be successful, most of the savings will need to be kept by GPE. ⁶
7	Q	What is your conclusion about the economic impact of the Transaction on the
8		Kansas Economy?
9	A.	Because the savings created by eliminating labor expense will not be
10		completely shared with ratepayers and because a very small proportion of GPE's
11		shareholders are Kansans, the Transaction will result in a net loss to Kansans, and
12		as a result, the Transaction will negatively affect the Kansas Economy.
13	<u>2. Th</u>	e Effect of the Transaction on State and Local Labor Markets
14	Q.	How are you going to estimate the effect of the Transaction on state and local
15		labor markets?
16	A.	(1) Since the strength of labor markets is tied to the overall strength of an
17		economy, I will begin with a review of the economic performance of the Kansas
18		economy since 1940. (2) I will investigate the condition of the Kansas labor
19		market over the past 25 years in comparison with the United States labor market,
20		and the expectations for the Kansas labor market in the immediate future. (3) I

would rise to about 1.7%. See Mark Ruelle, Direct Testimony, Docket No. 16-KCPE-593-ACQ, p. 31 and Great Plains Energy, Inc.; SEC Form DEFM14A; filed August 25, 2016; p147. ⁶ Justin Grady, Direct Testimony, Docket No. 16-KCPE-593-ACQ, p. 7, points 5 and 7 in the Executive

Summary.

will briefly examine the strength of local labor markets in Kansas. (4) I will end
 by examining the Kansas labor market for utility employees with a comparison
 with the United States utility employee labor market.

4 Q. What will these investigations show?

5 A. (1) The history of the Kansas economy since 1940 shows that the Kansas 6 Economy responds to external shocks. Put another way, the Kansas Economy 7 does not tend to sustain growth but instead grows when there is a positive external 8 shock to the Kansas economy such as the World War II armament build-up or the 9 Russian wheat deal in the 1970s. (2) The performance of the Kansas Labor 10 Market over the past 25 years can be broken into two periods. The Kansas Labor 11 Market has performed relatively weakly since 2000, after performing better than 12 the national labor market for the previous decade, and future expectations for the 13 Kansas Labor Market project continued weakness. (3) Local labor markets in 14 Kansas have also experienced difficulties compared with the national trend; even 15 the Johnson County labor market has recently had a slower growth rate than the 16 United States employment growth rate. (4) The Kansas utility labor market has 17 lost jobs over the past 25 years except for a brief run-up in employment from the 18 early 2000s that peaked in 2010. Since 2010, utility employment has steadily 19 declined.

Q. What does this analysis indicate about the impact of the Transaction on state and local labor markets?

A. Because of the weakness of the Kansas Economy, the Kansas Labor Market,
and local labor markets, I expect that jobs eliminated to create savings for the

Transaction will result in permanent job losses for the Kansas economy. Thus,
 the economic effect of the Transaction makes a weak economic situation worse
 and, therefore, does not promote the public interest of the state of Kansas.

4 3. The Relationship Between the Kansas Economy and the Kansas Labor Market

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Q. What has been the long-term relationship between the Kansas Economy and the Kansas Labor Market?

A. As the Kansas Economy has become more urban and less dependent upon agriculture, the tie between the overall performance of the Kansas Economy and the Kansas Labor Market has become more direct. For example, the Kansas Economy benefited after World War I because of the devastation to European agriculture caused by the war. Agricultural prices increased dramatically and Kansas farmers did very well in 1919 and 1920. However, this boost to the farm economy did not translate into a strong boost to the non-farm Kansas Economy.

In contrast, World War II created a dramatic increase in the Kansas Economy because of the movement of some of the armament and aircraft industry to Kansas. Figure 1 below illustrates the impact of World War II on Kansas per capita personal income and non-farm employment.



3 Q. Please explain what the variables in the Figure 1 graph represent?

A. There are three sets of variables in the graph: Kansas per capita personal
income divided by United States per capita income and calculated as a
percentage; Kansas non-farm employment divided by United States non-farm
employment with the result multiplied by 100 and presented as a percentage; and
external shocks to the Kansas Economy are designated as columns for the years of
their existence.

⁷ The per capita personal income data came from the Bureau of Economic Analysis. The Non-Farm Employment data came from the Bureau of Labor Statistics. The economic shocks are based on the years the events took place. For example, the Korean War began in June 1950 and sort of ended in the late spring of 1953.

1 The ratio of Kansas and United States per capita personal income provides a 2 good indicator of relative average well-being in the state compared to the United 3 States. Using per capita personal income eliminates the influence of population 4 growth on personal income. The influences of inflation and the national business 5 cycle are removed from the ratio of Kansas to United States per capita personal 6 income because inflation and the business cycle are in both the numerator and 7 denominator and cancel out in the new variable.

8 The ratio of Kansas and United States non-farm employment, for the same 9 reason, eliminates the influence of the United States business cycle. The ratio is 10 multiplied by 100 because the United States Labor Market is about 100 times 11 larger than the Kansas Labor Market.

Economic shocks to the Kansas Economy are the third variable. An economic shock is an external event that produces a significant effect in an economy. For example, World War II dramatically changed the structure of the Kansas Economy by bringing the airplane construction industry to Kansas. The shocks are represented in Figure 1 by columns with the width of the column representing the duration of the shock.

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Q. What else does Figure 1 demonstrate about the Kansas Economy?

A. First, surges in the Kansas Economy that are initiated from economic shocks
tend to start declining before the period of the economic shock ends. This
phenomenon suggests that the Kansas Economy lacks an internal mechanism to
sustain economic growth above the level of the United States Economy.

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1	Second, the ratio of per capita personal income tends to decline slowly when
2	there are no economic shocks to the Kansas Economy, as during the period
3	between the Korean War and the Russian Wheat Deal or the period from 1980 to
4	the beginning of the run-up in grain prices in 2006. Thus, in terms of income, the
5	Kansas Economy does not sustain positive economic shocks, and, when there are
6	no economic shocks, the Kansas Economy tends to decline relative to the United
7	States Economy.

8 Third, the decline in the ratio of per capita personal income from 1980 to 2006 9 and the sustaining of the ratio of non-farm employment during that period 10 suggests that Kansas has increasingly become an economy comprised of lower 11 wage jobs relative to the United States.

Fourth, a comparison of the Kansas and United States ratios of per capita personal income and non-farm employment during economic shocks to the farm economy indicates that farm income increases faster than non-farm income. In other words, positive shocks to the Kansas Farm Economy help that specific sector but do not necessarily act as a spur to the rest of the Kansas Economy.

17 Q. Is there any area in Kansas that does seem to sustain economic growth?

A. Yes. Johnson County has had sustained growth since the end of World War
II. Figure 2 below shows real per capita personal income for the United States,
Johnson County, and Kansas minus Johnson County from 1969 to 2015.⁸ As
illustrated in Figure 2, Johnson County's real per capita personal income has

⁸ Johnson County and Kansas minus Johnson County per capita personal income were deflated using the Bureau of Labor Statistics' (BLS) Midwest cities Consumer Price Index (CPI). The United States per capita personal income was deflated using the all cities CPI.







8 Q. What is your conclusion about the Kansas Economy and its influence on the
9 Kansas Labor Market?

10 A. My conclusion is that increases in the rates of growth of the Kansas Economy 11 are dependent upon external economic shocks to the Kansas Economy. Without 12 positive economic shocks, Kansas per capita personal income tends to decline 13 slightly while Kansas employment remains nearly constant. Thus, without

- 1 positive external shocks, Kansas wages relative to the United States average tend
- 2 to fall. The exception is Johnson County.

3 4. The Status of the Kansas Labor Market

4 Q. How has the Kansas Labor Market performed since 1990?

- 5 A. Table 1 below shows the non-farm employment by place of work growth rates
- 6 for the United States, Kansas, KS KC MSA,⁹ and Kansas minus the KS KC MSA
- 7 (the Rest of Kansas). The first row shows the growth rates over the entire period,
- 8 1990 to 2015. The second and third rows break the 1990 to 2015 period down
- 9 into two sub-periods of 1990 to 2000 and 2000 to 2015.¹⁰

⁹ The Kansas Counties making up the KS KC MSA are Franklin, Johnson, Leavenworth, Linn, Miami, and Wyandotte Counties. The KS KC MSA has historically been the fastest growing area in Kansas and Johnson County has dominated growth in the KS KC MSA. Later, the role of Johnson County in the economic and population growth of Kansas will be discussed.

¹⁰ There are three basic types of employment data at the national, state, and local levels: employees covered by unemployment insurance (UI employment), non-farm wage and salary employment (Non-Farm employment), and total employment. UI employment and Non-Farm employment which is primarily based on UI employment (in Kansas UI employment is 97% to 99% of Non-Farm employment) are provided by the Bureau of Labor Statistics (BLS). UI employment is available for the nation, states, MSAs, and counties. Non-farm is available for the nation, states, and MSAs but not for counties. Total employment which is Non-Farm employment plus Proprietors employment is provided by the Bureau of Economic Analysis (BEA). However, BLS's Non-Farm employment is the number of full-time equivalent jobs while BEAs Non-Farm employment is total number of jobs. The most precise measure of employment is UI employment because there is no estimation, just counting of jobs. The next most precise is BLS Non-Farm employment because 97% to 99% of BLS Non-Farm employment is UI employment. The most suspect measure of employment is the BEA's total employment because it treats full and part-time jobs as the same and it includes farm employment which is particularly difficult to estimate much less measure. I have used UI employment in Tables 1, 3, and 4.

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	Employment Growth Rates							
United Kansas Portion Rest of States Kansas of the KC MSA Kansas Row/Column (1) (2) (3) (4)								
(1)	1990 - 2015	28.4%	28.6%	55.6%	18.1%			
(2)	1990 - 2000	19.6%	23.5%	36.5%	18.5%			
(3)	2000 - 2015	7.4%	4.1%	14.0%	-0.4%			

Table 1

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Q. What does Table 1 Indicate?

A. First, Row (1) illustrates that United States employment growth rate shown in
Column (1) from 1990 to 2015 was less than Kansas employment growth rate
shown in Column (2). When the KS KC MSA is separated from Kansas as shown
in Column (3), it is clear that the KS KC MSA is a primary source of growth
compared to the Rest of Kansas presented in Column (4).

Second, Row (2) shows that the sub-period from 1990 to 2000 experienced far
greater employment growth for all areas than the sub-period 2000 to 2015. And
Kansas employment grew faster than the United States employment. Also, the
KS KC MSA outperformed the United States, Kansas, and the Rest of Kansas
employment growth rates.

However, the picture changes dramatically when the sub-period 2000 to 2015 is examined. The employment growth rate fell considerably for all areas, even for the KS KC MSA, in part because of the two recessions during the period. The Kansas employment growth rate fell to about 55% of the United States employment growth rate and the employment growth rate for the Rest of Kansas
is negative from 2000. The bright spot is the employment growth rate of the KS
KC MSA is almost 350% greater than the Kansas growth rate and almost 100%
greater than the United States growth rate.

5 Q. How has the Kansas Labor Market performed since the Great Recession?

The Philadelphia Federal Reserve Bank (Philadelphia Fed) provides 6 A. 7 coincidental and leading indexes for all 50 states, which are based primarily on labor market data.¹¹ Figure 3 below shows the coincidental indexes for the 8 9 United States and Kansas. The indexes have been reset to 100 for December 10 2007, the beginning of the Great Recession. The end date for the coincidental 11 indexes is October 2016. As illustrated in Figure 3, the Great Recession 12 dramatically hurt both the United States and Kansas Economies, but Kansas has 13 not recovered from the Great Recession nearly as well as the United States as a 14 whole.

¹¹ The Philadelphia Fed provides the following description of its coincidental indexes: The coincident indexes combine four state-level indicators to summarize current economic conditions in a single statistic. The four state-level variables in each coincident index are nonfarm payroll employment, average hours worked in manufacturing by production workers, the unemployment rate, and wage and salary disbursements deflated by the consumer price index (U.S. city average). The trend for each state's index is set to the trend of its gross domestic product (GDP), so long-term growth in the state's index matches long-term growth in its GDP. https://www.phil.frb.org/research-and-data/regional-economy/indexes/coincident

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Below is a map of the United States with the cumulative change of the last three months of the Philadelphia Fed's coincidental index color coded to indicate each state's relative performance. Note the unique status of the Kansas and West Virginia economies.





4 Q. What does the Philadelphia Fed's leading indicators index indicate for the 5 immediate future of Kansas?

A. The leading indexes provide a six-month forecast. Table 2 below has the sixmonth forecasts for the United States and Kansas for each of the last four months.
The reason the last four forecasts are included is to indicate the uncertainty
involved in these forecasts. Note that in the October 2016 forecasts, Kansas has
positive expected growth. However, Kansas' expected employment growth is still
about half of the United States employment growth.

Pł	Philadelphia Federal Reserve Bank							
	Index of Leading Indicators							
July August September Octob								
_	2016	2016	2016	2016				
Kansas	(0.87)	(1.97)	(1.17)	0.66				
United States	1.18	1.28	1.36	1.30				

2

3 Q. What is your conclusion after reviewing the data?

A. In general, when people lose jobs in Kansas, they have a better chance of
finding new jobs outside of Kansas than within Kansas. A possible exception to
having to look outside of Kansas for a job is the KS KC MSA, specifically
Johnson County. Thus, most of the job losses due to the Transaction will be
permanently lost from Kansas.

9 <u>5. The Status of the Kansas Local Labor Markets</u>

10 Q. How do you intend to characterize the local labor markets in Kansas?

A. I will only examine Kansas MSAs¹² and the counties in the MSAs since these
entities represent the most important local entities in the combined service
territories of KCP&L and Westar. There are five MSAs in Kansas: KS KC MSA,
Wichita MSA, Topeka MSA, Manhattan MSA, and Lawrence MSA.

¹² Metropolitan statistical areas are geographic entities delineated by the Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. A metro area contains a core urban area of 50,000 or more population. Each metro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core. https://www.census.gov/population/metro/

- The relative importance of the MSAs is shown in Table 3 below. The United
 States, Kansas, and MSA values are in shown bold while the counties within each
 MSA are shown in regular font.
- 4

	Population ¹		Employ	ment ¹	Personal Income ¹		
Γ	1990	2015	1990	2015	1990	2015	
MSA	(1)	(2)	(3)	(4)	(5)	(6)	
S KC MSA	25.7%	30.6%	28.0%	33.9%	30.1%	36.0%	
Franklin	0.9%	0.9%	0.6%	0.7%	0.7%	0.7%	
Johnson	14.4%	19.9%	17.7%	24.5%	21.0%	27.5%	
Leavenworth	2.6%	2.7%	1.7%	1.5%	2.2%	2.3%	
Linn	0.3%	0.3%	0.2%	0.2%	0.3%	0.2%	
Miami	1.0%	1.1%	0.6%	0.6%	0.8%	1.0%	
Wyandotte	6.5%	5.6%	7.3%	6.5%	5.1%	4.2%	
Vichita MSA	20.6%	21.9%	23.0%	21.1%	21.7%	22.5%	
Butler	2.0%	2.3%	1.1%	1.4%	1.9%	2.1%	
Harvey	1.3%	1.2%	1.1%	1.0%	1.2%	1.0%	
Sedwick	16.3%	17.6%	20.3%	18.1%	17.7%	18.8%	
Sumner	1.0%	0.8%	0.5%	0.5%	1.0%	0.6%	
opeka MSA	8.5%	8.0%	9.2%	8.0%	8.5%	7.2%	
Jackson	0.5%	0.5%	0.2%	0.3%	0.4%	0.4%	
Jefferson	0.6%	0.7%	0.2%	0.3%	0.6%	0.5%	
Osage	0.6%	0.5%	0.3%	0.2%	0.5%	0.4%	
Shawnee	6.5%	6.1%	8.3%	7.1%	6.8%	5.6%	
Wabaunsee	0.3%	0.2%	0.1%	0.1%	0.2%	0.2%	
Ianhattan MSA	4.6%	4.7%	3.5%	3.8%	3.9%	4.1%	
Geary	1.2%	1.3%	1.1%	1.0%	1.1%	1.2%	
Pottawatomie	0.7%	0.8%	0.5%	0.7%	0.5%	0.8%	
Riley	2.7%	2.6%	1.9%	2.1%	2.2%	2.1%	
awrence MSA ²	3.3%	4.1%	3.1%	3.5%	2.7%	3.3%	
otal MSAs	62.7%	69.2%	66.7%	70.2%	66.8%	73.0%	

Table 3

5

NOTE 2: The Lawrence MSA is composed of only one county—Douglas County.

1		The KS KC MSA is the largest MSA and getting relatively larger. In 2015,
2		the KS KC MSA was 30.6% of the total Kansas population and 36.0% of Kansas
3		personal income. The Wichita MSA is the second largest MSA. Combined, the
4		KS KC and Wichita MSAs are more than 50% of the Kansas population and
5		58.5% of Kanas personal income. The Topeka MSA is less than half the size of
6		the Wichita MSA and the remaining two MSAs, Manhattan and Lawrence,
7		combined are smaller than the Topeka MSA. Jointly, the five MSAs comprise
8		almost 70% of Kansas population and 73% of Kansas personal income.
9	Q.	How have the MSAs grown relative to the State growth rate?
10	A.	Total MSA population has increased from 62.7% of Kansas population in
11		1990 to 69.2% in 2015. However, 5.1% of that 6.5% increase in population is
12		solely because of the KS KC MSA. Total MSA personal income was 66.8% of
13		Kansas personal income in 1990 but, by 2015, it was 73.0% of Kansas personal
14		income. Again, however, nearly all of the growth in personal income was in the
15		KS KC MSA. Of the 6.2% growth in relative personal income by all MSAs
16		combined, 5.9% happened in the KS KC MSA.
17		Using personal income as a measure of prosperity, Table 3 shows that the
18		Wichita, Topeka, Manhattan, and Lawrence MSAs are all increasing their
19		prosperity at about the same rate as Kansas as a whole. The KS KC MSA is the

- 20 only MSA increasing its prosperity faster than Kansas as a whole.
- Table 4 below confirms the assessment of the importance of the KS KC MSA.
 The importance of the KS KC MSA is particularly true for the period since the
 Great Recession, column (2) in Table 4. Although the Lawrence and Manhattan

1	MSAs have experienced employment growth since 2007, because of the small
2	size of these MSAs, their impact on Kansas is minimal. On the other hand,
3	because of the relatively large size of the KS KC MSA, its growth rate has had a
4	much more important impact on the Kansas Employment. More detailed data for
5	each of the MSAs and the counties in the MSAs is available in Exhibit RHG-1
6	attached to this testimony.

4	
-	

Economic Performance of the MSAs and Counties in Kansas							
	Employment	Growth Rate	Real Per C	apita Person	al Income ¹		
	1990 - 2015	2007 - 2015	1990	2015	% Change		
	(1)	(2)	(3)	(4)	(5)		
United States	28.4%	3.0%	34,478	48,112	40%		
Kansas	28.6%	0.8%	33,378	47,161	41%		
KS KC MSA	55.6%	5.6%	39,046	55,457	42%		
Franklin	39.0%	-5.0%	25,892	37,872	46%		
Johnson	78.1%	5.7%	48,647	65,050	34%		
Leavenworth	16.3%	0.5%	28,651	39,477	38%		
Linn	1.9%	0.4%	25,745	33,533	30%		
Miami	34.0%	-5.3%	29,189	43,387	49%		
Wyandotte	14.3%	9.1%	25,912	35,589	37%		
Wichita MSA	18.1%	-2.2%	35,132	48,410	38%		
Butler	62.6%	4.5%	31,590	42,301	34%		
Harvey	24.8%	2.7%	31,472	38,369	22%		
Sedwick	15.2%	-3.4%	36,153	50,448	40%		
Sumner	23.9%	14.5%	30,473	36,407	19%		
Topeka MSA	11.5%	1.0%	33,347	42,365	27%		
Jackson	71.2%	-6.7%	28,576	37,478	31%		
Jefferson	36.6%	1.5%	29,263	39,884	36%		
Osage	-3.8%	-14.2%	26,689	37,926	42%		
Shawnee	9.5%	2.1%	34,860	43,216	24%		
Wabaunsee	22.1%	-13.0%	29,962	46,762	56%		
Manhattan MSA	55.6%	5.6%	28,096	41,116	46%		
Geary	20.2%	-1.1%	30,446	42,875	41%		
Pottawatomie	63.6%	10.1%	27,628	46,772	69%		
Riley	44.7%	4.0%	27,140	38,499	42%		
Lawrence MSA ²	45.9%	1.5%	27,135	38,686	43%		

Table 4

NOTE 1: Per Capita Personal Income for Kansas, the MSAs, and counties was deflated using the Bureau of Labor Statistics (BLS) Midwest Urban Consumer Price Index (CPI) increased 76.0% from 1990 to 2015. The United States was deflated using the BLS United States All Cities CPI which increased 81.3% from 1990 to 2015. **NOTE 2:** The Lawrence MSA is composed of only one county—Douglas County.

2

3

Q. How would you characterize the counties within the different Kansas MSAs?

A. An MSA consists of an urban core and peripheral counties that are socially
and economically cohesive.¹³ The Kansas urban cores are Johnson and
Wyandotte Counties for the KS KC MSA; Sedgwick County for Wichita MSA;
Shawnee County for Topeka MSA; and Riley County for the Manhattan MSA.
Since Lawrence MSA has only one county—Douglas County—the urban core
and the periphery are the same county.

7 Q. How have the counties in the MSAs performed?

8 A. The core and periphery distinction suggests that the employment growth of 9 only the core counties is influential. Johnson County had the most employment 10 growth from 1990 to 2015 of all the counties in Table 4. However, note that 11 Wyandotte County employment grew faster than Johnson County from 2007 to 12 2015. This is partially due to the relatively smaller base for Wyandotte County— 13 in absolute terms Johnson County actually added more jobs. Sedgwick County 14 employment grew over 15% from 1990 to 2015 but shrunk over 2% from 2007 to 2015. Shawnee had weak growth from 1990 to 2015 but still managed to have 15 16 growth from 2007 to 2015.¹⁴

¹³ An MSA consists of an urban core and adjacent counties "that have a high degree of social and economic integration (as measured by commuting to work) with the urban core." An indicator of the difference between core and peripheral counties is the ratio of population to employment. The ratio for the large core counties are: Johnson County 1.73, Wyandotte County 1.85, Sedgwick County 2.06, and Shawnee County 1.85. In contrast, the ratio of population to employment for some of the periphery counties is: Linn County 4.56, Miami County 4.06, Butler County 3.52, Jefferson County 5.23, and Osage County 5.55. The core counties have significantly more jobs per population than the periphery counties. Thus, job growth in the core counties is more essential than growth in the periphery counties.

¹⁴ Johnson County has grown considerably and Wyandotte County's structure has changed. Table 3 shows that since 1990, Wyandotte County has declined in relative importance in terms of population, employment, and personal income while Johnson County has become the dominant county in the state. By 2015, Johnson County had 19.9% of Kansas' population, 24.5% of Kansas' non-farm employment, and

1 Q. What is your conclusion about the local Kansas Labor Markets?

A. The KS KC MSA is definitely the greatest engine of employment growth in
Kansas, and Johnson County drives the KS KC MSA economic performance.
Because of its size (580,159 in population: slightly less than 20% of Kansas), its
wealth, and its significantly higher per capita personal income; Johnson County
economic performance since 1990, especially before 2000, was remarkable. The
remaining MSAs are basically keeping up with the Kansas employment growth
rate, but are not performing significantly better than Kansas as a whole.

9 The basic conclusion is that if people with technical positions lose their jobs 10 due to the Transaction, their best hope of finding another technical position that 11 pays as well as their current position is to look in the KS KC MSA, particularly in 12 Johnson County. If jobs are not available there, then finding a comparable job 13 will require leaving Kansas.

- 14 <u>6. The Status of the Labor Market for Utility Employees</u>
- Q. How much growth has there been in the United States for electric power
 industry employees?
- 17 A. Employment in the United States Electric Power Industry declined from 1990
- to 2005. Since then, it has remained steady, but has not grown, as Figure 5 belowillustrates.

^{27.5%} of Kansas' personal income. Among the other core counties, Sedgwick County has grown slightly since 1990 as had Riley County. Shawnee County has declined slightly since 1990.



4

Q. Is the national trend reflected in Kansas utility employment data?

5 A. Employment in the Kansas Utility Industry declined gradually in the 1990s, then increased until 2010 and, since 2010, has declined steadily. Figure 2 below 6 7 shows the Bureau of Labor Statistics' estimated employment in Kansas for the Utilities Industry as a whole; for Electric Power Generation, Transmission and 8 Distribution; and for Westar.¹⁵ Note that Westar's employment has only grown 9 10 since 2003 and that it has been basically flat since around 2010.

¹⁵ Westar's SEC Filings, Form 10-K, the years 2004-2016. The form states the employment as of the third week of February of each particular year. Thus, the Westar figures are not exactly compatible with the annual averages used for the other employment estimates, the difference should not be much.



3 The decline in utilities' employment, particularly the decline in electric power 4 generation, transmission, and distribution suggests that any job losses in Kansas 5 in the electric power generation, transmission, and distribution industry will not 6 be absorbed by the rest of the utilities industry. In addition, the elimination of 7 technical utility job positions likely represents job positions permanently lost.

8

C. Merger Standard (a) (v): Effect on Existing Competition

9

Q.

What is merger standard (a) (v)?

10 A. Merger standard (a) (v) examines the Transaction's effect "on the existing 11 competition"? Since the Kansas retail market for electricity is regulated, the only 12 potential threat to competition would be in the wholesale electricity market, 13 which, in Kansas, is managed by the Southwest Power Pool (SPP).

How is your examination of merger standard (a) (v) structured? 14 **Q**.

1	A.	First, I will briefly review the market power study from Docket No. 97-								
2		WSRE-676-MER (the 1997-8 Merger Docket). ¹⁶								
3		Then, I will briefly describe the role of SPP's Market Monitor.								
4		Finally, I will conclude:								
5		1. The market power study performed on Staff's behalf in the 1997-8 Merger								
6		Docket found little concern about the exercise of market power. The								
7		major changes affecting the wholesale market-increased transmission								
8		and the SPP Integrated Marketplace—have further reduced the possibility								
9		of the exercise of market power.								
10		2. Staff's lone concern is that a generation plant closing to produce savings								
11		might also create transmission congestion which would raise local								
12		electricity prices. To mitigate this possibility, Staff recommends that if								
13		the Transaction is approved the Commission require GPE to obtain								
14		Commission approval of all plant closings.								
15	Q.	Why is a market power study from the 1997-8 Merger Docket relevant?								
16	A.	For market power to exist in a large wholesale market with an open access								
17		transmission network, something needs to happen that closes off the larger market								
18		for some participants, forcing these participants to purchase power from a few or								
19		only one generation source. ¹⁷ Since the late 1990s, two major changes have taken								
20		place that have affected competitiveness of the wholesale market for electricity in								

 ¹⁶ Docket No. 97-WSRE-676-MER was the docket for the merger of KCP&L with Western Resources.
 ¹⁷ William Hogan, "A Market Power Model with Strategic Interaction in Electricity Networks, The Energy Journal, Vol. 18, No. 4 (1997), pp. 107-108.

- Kansas and both changes have reduced the probability of the exercise of market
 power.
 - These two major charges are:
- 4 (1) A significant amount of transmission has been built in Kansas since the
 5 late 1990s. The additional transmission has reduced the possibility of trapping
 6 small market participants in artificially created local electricity markets.
- (2) The SPP has created the Integrated Marketplace, which is a wholesale
 electricity market with a wide geographical footprint and numerous participants.
 With more options for sources of electricity, artificially creating locked in local
 electricity markets is more difficult. In addition, the SPP has a group that is
 tasked with monitoring the behavior of market participants (Market Monitor).
- 12 Thus, the possibility of the exercise of market power since the 1997-8 Merger 13 Docket has been reduced, and as I will review, the market power study in that 14 docket concluded there was little chance of the exercise of market power in the 15 late 1990s.
- 16 Q. What was the conclusion of the market power study for the 1997-8 Merger
- 17 Docket?

18 A. Dr. Norman Clifford summarized the results of the study.

19Our analysis showed that with the right institutional20framework, the market power risk of the merger should not be21of great concern. If, however, the institutional framework is22designed so that the scope of markets is limited, there may be23market power concerns, particularly during off-peak periods.24

¹⁸ Dr. Norman Clifford, Testimony, Docket No. 97-WSRE-676-MER, p. 8.

1 Q. What does Dr. Clifford mean by "the right institutional framework"?

A. Dr. Clifford describes an institutional framework that, at a high level, matches
the SPP Integrated Marketplace.¹⁹ He lays down two institutional conditions: a
centralized dispatch of generation and a large number of firms in a market
monitored by the centralized institution dispatching generation. The SPP
Integrated Marketplace meets these conditions.

Q. Was there any situation identified that warranted concern about market power at that time?

9 A. Yes. The one situation identified as a potential problem was a shoulder month
10 (spring or fall) which has reduced load. If a significant number of generators are
11 off-line ostensibly for maintenance, then it might be possible for a generator to
12 intentionally create transmission congestion to drive up location prices.²⁰

13 Q. Does this situation still concern Staff?

A. Yes. But Staff's concern has since been mitigated for the two reasons stated
 above. Since the late 1990s, a significant amount of transmission has been built
 in the SPP and specifically in Kansas to relieve congestion. And the Market
 Monitor Staff indicated they were constantly searching for unusual pricing
 behavior, especially unexpected withdrawal of generation resulting in
 transmission congestion.²¹

¹⁹ *Ibid., p. 5.* The exact quote is: "First, the electric grid is dispatched by an independent system operator (ISO). The ISO has the authority to dispatch generators using the electric grid. Second, the scope of the ISO's authority is wide-ranging. In general, the more utilities that are included within the ISO's dispatch authority the lower the risk of the merged firms exerting significant market power."

²¹ Conference call with the SPP's Market Monitor Staff, August 26, 2016.

1	Q.	What are the responsibilities of the Market Monitor Staff?
2	A.	The Market Monitor Staff has two overarching duties:
3		1. Assessing the behavior of market participants and the behavior of other
4		markets and services.
5		2. Identifying design flaws in the structure of the Integrated Marketplace.
6		Specifically, they are to detect problems with "operating rules, standards,
7		procedures, and practices in SPP markets." ²²
8	Q.	Was there anything the Market Monitor Staff indicated about monitoring
9		market power that concerned you?
10	A.	Yes. The Market Monitoring Staff indicated that transmission congestion
11		caused by a plant closing would be monitored for price manipulation. Thus, if a
12		generation plant was closed to create necessary savings and the closing happened
13		to also create transmission congestion, the Market Monitor Staff would monitor
14		the situation. But because the SPP is limited by its tariffs, and it does not have the
15		authority in its tariffs to prevent the closing of a plant, the SPP could not prevent
16		the potential creation of market power by a plant closing. ²³
17	Q.	Do you have a suggestion to mitigate the possibility of plant closing creating
18		market power?
19	A.	Yes. I recommend that if the Transaction is approved, one of the conditions
20		for its approval be that any plant closing must be pre-approved by the

 ²² <u>https://www.spp.org/markets-operations/market-monitoring/</u>
 ²³ Conference with SPP's Market Monitor Staff, August 26, 2016 and reconfirmed in phone call with Market Monitor Staff, December 16, 2016.

1		Commission. This recommendation is consistent with the recommendation of									
2		Staff Witness Walter Drabinski in Section VI. A and D of his testimony.									
3	Q.	What are Staff's conclusions about the effect of the Transaction on wholesale									
4		competition?									
5	A.	Staff has two basic conclusions about the effect of the Transaction on wholesale									
6		competition.									
7		1. The market power study performed on Staff's behalf in the 1997-8 Merger									
8		Docket found that the proposed merger would not increase existing market									
9		power in nearly all cases. Since then, the major changes affecting the									
10		wholesale market-increased transmission and the SPP Integrated									
11		Marketplace-have reduced the possibility of the exercise of market									
12		power. In particular, SPP's Market Monitor's job is to detect and prevent									
13		price manipulation.									
14		2. Staff's lone concern is that a generation plant closing to produce savings									
15		might also create transmission congestion which would raise local									
16		electricity prices. To mitigate this possibility, Staff recommends that if									
17		the Transaction is approved, as part of the approval, the Commission									
18		require GPE to obtain Commission approval of all plant closings.									
19	<u>D. M</u>	lerger Standard (f) and (g): Effect on Economic Efficiency									
20	Q.	What are merger standards (f) and (g)?									
21	A.	Merger standard (f) is "Whether the transaction maximizes the use of Kansas									
22		energy resources." And merger standard (g) is "Whether the transaction will									

23 reduce the possibility of economic waste."

35

1 Q. What is your interpretation of merger standards (f) and (g)?

2 A. From an economic perspective, maximizing the use of Kansas's energy 3 resources and eliminating economic waste in the use of energy resources are 4 mirrored concepts. Maximizing the use of energy resources means that waste 5 should be minimized, and minimizing the waste of energy resources should 6 maximize the use of energy resources. However, there is one caveat—in both 7 cases the optimization takes place with the constraint that reliability is maintained 8 at an acceptable level. In economist's parlance, the dual problems stated above 9 are referred to as the economic efficient use of energy resources, and I will, 10 therefore, refer to merger standards (f) and (g) as the economic efficiency criteria.

11 Q. How is your examination of merger standards (f) and (g) structured?

- A. First, I will generally review the criteria of economic efficient use of energy
 resources in light of SPP's Integrated Marketplace.
- Second, I will apply the above criteria to the **Lawrence Energy Center**,
 which is one of the plants that GPE's initial analysis identified for closing.²⁴
- Q. How does the existence of SPP's Integrated Marketplace aid in the
 evaluation of the economically efficient use of energy resources?
- 18 A. The SPP dispatches generation in its balancing territory using economic
 19 dispatch with reliability constraints. The name of the algorithm it uses to perform

²⁴ For a list of all the plants listed as closing for savings reasons, see Staff Witness Walter Drabinski, Direct Testimony, Section II. B.

this task is called Security Constrained Economic Dispatch.²⁵ Thus, if a plant is
dispatched a significant amount by the SPP, then it must be economically viable.
The amount of times a plant is dispatched by the SPP indicates the plant's
economic viability.

5 Q. Are there other factors involved in deciding whether to close an existing 6 plant?

7 A. Yes. There are two important factors. First, if the plant is needed for
8 reliability purposes or is necessary to prevent transmission congestion, then it
9 needs to remain active until something cheaper can replace it. Second, an active
10 plant that needs expensive environmental upgrades that would exceed the value of
11 running the plant should be shuttered regardless of the merger.

12 Q. Given the above criteria, should the **Lawrence Energy Center** be kept 13 active or should it be shut down?

14 A. The **Lawrence Energy Center** has had extensive environmental upgrades 15 that have been completed for several years, so there is no environmental reason 16 now to shut it down. This leaves the question of whether the SPP is regularly 17 dispatching **Lawrence Energy Center**. Table 5 below shows the net capacity 18 factor for each of Westar's coal plants from 2011 to 2015 and the five-year 19 average net capacity factor. There seems to be little difference in the net capacity 20 factors for the four coal plants wholly or partially owned by Westar, thus, 21 providing persuasive evidence that the **Lawrence Energy Center** should be

²⁵ From SPP's Glossary, "An algorithm capable of clearing, dispatching, and pricing Energy and Operating Reserve on a co-optimized basis that minimizes overall cost and enforces multiple security constraints." <u>https://www.spp.org/glossary/?term=economic+dispatch</u>

kept active. Given Westar's stated concern about the closing of baseload
 generation, one wonders why any of the plants listed below, except Tecumseh,

Table 5

would be considered for closure.²⁶

4

3

Net	: Capacit	y Factor ¹	for Westa	r Coal Pla	nts		
	Net Capacity Factor						
Unit	2011	2012	2013	2014	2015	5-Yr Average	
Jeffrey Energy Center							
Unit 1	78.0	57.3	66.9	49.7	64.9	63.4	
Unit 2	58.3	65.6	74.6	64.9	55.9	63.8	
Unit 3	Unit 3 79.0 55.		71.0	67.6	59.5	66.5	
Lawrence Energy Center							
Unit 3	69.6	72.6	68.2	83.5	51.4	69.5	
Unit 4	68.2	50.7	74.4	72.5	54.0	64.0	
Unit 5	78.5	68.1	79.2	80.5	52.4	71.8	
Tecumseh Energy Center							
Unit 7	70.0	56.5	82.0	66.0	60.9	67.0	
Unit 8	58.1	71.4	54.5	80.1	62.6	65.5	
La Cygne Generating Stat	ion						
Unit 1	61.3	55.5	59.9	76.1	51.1	60.8	
Unit 2	70.3	75.1	58.0	50.5	63.5	63.5	

NOTE 1: The capacity factor is found by dividing to energy generated by the total number of hours during the period of consideration. For a year, total energy generated, in kWhs, would be divided by 8760 hours except for leap year which would be 8784 hours. Net means that generator parasitic load is not counted as generated energy.

5 6

7

IV. CONCLUSION

8 Q. Please summarize your analysis and recommendations.

9 A. I recommend that the Commission reject the Transaction because of GPE's 10 failure to meet merger standards (c), (a) (v), (f), and (g) as discussed in detail

- 11 above and summarized below. I further recommend, if the Commission does
- 12 approve the Transaction, that it add a requirement that any plant closings by GPE

²⁶ Mark Ruelle, Direct Testimony, Docket No. 16-KCPE-593-ACQ, p. 40.

must be approved by the Commission prior to the plant closing. In addition, I
 support all Staff recommendations.

3 (c): The economic effect of the Transaction on state and local economies and 4 labor markets

5 The Transaction's primary effect on the state and local economies is from the 6 savings generated by eliminating job positions. There are three channels through 7 which the elimination of jobs will affect the Kansas Economy. (1) The eliminated 8 jobs will result in a loss of wages, salaries, and benefits for the Kansas Economy. 9 (2) GPE plans to return some of the savings back to ratepayers through a 10 reduction in electric rates. (3) The remaining savings will flow to shareholders. 11 The reduced wages, salaries, and benefits will have a negative effect on the 12 Kansas Economy. The Transaction's reduction in electric rates will provide a positive benefit to the Kansas Economy. Because less than 2% of shareholders 13 14 live in Kansas, the savings flowing to shareholders will have a minimum effect on 15 the Kansas Economy. The net effect of all three channels is a negative impact on 16 the Kansas Economy.

17 The Transaction's elimination of jobs will negatively affect state and local 18 labor markets. The Kansas Labor Market is tied to the performance of the Kansas 19 Economy, and the Kansas Economy has only performed better than the United 20 States Economy when there has been substantial external shocks, such as World 21 War II. The last period of strong growth was during the 1990s; since 2000, the 22 Kansas Economy and Labor Market have performed worse than the United States 23 Economy and Labor Market. The notable exception has been Johnson County,

1		and even Johnson County's economic performance has sagged since 2000. Since
2		1990, jobs in the electric power generation, transmission, and distribution industry
3		have declined almost 30% in Kansas. The result is that people who lose technical
4		utility jobs will probably not be able to find equivalent paying jobs in Kansas and,
5		instead, will need to leave Kansas for similar employment.
6		(a) (v): The effect of the Transaction on competition
7		Because of the SPP's Integrated Marketplace, the Transaction should not
8		affect the competitiveness of wholesale markets in Kansas. The one concern that
9		Staff has, however, is that the closing of a generation plant for savings could
10		create transmission congestion. Although SPP would monitor the situation, it
11		does not have the ability to prevent the closure. Thus, Staff recommends that if
12		the Commission approves the Transaction, the Commission should require that
13		GPE seek Commission approval of all plant closings.
14 15		(f): Whether the Transaction maximizes the use of Kansas energy resources; and (g): Whether the Transaction reduces the possibility of economic waste.
16		Staff views maximizing energy resources and reducing economic waste of
17		energy resources as symmetrical concepts that fall into the category of economic
18		efficiency. Again, Staff's concern is the premature closing of a power plant that
19		is still economically efficient. Staff used dispatch by the SPP as an indicator of
20		the economic efficiency of a generating plant because the SPP uses economic
21		dispatch with a reliability constraint. The economic efficiency standard
22		determines that the **Lawrence Energy Center** should not be closed.
23	Q.	Does this conclude your testimony?
24	A.	Yes, thank you.

Robert H. Glass, Direct Testimony

Docket No. 16-KCPE-593-ACQ

Exhibit RHG-1

Additional Data for Kansas MSAs and the Counties in the MSAs

	KS Portion of KC BLS Employment							
	Franklin	Johnson	Leavenworth	Linn	Miami	Wyandotte		
1990	6,698	187,920	17,690	2,052	5,992	77,284		
1991	6,822	189,859	17,620	1,937	6,129	76,981		
1992	6,984	197,229	17,965	2,000	6,051	75,139		
1993	7,230	204,943	18,624	1,968	5,977	74,278		
1994	7,362	215,915	18,778	1,978	6,083	76,812		
1995	7,775	225,411	18,257	2,191	6,561	77,801		
1996	8,614	235,580	18,277	2,141	7,025	77,640		
1997	8,651	250,206	19,018	2,128	7,385	78,592		
1998	8,701	266,978	18,648	2,154	7,866	78,550		
1999	8,663	280,818	19,139	2,149	8,118	77,443		
2000	8,527	288,042	19,539	2,126	8,334	79,647		
2001	8,705	292,984	19,989	2,044	8,264	79,321		
2002	9,566	289,905	20,162	2,071	8,598	77,131		
2003	9,789	289,132	20,267	2,081	8,398	74,892		
2004	9,596	294,169	20,379	2,049	8,564	75,869		
2005	9,496	300,551	20,425	2,001	8,364	76,639		
2006	9,365	306,269	20,686	2,079	8,400	79,225		
2007	9,803	316,733	20,478	2,082	8,474	80,916		
2008	9,589	317,772	20,909	2,022	8,192	80,958		
2009	9,358	301,930	21,029	1,921	7,735	78,756		
2010	8,986	296,353	21,253	1,843	7,768	79,651		
2011	8,730	302,328	21,136	1,916	7,521	81,163		
2012	8,894	310,178	20,913	1,958	7,593	84,058		
2013	9,004	319,958	20,731	2,043	7,674	82,947		
2014	9,176	328,048	20,415	2,098	8,022	86,398		
2015	9,309	334,691	20,579	2,091	8,027	88,302		

	KS Portion of KC Personal Income									
	Franklin	Johnson	Le	avenworth	Linn	Miami	Wyandotte			
1990	\$ 314,764	\$ 9,585,348	\$	1,020,744	\$ 117,236	\$ 379,486	\$ 2,314,407			
1991	\$ 328,454	\$ 10,145,045	\$	1,069,155	\$ 118,485	\$ 387,864	\$ 2,357,820			
1992	\$ 369,299	\$ 11,069,808	\$	1,165,881	\$ 137,358	\$ 434,161	\$ 2,460,825			
1993	\$ 374,388	\$ 11,891,867	\$	1,212,539	\$ 143,278	\$ 462,645	\$ 2,499,103			
1994	\$ 408,676	\$ 12,554,265	\$	1,282,145	\$ 151,399	\$ 500,686	\$ 2,604,900			
1995	\$ 437,262	\$ 13,558,741	\$	1,332,379	\$ 156,369	\$ 535,902	\$ 2,672,286			
1996	\$ 469,965	\$ 14,463,741	\$	1,394,885	\$ 174,093	\$ 584,367	\$ 2,764,905			
1997	\$ 501,760	\$ 15,503,447	\$	1,456,882	\$ 186,729	\$ 627,818	\$ 2,903,512			
1998	\$ 520,146	\$ 17,108,890	\$	1,552,626	\$ 197,977	\$ 660,410	\$ 3,020,677			
1999	\$ 541,191	\$ 18,436,917	\$	1,630,311	\$ 201,193	\$ 718,852	\$ 3,061,797			
2000	\$ 584,199	\$ 20,226,989	\$	1,754,460	\$ 203,384	\$ 755,245	\$ 3,161,358			
2001	\$ 618,512	\$ 19,715,541	\$	1,799,326	\$ 225,605	\$ 810,016	\$ 3,312,701			
2002	\$ 631,798	\$ 20,295,692	\$	1,892,559	\$ 218,955	\$ 842,284	\$ 3,336,645			
2003	\$ 647,112	\$ 20,750,794	\$	1,992,509	\$ 228,822	\$ 859,764	\$ 3,354,925			
2004	\$ 667,551	\$ 20,709,525	\$	2,061,429	\$ 233,066	\$ 931,931	\$ 3,412,270			
2005	\$ 690,586	\$ 22,607,360	\$	2,134,878	\$ 236,520	\$ 953,781	\$ 3,565,457			
2006	\$ 736,707	\$ 26,570,773	\$	2,298,452	\$ 252,005	\$ 1,009,763	\$ 3,845,244			
2007	\$ 782 <i>,</i> 834	\$ 29,338,663	\$	2,427,841	\$ 261,757	\$ 1,112,439	\$ 3,995,302			
2008	\$ 834,576	\$ 31,814,756	\$	2,629,688	\$ 284,983	\$ 1,206,300	\$ 4,269,134			
2009	\$ 829,527	\$ 30,128,460	\$	2,598,680	\$ 285,975	\$ 1,184,925	\$ 4,254,685			
2010	\$ 829,961	\$ 29,318,790	\$	2,649,954	\$ 286,277	\$ 1,186,821	\$ 4,509,898			
2011	\$ 861,772	\$ 30,144,475	\$	2,766,288	\$ 297,960	\$ 1,266,592	\$ 5,988,274			
2012	\$ 889,185	\$ 32,341,845	\$	2,838,873	\$ 299,692	\$ 1,289,953	\$ 8,374,730			
2013	\$ 935,107	\$ 33,452,559	\$	2,886,990	\$ 305,513	\$ 1,320,031	\$ 7,746,310			
2014	\$ 936,960	\$ 35,392,454	\$	2,980,518	\$ 308,261	\$ 1,368,633	\$ 6,944,888			
2015	\$ 969 <i>,</i> 858	\$ 37,739,389	\$	3,131,157	\$ 319,774	\$ 1,412,370	\$ 5,814,072			

KS Portion of KC Per Capita Personal Income										
	Franklin	Jo	ohnson	Leav	venworth	Linn	I	Miami	Wy	andotte
1990	\$ 14,278	\$	26,826	\$	15,799	\$ 14,197	\$	16,096	\$	14,289
1991	\$ 14,825	\$	27,756	\$	16,236	\$ 14,115	\$	16,236	\$	14,638
1992	\$ 16,484	\$	29,535	\$	17,644	\$ 16,242	\$	17,958	\$	15,355
1993	\$ 16,299	\$	30,886	\$	18,197	\$ 16,852	\$	18,989	\$	15,673
1994	\$ 17,592	\$	31,783	\$	19,087	\$ 17,600	\$	19,955	\$	16,455
1995	\$ 18,603	\$	33,628	\$	19,736	\$ 17,773	\$	20,879	\$	16,925
1996	\$ 19,634	\$	35,137	\$	20,581	\$ 19,331	\$	22,192	\$	17,538
1997	\$ 20,772	\$	36,781	\$	21,401	\$ 20,416	\$	23,427	\$	18,393
1998	\$ 21,303	\$	39,538	\$	22,732	\$ 21,366	\$	24,351	\$	19,091
1999	\$ 21,976	\$	41,578	\$	23,846	\$ 21,308	\$	25,788	\$	19,381
2000	\$ 23,491	\$	44,500	\$	25,443	\$ 21,230	\$	26,466	\$	20,023
2001	\$ 24,740	\$	42,531	\$	25,739	\$ 23,177	\$	28,155	\$	20,917
2002	\$ 25,053	\$	42,706	\$	26,734	\$ 22,517	\$	28,972	\$	21,185
2003	\$ 25,565	\$	42,724	\$	28,088	\$ 23,409	\$	29,207	\$	21,468
2004	\$ 26,153	\$	41,804	\$	28,882	\$ 23,710	\$	30,902	\$	22,033
2005	\$ 27,053	\$	44,817	\$	29,739	\$ 23,577	\$	31,009	\$	23,099
2006	\$ 28,648	\$	51,612	\$	31,598	\$ 25,168	\$	32,385	\$	25,020
2007	\$ 30,420	\$	56,003	\$	32,902	\$ 26,553	\$	34,805	\$	25,899
2008	\$ 32,284	\$	59,783	\$	35,269	\$ 29,286	\$	37,543	\$	27,526
2009	\$ 32,065	\$	55,856	\$	34,437	\$ 29,576	\$	36,521	\$	27,201
2010	\$ 31,908	\$	53,718	\$	34,620	\$ 29,709	\$	36,102	\$	28,602
2011	\$ 33,285	\$	54,510	\$	35,876	\$ 31,021	\$	38,721	\$	37,893
2012	\$ 34,366	\$	57,757	\$	36,520	\$ 31,603	\$	39,545	\$	52,515
2013	\$ 36,275	\$	59,001	\$	36,920	\$ 32,095	\$	40,224	\$	48,111
2014	\$ 36,580	\$	61,663	\$	37,832	\$ 32,462	\$	41,803	\$	42,831
2015	\$ 37,872	\$	65,050	\$	39,477	\$ 33,533	\$	43,387	\$	35,589

	KS Portion of KC Population							
	Franklin	Johnson	Leavenworth	Linn	Miami	Wyandotte		
1990	22,046	357,309	64,610	8,258	23,577	161,973		
1991	22,155	365,507	65,851	8,394	23,889	161,073		
1992	22,404	374,801	66,077	8,457	24,176	160,260		
1993	22,970	385,022	66,635	8,502	24,364	159,449		
1994	23,231	395,003	67,173	8,602	25,091	158,308		
1995	23,505	403,202	67,511	8,798	25,667	157,887		
1996	23,936	411,635	67,774	9,006	26,332	157,650		
1997	24,156	421,504	68,076	9,146	26,799	157,858		
1998	24,416	432,723	68,301	9,266	27,121	158,228		
1999	24,626	443,434	68,368	9,442	27,875	157,980		
2000	24,869	454,539	68,957	9,580	28,536	157,883		
2001	25,000	463,554	69,906	9,734	28,770	158,372		
2002	25,218	475,239	70,793	9,724	29,072	157,498		
2003	25,312	485,689	70,939	9,775	29,437	156,276		
2004	25,525	495,396	71,373	9,830	30,158	154,874		
2005	25,527	504,441	71,788	10,032	30,758	154,356		
2006	25,716	514,813	72,741	10,013	31,180	153,689		
2007	25,734	523,879	73,791	9,858	31,962	154,267		
2008	25,851	532,175	74,560	9,731	32,131	155,092		
2009	25,870	539,396	75,461	9,669	32,445	156,416		
2010	26,011	545,789	76,544	9,636	32,874	157,678		
2011	25,891	553,010	77,106	9,605	32,711	158,031		
2012	25,874	559,960	77,735	9,483	32,620	159,472		
2013	25,778	566,979	78,195	9,519	32,817	161,009		
2014	25,614	573,964	78,784	9,496	32,740	162,147		
2015	25,609	580,159	79,315	9,536	32,553	163,369		

	Lawre	enc	e (Dougla	as (County) M	SA
	BLS		Personal		Per Capita	
	Employment		Income	Per	sonal Income	Population
1990	32,603	\$	1,230,365	\$	14,963	82,229
1991	33,380	\$	1,307,632	\$	15,626	83,683
1992	34,689	\$	1,428,702	\$	16,734	85,379
1993	35,785	\$	1,518,184	\$	17,267	87,926
1994	37,275	\$	1,639,148	\$	18,277	89,683
1995	39,014	\$	1,737,680	\$	19,010	91,408
1996	40,288	\$	1,846,642	\$	19,775	93,381
1997	42,523	\$	2,021,494	\$	21,122	95,706
1998	43,587	\$	2,196,380	\$	22,512	97,566
1999	45,163	\$	2,291,695	\$	23,034	99,490
2000	46,079	\$	2,480,799	\$	24,747	100,247
2001	47,005	\$	2,705,230	\$	26,713	101,269
2002	46,259	\$	2,795,097	\$	27,255	102,552
2003	46,940	\$	2,870,797	\$	27,718	103,570
2004	47,823	\$	2,949,762	\$	28,140	104,826
2005	47,798	\$	3,084,934	\$	29,191	105,681
2006	48,093	\$	3,317,890	\$	30,954	107,187
2007	46,854	\$	3,444,422	\$	31,925	107,892
2008	48,204	\$	3,690,036	\$	33,850	109,010
2009	47,049	\$	3,682,641	\$	33,467	110,039
2010	46,876	\$	3,702,809	\$	33,286	111,242
2011	46,223	\$	3,882,165	\$	34,534	112,415
2012	45,641	\$	4,018,514	\$	35,482	113,255
2013	45,688	\$	4,141,910	\$	36,126	114,651
2014	46,391	\$	4,296,239	\$	36,889	116,463
2015	47,570	\$	4,567,016	\$	38,686	118,053

Manhattan MSA							
		BLS Employment	:		Personal Income		
	Geary	Pottawatomie	Riley	Geary	Pottawatomie	Riley	
1990	11,212	5,767	19,962	\$ 513,050	\$ 245,749	\$ 1,005,914	
1991	10,477	5,758	19,937	\$ 516,031	\$ 253,232	\$ 1,027,068	
1992	11,282	5,920	20,554	\$ 615,636	\$ 282,060	\$ 1,174,681	
1993	10,979	6,336	21,120	\$ 611,459	\$ 294,638	\$ 1,161,784	
1994	10,407	6,763	21,686	\$ 621,910	\$ 313,612	\$ 1,233,435	
1995	10,526	6,888	22,340	\$ 596,746	\$ 326,135	\$ 1,240,193	
1996	11,331	7,100	22,376	\$ 578,483	\$ 349,795	\$ 1,219,982	
1997	12,008	7,036	23,564	\$ 582,460	\$ 368,644	\$ 1,245,019	
1998	12,201	7,205	23,627	\$ 626,229	\$ 387,664	\$ 1,290,649	
1999	12,299	7,524	23,788	\$ 661,208	\$ 404,863	\$ 1,354,329	
2000	12,385	7,759	24,696	\$ 707,794	\$ 444,748	\$ 1,445,274	
2001	12,126	7,894	24,474	\$ 757,283	\$ 477,264	\$ 1,558,049	
2002	11,977	7,991	24,087	\$ 767,467	\$ 486,547	\$ 1,612,245	
2003	11,994	7,923	24,780	\$ 820,831	\$ 512,164	\$ 1,701,972	
2004	12,523	8,294	25,238	\$ 853,296	\$ 547,989	\$ 1,769,977	
2005	12,734	8,349	25,813	\$ 875,346	\$ 597,896	\$ 1,827,648	
2006	13,518	8,557	26,706	\$ 1,008,189	\$ 664,025	\$ 1,981,821	
2007	13,633	8,570	27,767	\$ 1,179,385	\$ 739,768	\$ 2,143,390	
2008	14,473	9,015	29,273	\$ 1,294,163	\$ 859,462	\$ 2,360,995	
2009	14,626	8,820	28,966	\$ 1,330,311	\$ 881,839	\$ 2,403,618	
2010	14,728	8,660	28,958	\$ 1,394,463	\$ 933,221	\$ 2,605,158	
2011	14,763	8,794	28,186	\$ 1,493,046	\$ 1,011,412	\$ 2,735,299	
2012	13,937	9,283	28,623	\$ 1,529,471	\$ 1,035,795	\$ 2,781,353	
2013	13,646	9,427	28,651	\$ 1,500,865	\$ 1,035,193	\$ 2,709,530	
2014	13,418	9,419	28,829	\$ 1,533,894	\$ 1,055,660	\$ 2,802,537	
2015	13,479	9,432	28,879	\$ 1,587,655	\$ 1,089,699	\$ 2,896,914	

Manhattan MSA									
		Population			Per	Capita	Personal Inc	ome	
	Geary	Pottawatomie	Riley		Geary		awatomie	Riley	
1990	30,558	16,131	67,212	\$	16,789	\$	15,235	\$	14,966
1991	29,853	16,290	65,021	\$	17,286	\$	15,545	\$	15,796
1992	33,850	16,710	68,064	\$	18,187	\$	16,880	\$	17,258
1993	32,295	16,849	67,442	\$	18,934	\$	17,487	\$	17,226
1994	32,781	17,019	68,463	\$	18,972	\$	18,427	\$	18,016
1995	31,796	17,084	68,664	\$	18,768	\$	19,090	\$	18,062
1996	28,424	17,385	65,477	\$	20,352	\$	20,121	\$	18,632
1997	27,699	17,626	64,018	\$	21,028	\$	20,915	\$	19,448
1998	28,203	17,872	63,212	\$	22,204	\$	21,691	\$	20,418
1999	28,162	18,041	62,920	\$	23,479	\$	22,441	\$	21,525
2000	27,845	18,302	63,237	\$	25,419	\$	24,301	\$	22,855
2001	27,821	18,412	62,962	\$	27,220	\$	25,921	\$	24,746
2002	27,679	18,580	62,625	\$	27,727	\$	26,187	\$	25,744
2003	27,532	18,925	62,922	\$	29,814	\$	27,063	\$	27,049
2004	27,149	19,193	64,218	\$	31,430	\$	28,552	\$	27,562
2005	27,099	19,444	64,751	\$	32,302	\$	30,750	\$	28,226
2006	27,708	19,720	66,928	\$	36,386	\$	33,673	\$	29,611
2007	27,951	20,395	67,329	\$	42,195	\$	36,272	\$	31,835
2008	30,276	20,884	69,444	\$	42,746	\$	41,154	\$	33,999
2009	31,537	21,206	69,995	\$	42,183	\$	41,584	\$	34,340
2010	35,285	21,714	71,605	\$	39,520	\$	42,978	\$	36,382
2011	35,301	22,022	73,344	\$	42,295	\$	45,927	\$	37,294
2012	37,949	22,332	76,295	\$	40,303	\$	46,382	\$	36,455
2013	36,935	22,624	75,551	\$	40,635	\$	45,756	\$	35,864
2014	36,722	22,849	74,675	\$	41,770	\$	46,202	\$	37,530
2015	37,030	23,298	75,247	\$	42,875	\$	46,772	\$	38,499

	Topeka BLS Employment							
	Jackson	Jefferson	Osage	Shawnee	Wabaunsee			
1990	2,417	2,650	2,971	88,511	1,083			
1991	2,342	2,766	2,964	87,520	1,048			
1992	2,498	2,890	3,032	88,533	1,066			
1993	2,661	3,005	3,081	90,050	1,083			
1994	2,799	3,159	3,147	92,690	1,118			
1995	2,824	3,290	3,365	94,333	1,155			
1996	3,000	3,456	3,586	95,703	1,193			
1997	3,204	3,407	3,976	96,079	1,214			
1998	3,952	3,448	4,286	97,346	1,250			
1999	4,248	3,269	4,378	98,100	1,309			
2000	4,433	3,318	4,419	100,180	1,310			
2001	4,333	3,520	4,324	100,462	1,463			
2002	4,374	3,603	3,288	98,403	1,318			
2003	4,474	3,553	3,204	96 <i>,</i> 480	1,319			
2004	4,658	3,465	3,189	94,881	1,327			
2005	4,711	3,420	3,147	93,673	1,401			
2006	4,554	3,431	3,168	92,213	1,450			
2007	4,435	3,564	3,331	94,986	1,519			
2008	4,310	3,624	3,468	95,766	1,926			
2009	4,116	3,654	3,392	93,269	1,553			
2010	4,024	3,470	3,328	93,691	1,358			
2011	4,032	3,280	2,853	94,453	1,347			
2012	3,970	3,372	2,816	94,683	1,358			
2013	4,067	3,499	2,817	95,491	1,321			
2014	4,150	3,645	2,871	97,000	1,336			
2015	4,138	3,619	2,857	96,962	1,322			

		Тор	oeka Personal Inco	ome	
	Jackson	Jefferson	Osage	Shawnee	Wabaunsee
1990	\$ 181,517	\$ 257,232	\$ 224,481	\$ 3,100,719	\$ 108,734
1991	\$ 204,671	\$ 262,170	\$ 224,893	\$ 3,172,206	\$ 121,109
1992	\$ 222,151	\$ 287,643	\$ 246,987	\$ 3,366,390	\$ 128,503
1993	\$ 227,062	\$ 292,026	\$ 260,265	\$ 3,523,962	\$ 134,814
1994	\$ 241,365	\$ 320,103	\$ 272,273	\$ 3,700,650	\$ 148,069
1995	\$ 243,094	\$ 328,680	\$ 287,105	\$ 3,855,507	\$ 149,892
1996	\$ 253 <i>,</i> 470	\$ 367,989	\$ 323,797	\$ 4,029,643	\$ 163,185
1997	\$ 256,714	\$ 376,962	\$ 331,976	\$ 4,179,134	\$ 168,330
1998	\$ 279 <i>,</i> 457	\$ 398,662	\$ 341,326	\$ 4,446,549	\$ 171,948
1999	\$ 293,989	\$ 407,909	\$ 350,929	\$ 4,564,883	\$ 176,986
2000	\$ 317,798	\$ 432,058	\$ 370,669	\$ 4,840,862	\$ 187,328
2001	\$ 328,190	\$ 466,885	\$ 400,896	\$ 5,051,043	\$ 208,551
2002	\$ 331,927	\$ 473,135	\$ 396,710	\$ 5,190,281	\$ 186,787
2003	\$ 348,656	\$ 494,086	\$ 411,033	\$ 5,241,872	\$ 183,500
2004	\$ 380,409	\$ 496,956	\$ 420,625	\$ 5,369,638	\$ 194,259
2005	\$ 385,402	\$ 516,116	\$ 424,379	\$ 5,525,313	\$ 192,532
2006	\$ 390,572	\$ 533,185	\$ 434,710	\$ 5,843,702	\$ 193,717
2007	\$ 416,151	\$ 585,341	\$ 469,366	\$ 6,270,596	\$ 209,385
2008	\$ 435,899	\$ 631,789	\$ 512,818	\$ 6,580,475	\$ 277,042
2009	\$ 439,559	\$ 645,934	\$ 523,848	\$ 6,608,397	\$ 274,859
2010	\$ 435,467	\$ 660,191	\$ 533,197	\$ 6,665,294	\$ 278,306
2011	\$ 475,501	\$ 697,993	\$ 560,193	\$ 7,040,264	\$ 295,538
2012	\$ 479,875	\$ 702,842	\$ 570,507	\$ 7,206,335	\$ 309,022
2013	\$ 505,282	\$ 736,301	\$ 600,566	\$ 7,221,241	\$ 324,389
2014	\$ 498,374	\$ 738,711	\$ 595,860	\$ 7,479,227	\$ 323,279
2015	\$ 499,884	\$ 754,996	\$ 601,007	\$ 7,723,738	\$ 325,043

		Τομ	oeka Population		
	Jackson	Jefferson	Osage	Shawnee	Wabaunsee
1990	11,519	15,941	15,253	161,304	6,581
1991	11,568	16,006	15,385	163,029	6,491
1992	11,553	16,242	15,491	164,229	6,499
1993	11,708	16,487	15,713	165,722	6,622
1994	11,845	16,840	16,025	167,162	6,721
1995	11,980	17,253	16,290	167,734	6,779
1996	12,246	17,553	16,372	168,236	6,839
1997	12,325	18,001	16,546	168,547	6,897
1998	12,457	18,273	16,614	169,356	6,855
1999	12,528	18,291	16,590	169,499	6,864
2000	12,655	18,553	16,756	170,027	6,868
2001	12,672	18,640	16,657	170,320	6,801
2002	12,826	18,741	16,689	170,349	6,750
2003	12,983	18,835	16,722	170,854	6,759
2004	13,069	19,042	16,843	171,378	6,823
2005	13,362	19,159	16,869	171,893	6,925
2006	13,356	19,005	16,633	172,986	6,845
2007	13,348	19,049	16,468	174,162	6,998
2008	13,235	19,072	16,439	175,449	7,077
2009	13,369	19,037	16,297	176,786	7,059
2010	13,470	19,133	16,291	178,353	7,032
2011	13,444	18,970	16,339	178,966	7,027
2012	13,419	18,907	16,174	179,011	7,002
2013	13,333	18,827	16,085	178,722	7,019
2014	13,464	18,854	15,955	178,537	6,988
2015	13,338	18,930	15,847	178,725	6,951

	Topeka Per Capita Personal Income							
	Jackson	Jefferson	Osage	Shawnee	Wabaunsee			
1990	\$ 15,758	\$ 16,137	\$ 14,717	\$ 19,223	\$ 16,522			
1991	\$ 17,693	\$ 16,379	\$ 14,618	\$ 19,458	\$ 18,658			
1992	\$ 19,229	\$ 17,710	\$ 15,944	\$ 20,498	\$ 19,773			
1993	\$ 19,394	\$ 17,713	\$ 16,564	\$ 21,264	\$ 20,359			
1994	\$ 20,377	\$ 19,008	\$ 16,991	\$ 22,138	\$ 22,031			
1995	\$ 20,292	\$ 19,051	\$ 17,625	\$ 22,986	\$ 22,111			
1996	\$ 20,698	\$ 20,964	\$ 19,777	\$ 23,952	\$ 23,861			
1997	\$ 20,829	\$ 20,941	\$ 20,064	\$ 24,795	\$ 24,406			
1998	\$ 22,434	\$ 21,817	\$ 20,544	\$ 26,256	\$ 25,084			
1999	\$ 23,467	\$ 22,301	\$ 21,153	\$ 26,932	\$ 25,785			
2000	\$ 25,112	\$ 23,288	\$ 22,122	\$ 28,471	\$ 27,275			
2001	\$ 25,899	\$ 25,047	\$ 24,068	\$ 29,656	\$ 30,665			
2002	\$ 25,879	\$ 25,246	\$ 23,771	\$ 30,469	\$ 27,672			
2003	\$ 26,855	\$ 26,232	\$ 24,580	\$ 30,680	\$ 27,149			
2004	\$ 29,108	\$ 26,098	\$ 24,973	\$ 31,332	\$ 28,471			
2005	\$ 28,843	\$ 26,939	\$ 25,157	\$ 32,144	\$ 27,802			
2006	\$ 29,243	\$ 28,055	\$ 26,135	\$ 33,781	\$ 28,301			
2007	\$ 31,177	\$ 30,728	\$ 28,502	\$ 36,004	\$ 29,921			
2008	\$ 32,935	\$ 33,127	\$ 31,195	\$ 37,506	\$ 39,147			
2009	\$ 32,879	\$ 33,930	\$ 32,144	\$ 37,381	\$ 38,937			
2010	\$ 32,329	\$ 34,505	\$ 32,730	\$ 37,371	\$ 39,577			
2011	\$ 35,369	\$ 36,795	\$ 34,286	\$ 39,339	\$ 42,057			
2012	\$ 35,761	\$ 37,174	\$ 35,273	\$ 40,256	\$ 44,133			
2013	\$ 37,897	\$ 39,109	\$ 37,337	\$ 40,405	\$ 46,216			
2014	\$ 37,015	\$ 39,181	\$ 37,346	\$ 41,892	\$ 46,262			
2015	\$ 37,478	\$ 39,884	\$ 37,926	\$ 43,216	\$ 46,762			

		Wichita BLS Emplo	yment	
	BUTLER	HARVEY	SEDGWICK	SUMNER
1990	11,656	11,336	215,419	5,760
1991	12,032	11,590	214,592	5,694
1992	13,101	11,569	219,184	5,826
1993	13,620	12,082	219,489	5,777
1994	14,009	12,656	220,446	5,938
1995	14,635	13,202	222,914	6,158
1996	15,168	13,426	231,120	6,368
1997	15,319	13,389	242,174	6,650
1998	15,716	13,721	249,304	7,103
1999	15,860	13,696	249,948	7,160
2000	16,038	13,305	249,814	7,122
2001	16,178	13,423	249,863	7,322
2002	16,506	13,364	244,254	7,141
2003	16,548	13,354	238,721	5,996
2004	16,441	13,502	240,161	6,113
2005	16,760	13,915	243,113	5,980
2006	17,183	14,008	249,644	5,720
2007	18,140	13,779	256,843	6,234
2008	18,351	14,438	260,658	6,475
2009	18,223	13,987	246,503	6,230
2010	17,850	13,307	238,625	6,275
2011	17,864	13,272	238,629	6,402
2012	18,238	13,356	239,684	7,008
2013	18,386	13,746	241,990	7,188
2014	18,627	14,001	245,011	7,104
2015	18,957	14,151	248,157	7,136

	Wichita Personal Income								
	BUTLER	HARVEY	SEDGWICK	SUMNER					
1990	\$ 882,681	\$ 538,587	\$ 8,066,512	\$ 434,297					
1991	\$ 933,626	\$ 559,849	\$ 8,546,655	\$ 436,125					
1992	\$ 1,013,253	\$ 598,255	\$ 9,161,019	\$ 470,366					
1993	\$ 1,080,814	\$ 625,626	\$ 9,498,243	\$ 476,384					
1994	\$ 1,148,259	\$ 660,231	\$ 9,645,041	\$ 496,979					
1995	\$ 1,212,918	\$ 665,427	\$ 10,300,877	\$ 502,124					
1996	\$ 1,314,222	\$ 711,942	\$ 11,083,277	\$ 537,779					
1997	\$ 1,426,415	\$ 772,904	\$ 12,024,439	\$ 615,251					
1998	\$ 1,515,965	\$ 783,225	\$ 12,861,922	\$ 603,779					
1999	\$ 1,561,458	\$ 780,357	\$ 12,953,317	\$ 615,073					
2000	\$ 1,628,497	\$ 835,309	\$ 13,569,964	\$ 625,518					
2001	\$ 1,669,060	\$ 841,836	\$ 14,517,013	\$ 633,119					
2002	\$ 1,692,260	\$ 854,808	\$ 14,549,150	\$ 619,512					
2003	\$ 1,744,800	\$ 872,371	\$ 14,510,213	\$ 649,531					
2004	\$ 1,791,839	\$ 909,746	\$ 15,136,310	\$ 685,602					
2005	\$ 1,890,548	\$ 962,840	\$ 15,794,143	\$ 690,295					
2006	\$ 2,066,462	\$ 1,020,685	\$ 17,999,340	\$ 737,250					
2007	\$ 2,247,788	\$ 1,077,634	\$ 19,043,811	\$ 770,783					
2008	\$ 2,475,447	\$ 1,219,493	\$ 21,407,778	\$ 865,970					
2009	\$ 2,339,756	\$ 1,164,610	\$ 19,941,205	\$ 796,945					
2010	\$ 2,386,743	\$ 1,171,034	\$ 19,509,118	\$ 806,601					
2011	\$ 2,502,929	\$ 1,225,641	\$ 22,213,695	\$ 829,493					
2012	\$ 2,609,376	\$ 1,261,961	\$ 23,683,947	\$ 862,250					
2013	\$ 2,696,913	\$ 1,301,738	\$ 24,085,292	\$ 879,544					
2014	\$ 2,720,003	\$ 1,296,168	\$ 25,332,295	\$ 829,428					
2015	\$ 2,823,186	\$ 1,345,703	\$ 25,807,971	\$ 856,847					

	Wichita Population							
	BUTLER	HARVEY	SEDGWICK	SUMNER				
1990	50,672	31,034	404,613	25,845				
1991	51,385	31,129	411,162	25,883				
1992	52,672	31,452	419,696	25,907				
1993	53,689	32,059	424,543	25,973				
1994	54,718	32,316	426,812	25,951				
1995	56,298	32,574	428,629	25,900				
1996	57,337	32,852	432,773	26,019				
1997	58,038	32,980	439,254	26,041				
1998	58,724	33,036	447,971	26,183				
1999	59,186	32,981	451,808	25,974				
2000	59,681	32,894	453,705	25,946				
2001	59,894	32,961	456,887	25,704				
2002	60,473	33,254	461,020	25,500				
2003	61,056	33,422	462,442	25,248				
2004	61,849	33,549	464,021	25,146				
2005	62,547	33,566	467,113	24,795				
2006	63,571	33,659	471,659	24,493				
2007	64,213	33,823	478,479	24,290				
2008	64,941	33,994	486,077	24,238				
2009	65,617	34,547	495,006	24,160				
2010	65,913	34,741	499,315	24,096				
2011	65,870	34,715	501,042	23,844				
2012	65,800	34,820	504,167	23,703				
2013	65,868	34,768	506,570	23,608				
2014	66,183	34,797	509,294	23,498				
2015	66,741	35,073	511,574	23,535				

Wichita Per Capita Personal Income				
	BUTLER	HARVEY	SEDGWICK	SUMNER
1990	\$ 17,420	\$ 17,355	\$ 19,936	\$ 16,804
1991	\$ 18,169	\$ 17,985	\$ 20,787	\$ 16,850
1992	\$ 19,237	\$ 19,021	\$ 21,828	\$ 18,156
1993	\$ 20,131	\$ 19,515	\$ 22,373	\$ 18,342
1994	\$ 20,985	\$ 20,430	\$ 22,598	\$ 19,151
1995	\$ 21,545	\$ 20,428	\$ 24,032	\$ 19,387
1996	\$ 22,921	\$ 21,671	\$ 25,610	\$ 20,669
1997	\$ 24,577	\$ 23,436	\$ 27,375	\$ 23,626
1998	\$ 25,815	\$ 23,708	\$ 28,712	\$ 23,060
1999	\$ 26,382	\$ 23,661	\$ 28,670	\$ 23,680
2000	\$ 27,287	\$ 25,394	\$ 29,909	\$ 24,108
2001	\$ 27,867	\$ 25,540	\$ 31,774	\$ 24,631
2002	\$ 27,984	\$ 25,705	\$ 31,559	\$ 24,295
2003	\$ 28,577	\$ 26,102	\$ 31,377	\$ 25,726
2004	\$ 28,971	\$ 27,117	\$ 32,620	\$ 27,265
2005	\$ 30,226	\$ 28,685	\$ 33,812	\$ 27,840
2006	\$ 32,506	\$ 30,324	\$ 38,162	\$ 30,100
2007	\$ 35,005	\$ 31,861	\$ 39,801	\$ 31,733
2008	\$ 38,118	\$ 35,874	\$ 44,042	\$ 35,728
2009	\$ 35,658	\$ 33,711	\$ 40,285	\$ 32,986
2010	\$ 36,211	\$ 33,708	\$ 39,072	\$ 33,474
2011	\$ 37,998	\$	\$ 44,335	\$ 34,788
2012	\$ 39,656	\$ 36,242	\$ 46,976	\$ 36,377
2013	\$ 40,944	\$ 37,441	\$ 47,546	\$ 37,256
2014	\$ 41,098	\$ 37,249	\$ 49,740	\$ 35,298
2015	\$ 42,301	\$ 38,369	\$ 50,448	\$ 36,407

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I, the undersigned, certify that a true and correct copy of the above and foregoing Notice of Re-Filing Staff's Pre-Filed Direct Testimony Without Redactions - Direct Testimony of Robert Glass, PhD. was served via electronic service this 27th day of January, 2017, to the following:

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