BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF KIT CARSON ELECTRIC COOPERATIVE, INC.'S ADVICE NOTICE NO. 60.	)	
KIT CARSON ELECTRIC COOPERATIVE, INC.,	)	**Case No. 15-00375-UT**
Applicant.	)	

NEW MEXICO
PUBLIC REGULATION
COMMISSION
FILED
2016 FEB 22 PM 2 51

PREPARED DIRECT TESTIMONY AND EXHIBITS
OF
WILLIAM STEVEN SEELYE

I. INTRODUCTION

Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A: My name is William Steven Seelye. My business address is 6001 Claymont Village Drive, Suite 8, Crestwood, Kentucky 40014.

Q: BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A: I am Managing Partner of The Prime Group, LLC. The Prime Group provides consulting services in the areas of strategic planning, cost of service, rate and regulatory support, and training for energy industry clients.

Q: ON WHOSE BEHALF ARE YOU TESTIFYING?

A: I am testifying on behalf of Kit Carson Electric Cooperative, Inc. ("Kit Carson", "KCEC" or the "Cooperative"), a rural electric cooperative headquartered in Taos, New Mexico, which provides service to approximately 28,000 members in northern New Mexico.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A: The purpose of my testimony is: (i) to discuss KCEC's need for an immediate increase in its electric service rates, (ii) to sponsor the revenue requirement analysis supporting the overall level of the increase based on pro forma financial and operating results for the 12 months ended December 31, 2014, (iii) to sponsor the fully allocated class cost of service study based on KCEC's embedded cost of providing electric service for the 12 months ended December 31, 2014, (iv) to describe the proposed allocation of the revenue increases for KCEC, and (v) to support KCEC's proposed rates.

Q: WERE THE REVENUE REQUIREMENT ANALYSIS, CLASS COST OF SERVICE STUDY, AND RATE DESIGN ANALYSIS FOR THE PROPOSED RATES PERFORMED BY THE PRIME GROUP?

A: Yes. The analysis performed by The Prime Group was conducted under the supervision of Dr. Martin J. Blake, who was a principal with The Prime Group. Dr. Blake unexpectedly passed away on October 6, 2015. I took over the supervision of the revenue requirement analysis, class cost of service study, and proposed rate analysis for Kit Carson that was completed by The Prime Group. I have reviewed the work performed under Dr. Blake's supervision and I am in agreement with his analysis and recommendations.

Q: PLEASE SUMMARIZE YOUR TESTIMONY.

A: Kit Carson has an acute and immediate need for a rate increase. KCEC is currently operating at a loss in its margins that will deteriorate further if it is not allowed to increase its rates immediately. Based on pro forma operating and financial results for the 12 months ended December 31, 2014, KCEC requires a revenue increase of $3.5 million. Specifically, KCEC's proposed rates are designed to produce an increase in test-year revenues of $3,488,194 corresponding to an overall increase of 9.02 percent. Of this amount, $1,231,877 corresponds to the increase in purchased power expenses from Tri-State Generation and Transmission Association, Inc. ("Tri-State"). In addition to the increase in purchased power expenses from Tri-State, the need for a rate increase is driven by reduced energy usage by customers which has resulted in lower than expected revenues. The inverted block rate design adopted in Kit Carson's last

rate case has also contributed to the deterioration in the Cooperative's margins. Costs related to the installation of new electric distribution infrastructure and increases in expenses outside of Kit Carson's control have also contributed to the need for a rate increase.

A class cost of service study was conducted using methodologies consistent with standard industry practices as described in the Electric Utility Cost Allocation Manual published by the National Association of Utility Regulatory Commissioners (NARUC). The determination of the proposed rate increase for each rate class was guided by the results of a class cost of service study. In allocating the revenue increase to the classes of service the goal was to bring the class rates of return closer together while recognizing the principles of gradualism and rate continuity. The individual rate components are designed to more closely track the cost of service results than the current rate design. The proposed customer charge is designed to more accurately reflect the fixed costs of providing electric service to each rate class. Kit Carson is also proposing to eliminate the inverted block rate structure for its residential rates. The inverted block rate design combined with reduced residential energy sales per customer have contributed to Kit Carson's declining margins. The inverted block rate design is not cost based. Because Kit Carson's costs are not inverted, an inverted block rate design cannot be supported based on cost of service. The Cooperative is proposing a flat energy charge that more accurately reflects the actual cost of providing service to residential customers.

Q: HOW IS YOUR TESTIMONY ORGANIZED?

A: My testimony is divided into the following sections: (I) Introduction, (II) Qualifications, (III) Kit Carson's Need for Immediate Rate Relief, (VI) Analysis of Revenue Requirements, (V) Class Cost of Service Study, (VI) Apportionment of the Revenue Increase to Rate Classes, and (VII) Rate Design.

II. QUALIFICATIONS

Q: PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PRIOR WORK EXPERIENCE.

A: I received a Bachelor of Science degree in Mathematics from the University of Louisville in 1979. I have also completed 54 hours of graduate level course work in Industrial Engineering and Physics. From May 1979 until July 1996, I was employed by Louisville Gas and Electric Company ("LG&E"), the sister company of Kentucky Utilities. From May 1979 until December 1990, I held various positions within the Rate Department of LG&E. In December 1990, I became Manager of Rates and Regulatory Analysis. In May 1994, I was given additional responsibilities in the marketing area and was promoted to Manager of Market Management and Rates. I left LG&E in July 1996 to form The Prime Group, LLC, with Dr. Martin J. Blake. Since then, we have performed cost of service studies, developed revenue requirements and designed rates for over 150 investor-owned, cooperative and municipal utilities across North America. A more detailed description of my qualifications is included in KCEC Exhibit No. ___ (WSS-1).

Q: HAVE YOU EVER TESTIFIED IN UTILITY RATE PROCEEDINGS BEFORE ANY STATE OR FEDERAL REGULATORY COMMISSIONS?

A: Yes. I have extensive experience testifying in utility rates proceedings and I testified in over 60 regulatory proceedings in 12 different jurisdictions. A listing of my testimony in other proceedings is included in KCEC Exhibit No. ___ (WSS-1).

Q: HAVE YOU PROVIDED RATE ANALYSIS AND SUPPORT FOR OTHER ELECTRIC COOPERATIVES IN NEW MEXICO?

A: Yes. I developed electric rates for Sierra Electric Cooperative and Springer Electric Cooperative in the late 1990's. I am currently supporting the development of rate surcharges for another New Mexico rural electric cooperative that they expect to file this calendar year.

Q: HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION OR ITS PREDECESSOR COMMISSIONS?

A: No.

Q: PLEASE BRIEFLY DESCRIBE YOUR WORK AND TESTIMONY EXPERIENCE AS THEY RELATE TO TOPICS ADDRESSED IN YOUR TESTIMONY?

A: I have performed or supervised the development of revenue requirement, cost of service, and rate studies for over 150 utilities throughout North America. I have also testified on numerous occasions regarding the rates proposed by electric, gas and water utilities.

III. KIT CARSON'S NEED FOR IMMEDIATE RATE RELIEF

Q: DOES KIT CARSON HAVE AN IMMEDIATE NEED FOR A RATE INCREASE?

A: Yes. Based on my analysis of KCEC's financial and operating results, it is my expert opinion that the Cooperative has an acute and immediate need of a rate increase for its electric utility operations. The Cooperative's interest coverage ratios are dangerously low and if KCEC is not allowed to increase its rates soon, the Cooperative will be at growing risk of having insufficient revenues to cover its current expenses which may result in adverse impacts to its ongoing ability to provide safe and reliable service. KCEC's margins were low during the 2014 test year for the rate case, but based on pre-audit financial statements for 2015, Kit Carson's financial condition has deteriorated further and now KCEC has negative margins. In my expert opinion, Kit Carson's current financial condition is fast approaching a perilous state absent rate relief in the near term. In my 36 years of experience in the utility industry, I have never seen or heard of a state commission concluding it is in the public interest to allow a financially distressed utility to continue in such a state without rate relief. Therefore, Kit Carson has an immediate need for rate relief.

Q: ARE THERE PARTICULAR FINANCIAL METRICS OR RATIOS FOR KCEC THAT YOU FIND ALARMING?

A: Yes. I am particularly concerned with the level of Kit Carson's times interest earned ratios, debt service coverage ratios, and equity ratios. Times interest earned and debt service coverage ratios are generally considered to be solvency

ratios because they measure a cooperative's ability to make interest and debt service payments. Since interest payments are made on a long-term basis, they are generally considered to be ongoing, fixed costs. If the cooperative cannot make its debt and other payments, it could suffer an impairment in its operations and eventually go bankrupt. Therefore, both times interest earned ratios and debt service coverage ratios are extremely important. The difference between the two types of ratios is that the time interest earned ratios relate more to the *earnings* coverage of the cooperative whereas the debt service coverage ratios (because depreciation expenses are included in the numerator and principal payments are included in the denominator in the calculation of debt service coverage) relate more to the overall *cash* coverage of the cooperative. The difference between the two types of ratios is roughly analogous to the difference between an income statement and a cash flow statement in accounting. Both types of ratios are meaningful and both types are relevant to the assessment of solvency.

Due to their importance as measures of solvency, they are closely monitored by financial institutions that provide loans to electric cooperatives, and minimum thresholds for these ratios (or some form of these ratios) are almost always included in loan agreements that cooperatives enter into with lending institutions and banks to borrow money.

Equity ratios are also important in that they measure the relative amount of equity included in the cooperative's total capitalization and therefore provide a measure of the long-term financial reserves that would be available to the cooperative for dealing with financial stress and meeting its payment obligations

over time. Consequently, equity ratios are also closely monitored by financial institutions that provide loans to electric cooperatives and minimum equity percentage thresholds are often included in loan agreements with electric cooperatives.

As will be discussed below, all three of these financial metrics – time interest earned, debt service coverage, and percentage of equity – indicate that Kit Carson has an immediate need for a rate increase. Without an immediate increase in revenues, the financial stress on the Cooperative will only be exacerbated, and its ability to provide safe and reliable service could be impacted.

Q: WHICH TIMES INTEREST EARNED RATIOS ARE TYPICALLY USED TO ASSESS THE FINANCIAL CONDITION OF ELECTRIC COOPERATIVES?

A: The two times interest earned ratios that are typically used to measure solvency for electric cooperatives are the RUS Times Interest Earned Ratio ("TIER" or "RUSTIER") and the Operating Times Interest Earned Ratio ("OTIER"). TIER is calculated by dividing the sum of (i) interest on long-term debt and (ii) total margins by (iii) interest on long-term debt, as follows:

$$TIER = \frac{Interest\ on\ LT\ Debt + Total\ Margins}{Intetest\ on\ LT\ Debt}$$

OTIER is calculated by dividing the sum of (i) interest on long-term debt, (ii) operating margins, and (iii) cash credits (if applicable) by (iv) interest on long-term debt, as follows:

$$OTIER = \frac{Interest\ on\ LT\ Debt + Operating\ Margins + Cash\ Credits}{Intetest\ on\ LT\ Debt}$$

The primary difference between the two ratios is that TIER includes total margins and therefore includes accrued capital credits from the distribution cooperative's power supplier or other parties, which are most often not provided in cash; whereas the OTIER generally includes only the capital credits provided to the distribution cooperative in the form of cash credits. Because the OTIER does not include non-cash capital credits from power suppliers, of the two times interest earned ratios, the OTIER is generally considered the more accurate measure of solvency for the cooperative, and is more frequently used by cooperatives determining their revenue requirements. For this reason, I will focus more on the OTIER rather than the TIER.

Q: WHAT WAS KIT CARSON'S *OTIER* FOR THE TEST YEAR?

A: Based on *unadjusted* financial and operating results for the 12 months ended December 31, 2014 (the test year), KCEC had an OTIER of only 1.24.

Q: HOW DOES KIT CARSON'S 1.24 *OTIER* COMPARE TO OTHER ELECTRIC COOPERATIVES NATIONALLY?

A: KCEC's unadjusted 1.24 OTIER compares to a median of 1.93 for all U.S. electric cooperatives as reported by the National Rural Utilities Cooperative Finance Corporation (CFC) in its 2014 Key Ratio Trend Analysis (2014 KRTA) for the calendar year 2014, and compares to a median of 2.09 for electric cooperatives with 25,000 to 29,999 members. Without considering pro-forma adjustments to test year operating results, KCEC's OTIER was significantly below the median value for these two panels of cooperatives listed by the CFC. Kit Carson should be given an opportunity to achieve an OTIER that is comparable to other electric cooperatives in the U.S., particularly cooperatives that are comparable in size to KCEC. Therefore, based on the norm for cooperative electric utilities, Kit Carson's OTEIR of only 1.24 for the test year is clearly inadequate.

Q: HOW DOES KIT CARSON'S 1.24 *OTIER* COMPARE TO OTHER ELECTRIC COOPERATIVES IN NEW MEXICO?

A: With an OTIER of only 1.24, Kit Carson has one of the lowest OTIERs of any electric cooperative in New Mexico based on financial results for 2014, particularly among cooperatives with more than 2,000 customers. While it would be inappropriate to limit the determination of OTIER to just New Mexico, it is significant that Kit Carson has one of the lowest OTIERs in the state. The OTIERs for the electric cooperatives in New Mexico are on average lower than in

other states, but Kit Carson's OTIER is even toward the bottom of New Mexico cooperatives.

Q: ARE KCEC'S PRE-AUDIT FINANCIAL RESULTS FOR 2015 AVAILABLE?

A: Yes.

Q: WHAT IS KCEC'S *OTIER* FOR 2015 ON A PRE-AUDIT BASIS?

A: ***The 2015 unadjusted OTIER is now 0.96.*** An OTIER less than 1.00, particularly in light of the downward trend in the OTIER that the Cooperative has experienced over the past several years, indicates that KCEC has an ***immediate need for a rate increase***. Without immediate rate relief, I would anticipate that the Cooperative will be forced to take financial actions that may adversely impact its ability to provide safe and reliable service.

Q: WHICH DEBT SERVICE COVERAGE RATIOS ARE TYPICALLY USED TO ASSESS THE FINANCIAL CONDITION OF ELECTRIC COOPERATIVES?

A: The two debt service coverage ratios that are typically used to assess the health of electric cooperates are the Debt Service Coverage ratio ("DSC") and the Operating Debt Service Coverage ratio ("ODSC"). The DSC is calculated by dividing the sum (i) interest on long-term debt, (ii) total margins, and (iii) depreciation expenses by the sum of (iv) interest on long-term debt and (v) principal payments on long-term debt, as follows:

$$DSC = \frac{Interest\ on\ LT\ Debt + Total\ Margins + Depreciation}{Intetest\ on\ LT\ Debt + Principal\ Payments\ on\ LT\ Debt}$$

ODSC is calculated by dividing the sum of (i) interest on long-term debt, (ii) operating margins, (iii) cash credits (if applicable), and (iv) depreciation expenses by the sum of (v) interest on long-term debt and (vi) principal payments on long-term debt, as follows:

$$ODSC = \frac{Interest\ on\ LT\ Debt + Oper\ Margins + Cash\ Credits + Depreciation}{Intetest\ on\ LT\ Debt + Principal\ Payments\ on\ LT\ Debt}$$

Again, the primary difference between the two ratios is that DSC includes total margins and therefore includes accrued capital credits from the distribution cooperative's power supplier or other parties, which are most often not provided in cash; whereas the ODSC includes only the capital credits provided to the distribution cooperative in the form of cash credits. Because the ODSC does not include non-cash capital credits from power suppliers, of the two times interest earned ratios, the ODSC is again generally considered the more accurate measure of solvency for the cooperative.

Q: WHAT WAS KIT CARSON'S *ODSC* FOR THE TEST YEAR?

A: Based on *unadjusted* financial and operating results for the 12 months ended December 31, 2014 (the test year), KCEC had an OTIER of only 1.06.

Q: HOW DOES KIT CARSON'S 1.06 *ODSC* COMPARE TO OTHER ELECTRIC COOPERATIVES NATIONALLY?

A: KCEC's unadjusted 1.06 ODSC compares to a median of 1.73 for all U.S. electric cooperatives as reported by CFC's 2014 KRTA for the calendar year 2014 and compares to a median of 1.84 for electric cooperatives with 25,000 to 29,999 members. As is the case with the OTIER, Kit Carson's ODSC is significantly below the norm for electric cooperatives in the U.S.

Q: WHAT WAS KIT CARSON'S EQUITY AS A PERCENTAGE OF ASSETS AS OF DECEMBER 31, 2014?

A: As of December 31, 2014, KCEC's equity as a percentage of total assets (equity percentage) was only 27.79 percent. This level of equity is troubling for a distribution cooperative and well below the norm for the industry. KCEC requires a rate adjustment to increase its equity percentage *over time* to a level that is more representative of the electric cooperative industry and a level that will help prevent KCEC from becoming financially distressed.

Q: HOW DOES KIT CARSON'S EQUITY PERCENTAGE OF 27.79 PERCENT COMPARE TO OTHER ELECTRIC COOPERATIVES NATIONALLY?

A: KCEC's equity percentage of 27.79 percent compares to a median of 43.92 percent for all U.S. electric cooperatives reported in CFC's 2014 KRTA and compares to a median of 46.06 percent for electric cooperatives with 25,000 to 29,999 members. It is important for Kit Carson to be allowed to increase its rates so that it can begin to rebuild its equity percentage.

Q: DOES KIT CARSON'S LOW EQUITY PERCENTAGE MEAN THAT KIT CARSON HAS TAKEN ON TOO MUCH DEBT?

A: Not at all. The low equity percentage is primarily a result of KCEC's deteriorating annual margins. Since 2011, KCEC's margins have simply not kept pace with the growth in its assets resulting from adding required distribution infrastructure. From 2011 to 2014, KCEC's total assets increased from $116.1 million to $153.5 million, which represents an increase of 32.22 percent. During this same time period, KCEC's total margins and equities increased from $40.1 million to $42.6 million, which corresponds to an increase of only 6.23 percent. During this same period from 2011 to 2014, KCEC's equity percentage went from 31.52 percent to 27.79 percent. As can be observed from the increases in equity as compared to the increases in total debt, what is clearly driving the decrease in the equity percentage is the failure of KCEC's margins to keep pace with necessary growth in assets. KCEC requires a revenue increase that will allow it to use internal cash generation instead of just debt to fund future replacement of distribution facilities and the installation of new facilities necessary to accommodate customer growth that will likely occur.

Q: DOES KIT CARSON HAVE TOO MUCH DEBT?

A: No. KCEC has too little margins and equity. KCEC's equity percentage has decreased because of low margins from 2011 to 2014. KCEC's debt per customer is consistent with the debt levels of other cooperatives. The CFC's 2014 KRTA shows that for 2014, and years prior, Kit Carson was right in the middle in terms of long-term debt per consumer. The 2014 KRTA also shows that when

compared to the other New Mexico rural electric cooperatives, Kit Carson's long-term debt per customer ranks 7th out of 16 New Mexico cooperatives. Thus, Kit Carson's long term debt is right in the middle when compared to cooperatives nationally and other New Mexico cooperatives. While KCEC's debt per customer is not out of line with other cooperatives, its equity percent certainly is out of line with other utilities. In fact, its equity percentage is dangerously low.

Q: WHAT FACTORS HAVE DRIVEN KIT CARSON'S NEED FOR A RATE INCREASE?

A: Quite simply, increases in revenues have not kept pace with increases in costs. A number of factors have had the effect of either depressing revenues or increasing expenses, with the cumulative effect of all of the factors having a significant adverse impact on KCEC's margins. A big part of the problem is that, despite an increase in the total number of customers served, KCEC has been experiencing a significant decrease in kWh sales over the past decade, both in terms of total kWh sales and kWh sales per customer. From 2006 to 2014, the average number of customers Kit Carson served *increased* from 27,449 to 28,433 customers, corresponding to an increase in total customers of 3.6 percent. Yet, during this same period, Kit Carson's annual kWh sales *decreased* from 328.8 GWh to 281.9 GWh, corresponding to a decrease in sales of 14.2 percent. Consequently, the average sales per customer went from 998 kWh per customer in 2006 to 826 kWh per customer in 2014. As can be seen from the following graph (Figure 1), this downward trend occurred basically unabated during the entire period. The dotted

line on the graph depicts a linear trend-line for the period showing a sharp decrease in kWh sales per customer.

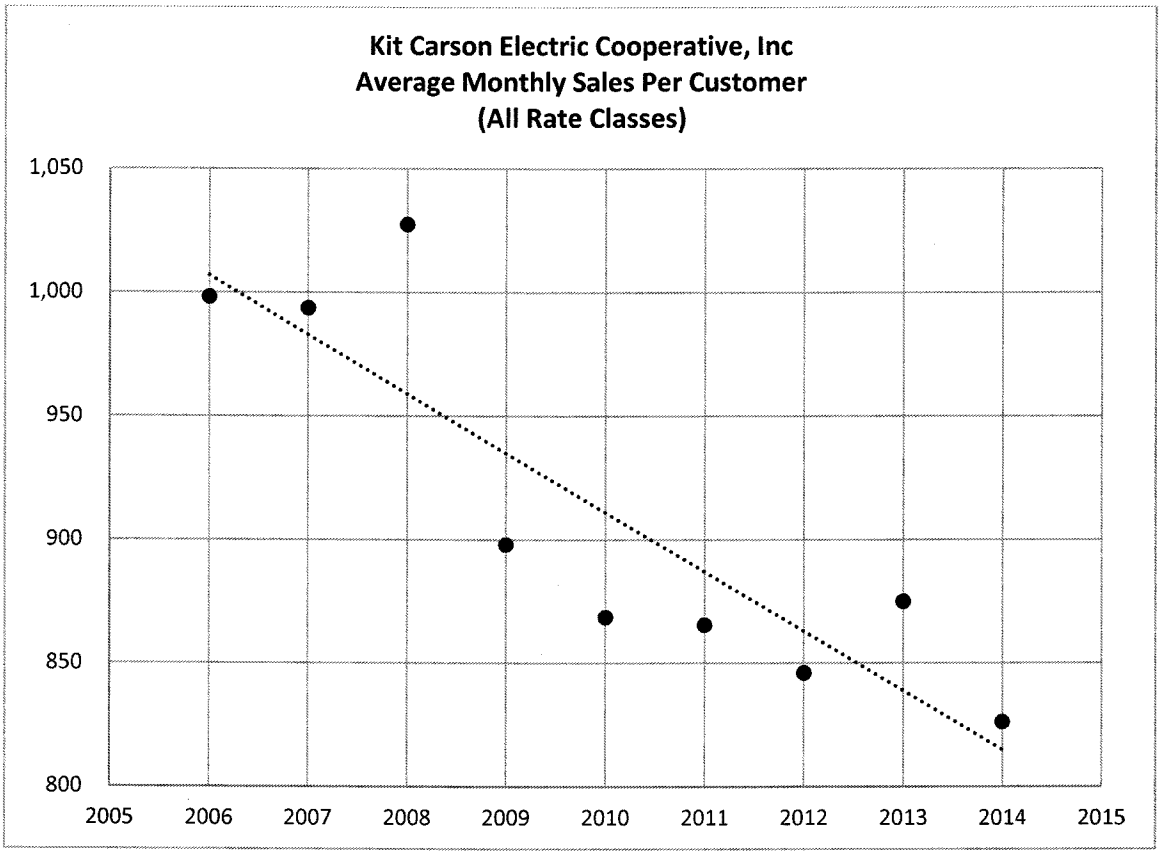

FIGURE 1

Q: WHAT ARE THE CONSEQUENCES OF ADDING CUSTOMERS BUT LOSING SALES?

A: When an electric cooperative (or any utility) adds customers, the cooperative must add distribution infrastructure to serve the new customers. For example, when the cooperative adds new customers, it will typically add poles, transformers, overhead or underground conductor, service lines, and meters to provide basic

electric service to the new customers. The cooperative may also have to increase substation capacity to serve new customers or even increase the capacity on existing distribution lines in areas of high customer growth. Consequently, the cooperative's fixed costs continue to increase as a result of adding new customers. But if a significant portion of the cooperative's fixed costs are recovered through an energy charge rather than a fixed monthly charge, such as a customer charge, then when a cooperative adds customers but loses kWh sales, as KCEC has done, its fixed costs continue to rise but its revenues cannot keep pace with the increase in fixed costs.

Q: HAS THE INCLINING (OR INVERTED) BLOCK RATE THAT WAS IMPLEMENTED FOR THE RESIDENTIAL CLASS IN KCEC'S LAST RATE CASE EXACERBATED THE PROBLEM?

A: Yes, it absolutely has. Since its last rate adjustment, KCEC has not only experienced a decrease in total usage per customer, but it has also experienced a decrease in its residential usage per customer. In 2011, the average monthly usage for a residential customer served by KCEC was 483 kWh; but in 2014, the average monthly usage for a residential customer was 462 kWh. With an inverted block rate, the charge per kWh increases as customers use more energy in higher usage blocks. This rate design was implemented in KCEC's last rate case. For KCEC's current residential rate, the charges increase at higher usage levels as follows:

First 750 kWh	10.5 ¢ per kWh
751 to 1,250 kWh	11.5 ¢ per kWh
Over 1,250 kWh	12.5 ¢ per kWh

With this rate design, as KCEC's customers used less energy, customers would use less energy in the higher-price higher-usage blocks. In other words, proportionally more energy is now collected in the lower-priced low-usage block than the higher-priced high-usage blocks than during KCEC's last rate case.

Q: CAN YOU DEMONSTRATE THAT THE INVERTED BLOCK RATE HAS ADVERSELY AFFECTED KIT CARSON'S REVENUE STREAM?

A: Yes. The billing determinants used to set KCEC's rates in its last rate case were based on the 12 months ended December 2009. The following are the non-seasonal residential billing determinants for each block that were used to set rates in the last rate case, along with the percentage of sales in each block to the total:

Block	**kWH Sales**	**% of Total**
First 750 kWh	62,323,854	51.81%
751 to 1,250 kWh	27,770,516	23.08%
Over 1,250 kWh	30,205,021	25.11%
Total Percentage		100.00%

The following are the non-seasonal residential billing determinants for the test year in the current rate case (the 12 months ended December 31, 2014):

Block	kWH Sales	% of Total
First 750 kWh	66,285,300	53.82%
751 to 1,250 kWh	30,559,170	24.81%
Over 1,250 kWh	26,310,056	21.36%
Total Percentage		100.00%

As can be seen from these two tables, a significantly smaller percentage of total kWh sales are now collected in the high-priced tail block (over 1,250 kWh) in 2014 than during the test year used to set KCEC's current rates. In 2009, 25.11 percent of residential sales would have been billed at the high-priced tail block, but now only 21.36 percent of total sales are billed at the tail block. Because the first two consumption blocks are from 1 to 2 ¢ per kWh lower than the tail block, KCEC would have experienced a significant impact on its revenues due to the implementation of the inverted block rate design and the corresponding shift in energy patterns on KCEC's system.

Q: WHAT OTHER FACTORS ARE DRIVING THE NEED FOR KIT CARSON TO INCREASE ITS RATES?

A: As stated in the Direct Testimony of Mr. Luis A. Reyes, Jr., the need for a rate increase has also been driven by a wholesale rate increase from KCEC's power supplier, Tri-State, and by an underlying financial underperformance by the Cooperative. Tri-State's wholesale rate adjustment alone increases KCEC's test-year purchased power expenses by over $1.2 million, which represents over 34

percent of KCEC's proposed rate increase. It should be noted that while KCEC has continually protested the almost annual power cost increases from Tri-State, Kit Carson's efforts to exit from Tri-State's membership have not yet reached a final determination nor have final approvals for exit from Tri-State and the purchase of capacity and energy from other power suppliers been received. Therefore, at this point in time, no exit fees from KCEC's exit from Tri-State have been incurred by KCEC, and thus no such fees have been included in the revenue requirements for this filing. Nevertheless, KCEC plans to continue to evaluate its purchased power options and will pursue purchased power agreements with alternative power suppliers if pursuing such agreements is in the long-term best interests of KCEC's members.

Q: ARE THERE ANY OTHER FACTORS THAT HAVE DRIVEN KIT CARSON'S NEED FOR A RATE INCREASE?

A: Yes. In addition to increased power costs, KCEC's need for a rate increase is driven by increased investment in distribution infrastructure and increased operation and maintenance expenses. KCEC's rates were last increased in September, 2011. As explained in Mr. Reyes' Direct Testimony, from December 31, 2011 to December 31, 2014, KCEC's plant in service increased from $120,786,016 to $134,889,485 due to capital investments made into Kit Carson's system, which corresponds to an increase of $14,103,469, representing an 11.68 percent increase in plant in service. As a result of its capital spending for distribution infrastructure, KCEC's annual write-off of these expenditures through depreciation expenses has increased by more than 10 percent from 2011 to 2014.

Recovery of capital expenditures for its investment in electric utility distribution infrastructure is one of the principal drivers for KCEC's need for rate relief. As Mr. Reyes' Direct Testimony also explains, KCEC's operation and maintenance expenses have also increased since its last rate case as a result of (i) increased tree-trimming expenditures, (ii) higher property tax expenditures, and (iii) increased tribal right-of-way access costs.

Q: ARE THERE OTHER FACTORS THAT HAVE CONTRIBUTED TO KCEC'S NEED FOR A RATE INCREASE?

A: There are a large number of cost increases that when considered by themselves are small, but when considered as a group these small cost increases add up to a more significant sum. Among these small cost increases are general office expenses, vehicle maintenance, and general distribution maintenance. These increases, as well as the more significant factors already discussed have all had a cumulative adverse effect on Kit Carson's margins, creating a need for a rate increase.

IV. *ANALYSIS OF REVENUE REQUIREMENT*

Q: HOW ARE REVENUE REQUIREMENTS DETERMINED FOR COOPERATIVE UTILITIES?

A: For both cooperative and investor-owned utilities, revenue requirements include depreciation expenses, operation and maintenance expenses, interest expenses, taxes and net margins. Unlike investor-owned utilities, cooperatives typically do not pay income taxes. Also, net margins are generally determined in a different manner for cooperative utilities than for investor-owned utilities. While net

margins (or net returns) for investor-owned utilities are generally developed based on the determination of an appropriate return on equity (ROE), margins for cooperatives are typically determined based on TIER, OTIER, DSC, ODSC, or similar measurements. In my experience working with electric cooperatives during the last 20 years I have been with The Prime Group, OTIER seems to be the most common metric used to determine revenue requirements, and is the metric that is preferred by most of our clients, although some form of DSC or even rate of return on rate base are sometimes preferred by cooperatives.

Q: ARE COSTS FROM KIT CARSON'S UNREGULATED OPERATIONS OR AFFILIATE OPERATIONS INCLUDED IN KCEC'S REVENUE REQUIREMENTS FOR THIS FILING?

A: No. The data used in preparing the revenue requirement reflect only data from Kit Carson's electric operations and do not include data from Kit Carson's unregulated operations or affiliate operations. This was accomplished by utilizing only those accounts associated with providing electric utility service pursuant to the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts and checking to ensure that the data included in these accounts does not relate to any of Kit Carson's diversified businesses. This was done to ensure that the rates developed from the revenue requirement and cost of service study do not subsidize unregulated activities, such as broadband/internet or the propane business.

Q: DESCRIBE THE PROCESS USED TO DETERMINE THE REVENUE INCREASE?

A: As mentioned earlier, the test year used to determine the proposed revenue increase is the 12 months ended December 31, 2014. Therefore, we started by constructing an unadjusted net margin statement for the test year. As can be seen in Column A of KCEC Exhibit No. ___ (WSS-2), KCEC's unadjusted test-year net operating margins were $772,375, which corresponds to an OTIER of 1.24. Test-year operating results were then adjusted for certain known and measurable changes in operations. The pro forma adjustments are included in Column B of the exhibit. Column C shows the calculation of test-year net margins after including the effect of the pro forma adjustments. As can be seen in Column C, KCEC's pro forma net margins for the test year are a *loss* of $697,573, resulting in an OTIER of only 0.78. Column D shows the increase that is necessary to produce an OTIER of 1.90. Net margins are then calculated in Column E giving effect to a revenue increase of $3,530,00. As can be seen in Column E, the net margins after giving effect to the revenue increase are $2,832,427, which produced an OTIER of 1.90.

Q: WILL UTILIZING AN OTIER OF 1.90 PRODUCE RATES THAT ARE JUST AND REASONABLE?

A: Yes. A fundamental measure of whether utility rates are just and reasonable is whether the revenue requirement upon which the rates are based is sufficient to meet its operational needs and debt service obligations. This fundamental standard has evolved from two cases now firmly accepted as regulatory ratemaking standards for determining whether a regulated utility's rates are just and reasonable. These decisions by the U. S. Supreme Court include: *Bluefield*

Water Works and Improvement Co. v. Public Service Commission of West Virginia, 262 U. S. 679 (1923) ("*Bluefield*") and *Federal Power Commission v. Hope Natural Gas Co.*, 320 U. S. 591(1944) ("*Hope*"). In *Bluefield,* the Supreme Court found that the rates of a regulated utility "should be reasonably sufficient to assure confidence in the financial soundness of the utility." In *Hope,* the Supreme Court found that a regulated utility's rates should be sufficient to provide earnings that are "commensurate with ... other enterprises having corresponding risks." These two standards are often referred to as the *Bluefield* and *Hope* standards, and they apply to the rate regulation of electric cooperatives just as they would for investor-owned utilities.

KCEC is proposing rates that are designed to allow it to achieve an OTIER of 1.90 on a going-forward basis. As stated earlier in my testimony, the median OTIER was 1.93 for all U.S. electric cooperatives as reported by CFC's 2014 KRTA, and the median OTIER was 2.09 for electric cooperatives with 25,000 to 29,999 members. Therefore, an OTIER of 1.90 would be on the bottom end of a range that could be found for other electric cooperatives. KCEC's proposed rates will thus provide revenues to achieve margins comparable to other electric cooperatives in the U.S. and thereby provide the opportunity for earnings "commensurate with ... other enterprises having corresponding risks" in accordance with the *Hope* decision. With an OTIER of 1.90, KCEC's proposed rates will also provide the Cooperative the opportunity to achieve earnings that "should be reasonably sufficient to assure confidence in the financial soundness of the utility," in accordance with the *Bluefield* decision.

Q: WAS THE OTIER OF 1.90 APPROVED BY KIT CARSON'S BOARD?

A: Yes. The Prime Group recommended an OTIER higher than 1.90 but Kit Carson's Board of Trustees (the "Board") was concerned about the impact on customers of implementing a rate increase based on a higher OTIER. The approval of the 1.90 OTIER by Kit Carson's Board was predicated on increasing the customer charge to a more appropriate level and eliminating the inverted block structure. Because these two rate design changes have the effect of reducing financial risks to the Cooperative, it was determined that an OTIER of only 1.90 could be used if these two rate design changes were adopted.

Q: PLEASE DESCRIBE THE PRO FORMA ADJUSTMENTS THAT WERE INCLUDED IN THE DETERMINATION OF THE REQUIRED REVENUE INCREASE.

A: The following pro forma adjustments were included in the revenue requirement analysis to reflect known and measurable changes in test year operations: (1) adjustment giving effect to the Tri State rate increase; (2) adjustment giving effect to labor cost increases; (3) adjustment to amortize estimated rate case expenses; (4) adjustment to depreciation and metering expenses for new prepaid metering equipment and software; and (5) adjustment to interest expenses.

Q: PLEASE DESCRIBE THE ADJUSTMENT GIVING EFFECT TO THE TRI-STATE RATE INCREASE.

A: As mentioned earlier, one of the drivers for the rate increase is the rate modifications implemented by Tri-State. In 2015, Tri-State modified its wholesale rates to implement a demand charge based on coincident peak demand.

KCEC Exhibit No. ___ (WSS-3) shows the development of the pro forma adjustment which calculates the adjustment as the difference between actual test-year billings from Tri-State and annual billings under the new rate design. The adjustment assumes that KCEC's purchased power adjustment revenues would be rolled into base rates and a new base purchased power cost determined.

Q: PLEASE DESCRIBE THE ADJUSTMENT FOR THE LABOR COST INCREASE.

A: This adjustment represents a 3.0 percent known and measurable increase in labor expenses for 2016. In the adjustment shown in KCEC Exhibit No. ___ (WSS-4), the pro forma adjustment is determined by applying 3.0 percent to test year-labor expenses.

Q: PLEASE DESCRIBE THE ADJUSTMENT FOR THE AMORTIZATION OF RATE CASE EXPENSES.

A: The purpose of this adjustment is to amortize the estimated rate case expenses for the current proceeding over a three-year period. The actual rate case expenses of $427,545 from KCEC's last rate case were used to estimate the expenses in this proceeding. To calculate the adjustment, the total is simply divided by 3 years. See KCEC Exhibit No. ___ (WSS-5).

Q: PLEASE DESCRIBE THE ADJUSTMENT TO DEPRECIATION AND METERING EXPENSES FOR NEW PREPAID METERING EQUIPMENT.

A: After the test year, Kit Carson invested in a new pre-paid metering system. This adjustment represents depreciation expenses on the metering equipment and

software as well as expenses for the support of the system. The calculation of this adjustment in shown in KCEC Exhibit No. ___ (WSS-6).

Q: PLEASE DESCRIBE THE ADJUSTMENT TO INTEREST EXPENSES.

A: This adjustment represents the elimination of $139,937 of test-year interest expenses that were unrelated to the electric utility and the addition of interest on a new loan. The calculation of this adjustment in shown in KCEC Exhibit No. ___ (WSS-7).

V. *CLASS COST OF SERVICE STUDY*

Q: DID THE PRIME GROUP PREPARE A COST OF SERVICE STUDY FOR KIT CARSON'S ELECTRIC OPERATIONS BASED ON THE FINANCIAL AND OPERATING RESULTS FOR THE 12 MONTHS ENDED DECEMBER 31, 2014?

A: Yes. The Prime Group prepared a fully allocated, embedded cost of service study for Kit Carson's electric operations. The objective in performing the cost of service study is to fairly allocate Kit Carson's costs to the various customer classes based on actual usage patterns and to determine the contribution to Kit Carson's margins from each customer class, which provides an indication as to whether Kit Carson's electric service rates reflect the cost of providing service to each customer class. The allocation methodology used in the cost of service study ensures that a customer class is allocated costs only if the class actually uses the resources for providing electric service as indicated by the relevant cost driver. Thus, customers only have to pay for what they actually use and are not allocated costs if they do not rely on the resources used to provide electric service.

Q: AS BACKGROUND FOR YOUR DISCUSSION OF COST OF SERVICE, PROVIDE AN OVERVIEW OF THE COOPERATIVE'S COST STRUCTURE AND HOW THESE COSTS SHOULD BE RECOVERED THROUGH RATES.

A: The Cooperative's costs need to be addressed and recovered in two major categories, purchased power costs and distribution costs, because the drivers for these two major cost categories are very different. Purchased power costs are variable in the sense that if customers use fewer kWh and kW, the Cooperative's purchased power bill decreases. Distribution costs are largely fixed, because once distribution equipment is installed to meet customer needs these costs do not change.

The Cooperative incurs purchased power costs to meet the needs of its customers for electric energy. In developing rates to recover these purchased power costs, the goal is to reflect the costs that the customer causes the Cooperative to incur on the customer's behalf. To accomplish this and to minimize the risk of non-recovery, the Cooperative's retail rates should mirror as closely as possible the wholesale rates that the supplier charges to the Cooperative. For example, if retail rates were assessed solely on kWh usage, a portion of the demand charges assessed by the supplier could go unrecovered if customer's load factors change from the load factors in the test year that was used to set the retail rates.

Distribution costs are primarily fixed costs and the goal is to recover these fixed costs as fairly as possible from all of the customers that the Cooperative serves. Because most of the distribution facilities are jointly used by customers, these costs cannot be directly assigned and must be allocated fairly on some basis that reflects customer usage and the costs that the customer caused the Cooperative to incur.

Q: DID YOU DEVELOP THE MODEL USED TO PERFORM THE COST OF SERVICE STUDY?

A: Yes. I developed the spreadsheet model used to perform the cost of service study submitted in this proceeding. The cost of service study results are attached as KCEC Exhibit No 4 (WSS-8) and KCEC Exhibit No. ___ (WSS-9) to my Direct Testimony.

Q: WHAT PROCEDURE WAS USED IN PERFORMING THE COST OF SERVICE STUDY?

A: The three traditional steps of an embedded cost of service study are functional assignment, classification, and allocation. The cost of service study was prepared using the following procedure: (1) costs were functionally assigned (functionalized) to the major functional groups; (2) costs for each functional group were then classified by relevant cost driver as commodity-related, demand-related, or customer-related; and (3) costs were allocated to the rate classes based on each customer class' pro rata share of the relevant cost driver. This three-step process is depicted in the following diagram (Figure 2).

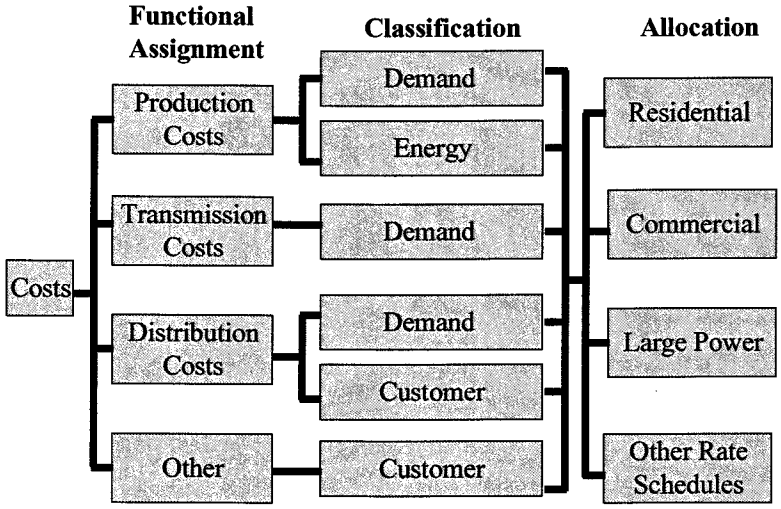

Figure 2

The following functional groups were identified in the cost of service study: (1) Production Plant, (2) Purchased Power, (3) Transmission, (4) Distribution Substation, (4) Primary and Secondary Distribution Lines, (5) Customer Services, (6) Distribution Meters, (7) Distribution Street and Customer Lighting, (8) Meter Reading, Billing and Customer Service, and (9) Load Management.

Q: HOW WERE COSTS CLASSIFIED AS ENERGY RELATED, DEMAND RELATED OR CUSTOMER RELATED?

A: Classification provides a method of arranging costs so that the service characteristics that give rise to the costs can serve as a basis for allocation. Costs classified as *energy related* tend to vary with the amount of kilowatt-hours consumed. Costs classified as *demand related* tend to vary with the capacity needs of customers, such as the amount of transmission or distribution equipment necessary to meet a customer's needs. Transmission lines and distribution substations are examples of costs typically classified as demand costs. Costs

classified as *customer related* include costs incurred to serve customers regardless of the quantity of electric energy purchased or the peak requirements of the customers and include the cost of the minimum system necessary to provide a customer with access to the electric grid. As will be discussed later in my testimony, costs related to Distribution Lines and Distribution Line Transformers were classified as either demand-related or customer-related using the zero-intercept methodology. Distribution Services, Distribution Meters, Distribution Street and Customer Lighting, Meter Reading, Billing and Customer Service and Load Management were classified as customer-related.

Q: PLEASE EXPLAIN WHY THE FIXED COST OF THE COOPERATIVE'S DISTRIBUTION SYSTEM IS CLASSIFIED INTO A CUSTOMER-RELATED COMPONENT AND A DEMAND-RELATED COMPONENT.

A: In order to be as fair as possible to all customers, the fixed costs of the Cooperative's distribution system are classified into two components: 1) customer-related costs and 2) demand-related costs. The portion classified as customer-related cost is the portion of the fixed costs of the distribution system that is size invariant and includes the minimum amount of equipment that is necessary for any customer to access the electric grid and other costs that do not vary with usage.

Costs that do not vary with the load carrying capability of the distribution facilities are fixed costs that exist irrespective of what size of facility is installed. These costs are present due to the fact that a customer is being served and will not increase or decrease with the load requirements of that customer. Using conductor

as an example, because wire of some minimum size is required to provide service to a customer, there is a level of fixed production cost associated with every conductor size. That fixed cost is best allocated on the basis of customer months because it is caused by the existence of a customer, not by the existence of demand. These costs that do not vary with the size of the equipment are properly classified as customer costs and allocated based on the number of customers in a class. This size invariant or non-volumetric portion of the costs is usually determined using the zero intercept approach, which is discussed later in my testimony.

Costs that vary with the load carrying capability of the distribution facilities are demand-related fixed costs that are allocated based on customer demands. Although they are allocated based on customer demand, these demand-related fixed costs are still fixed costs because once the equipment is installed to meet the customer's needs, the costs are incurred and do not change. The split between customer-related and demand-related distribution costs is made so that customers only have to pay for what they are actually using. All customers need at least the minimum amount of equipment necessary to access the electric grid. Because the minimum amount of equipment necessary to access the electric grid does not change or vary among customers, the fairest way to collect these customer-related costs is through a fixed monthly charge. However, many customers cannot get by with just the minimum system and they pay for the size related portion of the cooperative's distribution system through the distribution charge that is assessed on customer usage. This split of the cooperative's

distribution system costs into demand-related and customer-related components ensures that customers only have to pay for what they are actually using, which is a concept that I believe most customers regard as fair.

Q: HAVE YOU PREPARED EXHIBITS SHOWING THE RESULTS OF THE FUNCTIONAL ASSIGNMENT AND CLASSIFICATION STEPS OF THE COST OF SERVICE STUDY?

A: Yes. KCEC Exhibit No. ___ (WSS-8) shows the results of the functional assignment and classification steps of the cost of service study. As discussed later in my testimony, once costs are functionally assigned and classified, they are then allocated to the rate classes based on each class' pro rata share of the relevant cost driver. KCEC Exhibit No. ___ (WSS-9) shows the results of the allocation step in the cost of service study.

Q: WHAT METHODOLOGIES ARE COMMONLY USED TO CLASSIFY DISTRIBUTION PLANT?

A: Two commonly used methodologies for determining demand/customer splits of distribution plant are the "minimum system" methodology and the "zero-intercept" methodology. Both of these methodologies are described in NARUC's Electric Utility Cost Allocation Manual[1]. In the minimum system approach, "minimum" standard poles, conductor, and line transformers are selected and the cost of the minimum system is obtained by pricing all of the applicable

[1] Electric Utility Cost Allocation Manual, National Association of Utility Regulatory Commissioners, January, 1992.

distribution facilities at the unit cost of the minimum size plant. The minimum system determined in this manner is then classified as customer-related and allocated on the basis of the number of customers in each rate class. All costs in excess of the minimum system are classified as demand-related. The theory supporting this approach maintains that in order for a utility to serve even the smallest customer, it would have to install a minimum size system. Therefore, the costs associated with the minimum system are related to the number of customers that are served, instead of the demand imposed by the customers on the system. The problem with the minimum system approach is that it inherently classifies a portion of demand-related costs as customer-related. This is because the minimum size facility used in the calculation of customer-related costs, for example a 10 kVA transformer, has a capacity component associated with it. There are no 0 kVA transformers or 0 MCM conductor that can be used to price the customer-related portion of the minimum system. Therefore, a portion of the costs being classified as customer-related is actually due to the size or load carrying capacity of the facility. The result is that the fixed monthly customer charge is inflated because a portion of the demand-related costs that are inherent in the minimum system are being classified as customer-related and included in the customer charge.

The use of the "zero-intercept" methodology avoids this problem and was used to determine the customer-related components of overhead conductor, underground conductor, and line transformers in this study. Because the zero-intercept methodology avoids the problem described above and is less subjective

than the minimum system approach, the zero-intercept methodology is strongly preferred over the minimum system methodology when the necessary data are available. With the zero-intercept methodology, one is not forced to choose a minimum size conductor or line transformer to determine the customer-related component of these costs. In the zero-intercept methodology, the cost of zero-size conductor or zero-size line transformer is the absolute minimum amount that could be incurred and is used to determine the customer-related portion of these costs.

Q: WHAT IS THE THEORY BEHIND THE ZERO-INTERCEPT METHODOLOGY?

A: The theory behind the zero-intercept methodology is that there is a linear relationship between the unit cost ($/ft or $/transformer) of conductor or line transformers and the load flow capability of the plant, which is proportionate to the cross-sectional area of the conductor or the kVA rating of the transformer. After establishing a linear relation, which is given by the equation:

$$y = a + bx$$

where:

y is the unit cost of the conductor or transformer,

x is the size of the conductor (MCM) or transformer (kVA), and

a, b are the coefficients representing the intercept and slope, respectively

it can be determined that, theoretically, the unit cost of a foot of conductor or transformer with zero size (or conductor or transformer with zero load carrying capability) is **a**, the zero-intercept. The zero-intercept is essentially the cost component of conductor or transformers that is invariant to the size and load carrying capability of the plant.

Like most electric utilities, the feet of conductor and number of transformers on Kit Carson's system are not uniformly distributed over all sizes of wire and transformer. For this reason, it was necessary to use a weighted regression analysis, instead of a standard least-squares analysis, in the determination of the zero intercept. Without performing a weighted regression analysis, all types of conductor and transformers would have the same impact on the analyses, even though the quantity of conductor and transformers are not the same for each size and type.

Using a weighted regression analysis, the cost and size of each type of conductor or transformer is weighted by the number of feet of installed conductor or the number of transformers. In a weighted regression analysis, the following weighted sum of squared differences is minimized, where **w** is the weighting factor for each size of conductor or transformer, and **y** is the observed value and $\hat{\mathbf{y}}$ is the predicted value of the dependent variable:

$$\sum_i w_i (y_i - \hat{y}_i)^2$$

Q: IS THE ZERO-INTERCEPT METHODOLOGY A STANDARD APPROACH GENERALLY ACCEPTED WITHIN THE ELECTRIC UTILITY INDUSTRY?

A: Yes. NARUC's Electric Utility Cost Allocation Manual[2] identifies the zero-intercept (or "minimum intercept") as one of two standard methodologies for classifying distribution fixed costs as either demand-related or customer-related. The manual states that the zero-intercept method "requires considerably more data and calculation than the minimum-size method. In most instances, it is more accurate, although the differences may be relatively small."[3] The Electric Utility Cost Allocation Manual provides the following instructions for overhead conductor, underground conductor and transformers:

> **Account 365 – Overhead Conductors and Devices**
> Determine minimum intercept of conductor cost per foot using cost per foot by size and type of conductor weighted by feet or investment in each category, and developing a cost for the utility's minimum size conductor.
>
> **Account 366 and 367 – Underground Conduit, and Underground Conductors and Devices**
> Determine minimum intercept of cable cost per foot using cost per foot by size and type of cable weighted by feet of investment in each category.
>
> **Account 368 – Line Transformers**
> Determine zero intercept of transformer cost using cost per transformer by type, weighted by number for each category.[4]

[2] Electric Utility Cost Allocation Manual, National Association of Utility Regulatory Commissioners, January, 1992.

[3] Id. at p. 92
[4] Id. at pp. 92-94

A recent textbook on electric ratemaking states that "The minimum intercept or zero-intercept methodology provides a rational basis for separating the cost of a device between its customer and demand components."[5]

Q: HAVE YOU PREPARED EXHIBITS SHOWING THE RESULTS OF THE ZERO-INTERCEPT ANALYSIS?

A: Yes. The zero-intercept analysis for overhead conductor, underground conductor, and line transformers are included in KCEC Exhibit No4 (WSS-10), KCEC Exhibit No. ___ (WSS-11) and KCEC Exhibit No. ___ (WSS-12). Because the zero-intercept analysis for overhead conductor was statistically inconclusive, a panel of zero-intercept results from other cooperatives was utilized.

Q: IN YOUR COST OF SERVICE MODEL, ONCE COSTS ARE FUNCTIONALLY ASSIGNED AND CLASSIFIED, HOW ARE THESE COSTS ALLOCATED TO THE CUSTOMER CLASSES?

A: In the cost of service model used in this study, Kit Carson's costs are functionally assigned and classified using what are referred to in the model as "functional vectors." These vectors are multiplied (using scalar multiplication) by the various account balances in order to simultaneously assign costs to the functional groups and classify costs. Therefore, in the portion of the cost of service model included in KCEC Exhibit No. ___ (WSS-8), Kit Carson's accounting costs are functionally assigned and classified using the explicitly determined functional

[5] Electric Pricing: Engineering Principles and Methodologies Lawrence J. Vogt, CRC Press, Taylor & Francis Group, 2009 at p. 500.

vectors of the analysis and using internally generated functional vectors. The explicitly determined functional vectors, which are primarily used to direct where costs are functionally assigned and classified, are shown on pages A-21 through A-22. Internally generated functional vectors are utilized throughout the study to functionally assign costs on the basis of similar costs or on the basis of internal cost drivers. The internally generated functional vectors that are used to allocate a particular cost are shown on pages A-1 through A-20 of KCEC Exhibit No. ___ (WSS-8) in the column labeled "Functional Vector". An example of the development and use of an internally generated functional vector is the use of Total Production, Transmission and Distribution Plant (PT&D) to functionally assign and classify the intangible plant found in FERC accounts 301 and 303 on page A-1 of KCEC Exhibit No. ___ (WSS-8). The functional vector that is used to allocate a specific cost is identified by the column in the model labeled "Functional Vector" and refers to a vector that is calculated using data from a row and identified by the column labeled "Name".

Once costs for all of the major accounts are functionally assigned and classified, the resultant cost matrix for the major cost groupings (e.g., Plant in Service, Rate Base, Operation and Maintenance Expenses) is then transposed and allocated to the customer classes using "allocation vectors" or "allocation factors". This process is illustrated in Figure 3 below.

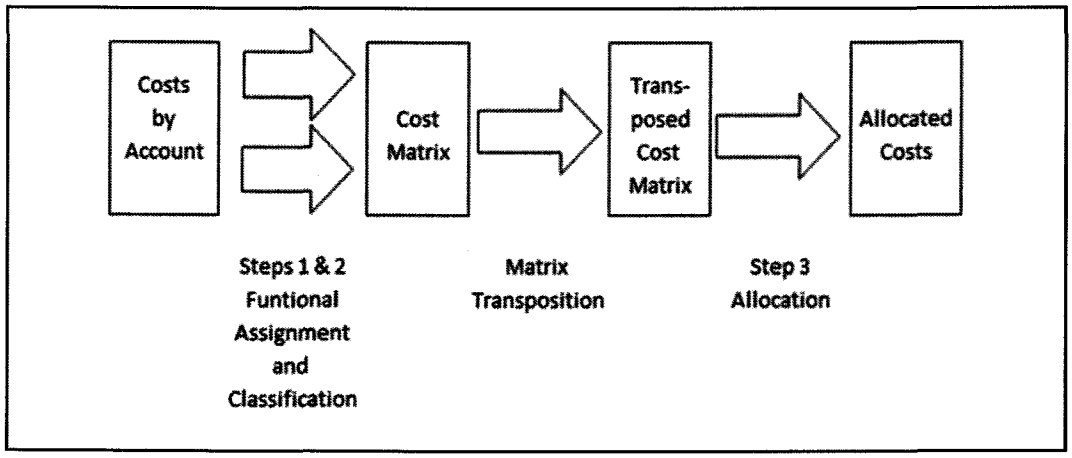

Figure 3

The results of the class allocation step of the cost of service study are included in KCEC Exhibit No. ___ (WSS-9). The costs shown in the column labeled "Total System" in KCEC Exhibit No. ___ (WSS-9) were carried forward from the functionally assigned and classified costs shown in KCEC Exhibit No. ___ (WSS-8).

Q: PLEASE DESCRIBE THE ALLOCATION FACTORS USED IN THE COST OF SERVICE STUDY.

A: The following allocation factors were used in the cost of service study:

- **NCPP** – Demand cost component allocated on the basis of the maximum class demands for primary and secondary voltage customers.
- **SICD** – Demand cost component allocated on the basis of the sum of individual customer demands for secondary

voltage customers.

- **C02** – Customer cost component of customer services allocated on the basis of the average number of customers for the test year.
- **C03** – Meter costs were specifically assigned by relating the costs associated with various types of meters to the class of customers for whom these meters were installed.
- **YECust04** – Costs associated with lighting systems were specifically assigned to the lighting class of customers.
- **YECust05 and YECust06** – Meter reading, billing costs and customer service expenses were allocated on the basis of a customer weighting factor based on discussions with Kit Carson's meter reading, billing and customer service departments.
- **Cust05** – Customer cost component allocated on the basis of the average number of customers for the test year.
- **YECust07** – Customer cost component allocated on the basis of the year-end number of customers used for line transformers and secondary voltage conductor.
- **YECust08** – Customer cost component allocated on the basis of the year-end number of customers used for primary voltage conductor.

Q: PLEASE SUMMARIZE THE RESULTS OF THE COST OF SERVICE STUDY.

A: The following table (Table 1) summarizes the pro forma revenues, operating expenses, operating margin, rate base and rates of return on rate base for each customer class:

	Revenue	Operating Expenses	Operating Margin	Rate Base	Rate of return on rate base
Residential Service	$ 18,654,430	$ 19,322,210	$ (667,780)	$ 60,307,481	-1.11%
Residential Seasonal Service	$ 1,100,335	$ 1,163,491	$ (63,157)	$ 4,372,676	-1.44%
Commercial Service	$ 6,889,532	$ 6,330,612	$ 558,920	$ 17,167,351	3.26%
Power Service	$ 8,437,125	$ 6,479,516	$ 1,957,608	$ 9,932,784	19.71%
Security Lighting Service	$ 407,878	$ 354,250	$ 53,628	$ 981,958	5.46%
Interruptible Power Service	$ -	$ -	$ -	$ -	#DIV/0!
Power Service Time-of-Use	$ 142,394	$ 111,908	$ 30,487	$ 200,063	15.24%
Residential Service Time-of-Use	$ 507,220	$ 549,816	$ (42,596)	$ 1,598,785	-2.66%
Residential Seasonal Service Time-of-Use	$ 15,481	$ 16,408	$ (927)	$ 52,459	-1.77%
Commercial Service Time-of-Use	$ 190,586	$ 188,281	$ 2,306	$ 512,022	0.45%
Irrigation Power Service Time-of-Use	$ -	$ -	$ -	$ -	#DIV/0!
Irrigation Power Service	$ 20,079	$ 19,784	$ 295	$ 66,763	0.44%
MolyCorp - Special Contract	$ 2,732,254	$ 2,093,213	$ 639,041	$ 2,200,467	29.04%
Total	39,097,313	36,629,488	2,467,825	97,392,809	2.53%

Table 1

Determination of the test year and pro forma rates of return on rate base are detailed in KCEC Exhibit No. ___ (WSS-9), pages B-28 through B-30.

Q: DOES THE COST OF SERVICE STUDY PROVIDE INFORMATION CONCERNING THE UNIT COSTS INCURRED BY KIT CARSON TO PROVIDE SERVICE UNDER EACH RATE SCHEDULE?

A: Yes. Customer-related, demand-related and energy-related unit costs for each rate class are shown on pages B-43 through B-48 of KCEC Exhibit No. ___ (WSS-9). Pages B-46 through B-48 show unit costs with margins that provide the equalized rates of return at an overall return on rate base of 6.22%, which is the equivalent of a TIER of 1.9, for Kit Carson which was used to design the proposed rates.

Customer-related costs are stated as a cost per customer per month. Energy-related costs are stated as a cost per kWh. For customers metered predominantly on a per kWh basis, such as Residential customers in Rate 1, demand-related costs are stated as a cost per kWh. For demand-metered customer classes such Power Service customers in Rate 4, demand-related costs are stated as a cost per kW per month.

VI. APPORTIONMENT OF THE REVENUE INCREASE TO RATE CLASSES

Q: WHAT WAS THE BASIC UNDERLYING INFORMATION THAT SUPPORTED THE PROPOSED ALLOCATION OF THE REVENUE INCREASE AMONG KIT CARSON'S RATE CLASSES?

A: The class cost of service study provided information measuring the extent to which the revenues generated by each customer class contribute to the overall margin earned by Kit Carson as well as the cost based unit charges that would be appropriate for each rate component. The class cost of service study performed by The Prime Group indicated that the class rates of return ranged from -2.66 percent (-0.07 percent before adjustments) for Residential Time-of-Use service to 29.04 percent (36.42% before adjustments) for a special contract customer. The class cost of service study also compared the class rates of return under KCEC's current rates to the class rates of return under KCEC's proposed rates. See KCEC Exhibit No. ___ (WSS-13). The following table compares the unadjusted class rates of return under KCEC's current rates to the class rates of return under KCEC's proposed rates:

	Operating Margin	Rate Base	Test Year Rate of Return on Rate Base	Proposed Rate of Return on Rate Base
Residential Service	$ 1,932,173	$ 60,307,481	-0.07%	3.20%
Residential Seasonal Service	182,560	4,372,676	-0.68%	4.18%
Commercial Service	1,075,445	17,167,351	5.02%	6.26%
Power Service	1,959,117	9,932,784	22.96%	19.72%
Security Lighting Service	58,218	981,958	7.47%	5.93%
Power Service Time-of-Use	30,522	200,063	14.04%	15.26%
Residential Service Time-of-Use	28,875	1,598,785	-1.46%	1.81%
Residential Seasonal Service Time-of-Use	1,248	52,459	-0.76%	2.38%
Commercial Service Time-of-Use	30,267	512,022	2.37%	5.91%
Irrigation Power Service	3,267	66,763	0.60%	4.89%
Special Contract	654,337	2,200,467	36.42%	29.74%
Total	$ 5,956,030	$ 97,392,809	4.07%	6.12%

Table 2

As can be seen from Table 2, while the Cooperative will be making significant progress toward eliminating inter-class subsidies by bringing the class rates of return closer together, not all subsidies will be eliminated. Under KCEC's proposed rates, the class rates of return will not be fully equalized and residential customers will, to some extent, continue to be subsidized by other rate classes. However, to do more to eliminate these inter-class subsidies would require larger increases to KCEC's residential rates. To equalize the class rates of return would require a revenue increase of almost 23 percent for the residential rate class. KCEC's Board viewed this as too large of an increase for the residential rate class and asked The Prime Group to develop rates limiting the residential increase to 14 percent, which we did.

Q: WERE THE PROPOSED RATES APPROVED BY KIT CARSON'S BOARD OF TRUSTEEES?

A: Yes. Based on guidance from KCEC's Board , The Prime Group developed proposed rates that would limit the increase the residential increase to 14 percent,

while following the rates of return indicated by the class cost of service study to the greatest extent possible given the 14 percent limitation for the residential increase.

Q: IS IT YOUR EXPERT OPINION THAT THE PROPOSED APPORTIONMENT OF THE INCREASE TO THE RATE CLASSES IS JUST AND REASONABLE, PARTICULARLY TO THE RESIDENTIAL RATE CLASS?

A: Yes. As explained earlier in my testimony, The Prime Group conducted an embedded, fully allocated COS Study using methodologies consistent with standard industry practices as set forth in the *Electric Utility Cost Allocation Manual* published by the National Association of Utility Regulatory Commissioners. The class cost of service study, which was performed using standard and accepted methodologies, indicated the rate of return for the residential class of -0.07% on an actual unadjusted basis. The rate of return, after annualizing the effect of the proposed rate increase, would be 3.20%, which compares to an overall rate of return of 6.12% for all rate classes. Therefore, even considering the increase to the residential rate, the rate of return earned from the residential customer class will remain significantly below the overall rate of return. While progress will have been made to eliminate some of the subsidies currently being received by residential customers, not all subsidies will be eliminated. The residential rate class therefore will continue to be subsidized by other rate classes, particularly large power and commercial rate classes. While not eliminating all subsidies currently being provided to residential customers, it

is my expert opinion that increasing the rate of return for the residential rate class from -0.07% to 3.20% is fully consistent with the established ratemaking principles of rate stability and gradualism. Therefore, the COS Study provides a solid foundation upon which the Commission can conclude that the increase to the residential class is just and reasonable, particularly considering that the rate of return provided by the residential customer class will still be below the overall rate of return provided by all customer classes; and bearing in mind that reasonable consideration was given to the ratemaking principle of gradualism previously recognized in prior Commission orders.

VII. RATE DESIGN

A. RESIDENTIAL SERVICE

Q: WHAT WERE THE RATEMAKING OBJECTIVES IN DEVELOPING THE PROPOSED RATES?

A: Our principal objective was to bring the unit charges for the individual rate components more in line with the unit costs derived from the cost of service study, while still recognizing the principle of gradualism. Kit Carson's rates include both two-part rates, consisting of a customer charge and energy charge, and three-part rates, consisting of a customer charge, energy charge and demand charge. We worked to develop rates that moved these various charges toward the unit costs indicated by the cost of service study while still maintaining the principle of gradualism.

Q: WHAT ARE THE PROPOSED CHARGES FOR RESIDENTIAL SERVICE?

A: Kit Carson is proposing a revenue increase of $2,599,953 for the Residential rate class, which will be collected through an energy charge of $0.12748 per kWh and a system charge (customer charge) of $20.50 per customer meter per month, as shown on page 2 of KCEC Exhibit No. ___ (WSS-14).

Q: WHAT ARE THE CRITERIA THAT ARE GENERALLY USED FOR ASSESSING WHETHER PROPOSED RATES ARE FAIR, JUST AND RESONABLE?

A: *Fair, just and reasonable* rates are generally considered to be rates that accurately reflect the cost of providing service to customers and that are based on cost causation. This approach to developing fair, just and reasonable rates implies that if a customer causes a cost to be incurred, the customer should pay that cost, and that subsidies between customer classes and among customers within a class should be avoided.

Q: DO YOU AGREE THAT THE CONCEPT OF GRADUALISM IS IMPORTANT IN DESIGNING RATES FOR UTILITIES?

A: Yes. However, the principles of "gradualism" and "rate continuity", which were articulated in Principles of Public Utility Rates by James C. Bonbright, should not take priority over the principle of "cost of service," which was identified as an even more important principle in the Bonbright treatise. As the late professor Bonbright states, "Without doubt the most widely accepted measure of reasonable

public utility rates and rate relationships is cost of service." (James C. Bonbright, Principles of Public Utility Rates, Columbia University Press: 1961; p. 294).

Q: DO THE RATES PROPOSED BY KIT CARSON IN THIS PROCEEDING ACCURATELY REFLECT COST CAUSATION?

A: Yes. The rates proposed by Kit Carson in this proceeding reasonably reflect cost causation. Each customer must have a certain minimum amount of equipment in place in order to have access to the electric grid, and the customer charge that Kit Carson is proposing more accurately reflects the cost of this minimum system that each customer needs than does the current rate design. The non-volumetric portion of fixed cost was determined through use of a zero-intercept methodology. The remaining portion of distribution costs, which are related to volume, are classified as demand-related and will be collected through a kWh energy charge for the residential class. This split of distribution costs between volumetric and non-volumetric assures that customers only have to pay for what they are actually using, namely the basic minimum system that all customers require plus as much size as customers require to meet their needs. In my opinion, the rates that Kit Carson is proposing based on this split meet the requirements for fair, just and reasonable rates based on the cost causation principle.

Q: IS KIT CARSON PROPOSING TO BRING THE RESIDENTIAL CUSTOMER CHARGE MORE IN LINE WITH THE UNIT COSTS SHOWN IN THE COST OF SERVICE STUDY?

A: Yes. Kit Carson is proposing to increase the monthly Residential customer charge from $14.50 to $20.50 to bring it more in line with a rate that fully reflects

the cost of providing service, while still recognizing the principle of gradualism. This charge is still lower than the cost of providing the minimum amount of equipment that each customer needs in order to access the electric grid. As shown in the cost of service study on page B-46 of KCEC Exhibit No. ___ (WSS-9), a cost based customer charge for the Residential class would be $26.67 per customer per month at a 6.22% rate of return on rate base. Therefore, Kit Carson is proposing to move the customer charge toward one that fully reflects cost of service but while recognizing the principles of rate continuity and gradualism.

Q: HOW DOES KIT CARSON'S CUSTOMER CHARGE COMPARE TO THE CUSTOMER CHARGES OF OTHER ELECTRIC COOPERATIVES IN NEW MEXICO?

A: The customer charge for KCEC's residential service is currently $14.50 per month. At present, KCEC has the second lowest monthly customer charge in New Mexico. The median monthly customer charge for cooperatives in New Mexico is currently $20.00 per month. KCEC's proposed $20.50 monthly customer charge is slightly higher than the median system charge for cooperatives in New Mexico and will be less than system charges for a number of cooperatives in New Mexico, including Rio Grande Electric Cooperative's $35.00 consumer charge, Otero County Electric Cooperative's $26.00 customer charge, Springer Electric Cooperative's $25.60 customer charge, Roosevelt County Electric Cooperative's $25.00 customer charge, Northern Rio Arriba Electric Cooperative's $24.00 system charge, and Duncan Valley Cooperative's $21.00

system charge. KCEC Exhibit No. (WSS-15) shows the current customer charge for each electric cooperative in New Mexico.

Q: HOW DOES KIT CARSON'S CUSTOMER CHARGE COMPARE TO OTHER ELECTRIC COOPERATIVES NATIONALLY?

A: I am unaware of any comprehensive surveys of electric cooperative customer charges that have been performed nationally. However, based on my experience working with electric cooperatives throughout the U.S., the $20.50 customer charge proposed by Kit Carson is significantly lower than most other electric cooperatives. The customer charges for fifty-four electric cooperatives around the U.S. for which The Prime Group has recently provided rate design assistance is shown in KCEC Exhibit No. ___ (WSS-16). The average customer charge for these fifty-four cooperatives is $27.27 with a range of $20.75 to $39.00. This is well above the $20.50 customer charge that Kit Carson is requesting in this proceeding. Based on comparisons with other cooperatives around the U.S. and with cooperatives in and around New Mexico, the $20.50 customer charge that Kit Carson is requesting is reasonable. I am also aware of an informal survey performed by a firm that provides engineering services to electric cooperatives (Power Systems Engineering) that found that the average customer charge for its clients in 2012-13 was $27.08, which is generally consistent with The Prime Group's findings.

Q: PLEASE EXPLAIN THE COSTS THAT ARE RECOVERED THROUGH THE CUSTOMER CHARGE.

A: The customer charge recovers the minimum system that each customer must have in place to have access to the electric grid and the cost of operating and maintaining this minimum system as well as other costs not related to the amount of electricity that a customer uses, such as meter reading and billing costs. The minimum system is comprised of the meter, service drop from the transformer, the transformer, the minimum size of wire, and poles extending to the distribution substation that is necessary to provide a customer with access to the electric grid. Once the cost of this minimum system is determined using the zero-intercept methodology, each customer needs at least the minimum system to receive service from the Cooperative. Many customers need more equipment in place than this minimum system in order to receive adequate service. The cost of this equipment above the minimum is related to the customer's usage level and is a volumetric demand-related fixed cost that is recovered through either a demand or energy charge. A cost of service study is performed for the purpose of allocating costs as accurately as possible based on cost causation. In a cost of service study, it is important to distinguish the distribution system costs that are related to usage from the distribution system costs that are related to the minimum system which are non-volumetric and are not related to usage, as discussed in the NARUC Electric Utility Cost Allocation Manual. By becoming a customer, the customer has caused the cooperative to provide the minimum amount of equipment necessary to provide access to the electric grid. This minimum amount of

equipment is not related to the volume of electricity used by the customer, and each customer must have that minimum amount of equipment in place in order to obtain electric service. By seeking service, the customer has caused these non-volumetric fixed distribution costs that are classified as customer-related, and should be responsible for paying these costs through a fixed customer charge regardless of the customer's usage. The remainder of the distribution costs, which are related to volume, are classified as demand-related and are collected through a kWh energy charge for the Residential class or through a kW charge for customer classes billed on a demand basis. This split of distribution system costs between volumetric and non-volumetric assures that customers only have to pay for what they are actually using, namely the basic minimum system that all customers require plus as much size as customers require to meet their needs.

Q: PLEASE EXPLAIN HOW THE FULL COST-BASED CUSTOMER CHARGE WAS CALCULATED FOR RESIDENTIAL SERVICE.

A: The full cost-based Customer Charge for Residential Service was calculated by dividing the sum of customer-related costs and customer-related margins, which together I will refer to hereafter as "fixed costs," by the number of monthly customer charges collected by Kit Carson from Residential Service customers during the test year. The margins assigned for collection through the monthly Customer Charge were calculated by allocating the total margins assigned to the Residential Service class into distribution demand-related and customer-related components, based on the percentage of the net cost rate base that was customer related or demand related for the Residential Service class. The result was a

monthly customer-related unit cost of $26.67 per customer per month at a 6.22% rate of return for the Residential Service class, as shown on page B-46 of KCEC Exhibit No. ___ (WSS-9).

Q: DOES THE CURRENT CUSTOMER CHARGE OF $14.50 RECOVER CUSTOMER-RELATED COSTS FOR THE RESIDENTIAL CLASS?

A: No. The current Customer Charge of $14.50 per customer per month does not recover all of the customer-related, non-volumetric fixed costs of $19.73 let alone any of the $6.94 of margins, as shown on page B-46 of KCEC Exhibit No. ___ (WSS-9). Based on calculations from the cost of service study, there are $12.17 in non-volumetric fixed costs per customer per month (calculated as $26.67 - $14.50 = $12.17) that are not being collected through the Customer Charge. When this under-recovery of $12.17 per customer per month is multiplied by the billing units of 267,062 customer months for the Residential Service class during the test year, the result is $3,250,145 in non-volumetric fixed costs that are not being recovered through the Customer Charge under the current rate design. When these non-volumetric fixed costs are recovered through the Energy Charge instead, the result is about 2.6 cents per kWh of non-volumetric fixed cost collected through the Energy Charge (calculated as $3,250,145 / 123,154,526 kWh = $0.02639/kWh). Thus, the current Customer Charge is $12.17 per customer meter per month too low and the Energy Charge is 2.6 cents per kWh too high based on data provided in the cost of service study. This recovery of non-volumetric fixed costs through the Energy Charge assessed on a kWh basis results in intra-class

subsidies and in unrecovered fixed costs if kWh usage declines due to energy efficiency, conservation or mild weather.

Q: WILL KIT CARSON'S PROPOSED RESIDENTIAL RATE HELP TO ELIMINATE SUBSIDIES?

A: Yes. There are two types of subsidies that need to be considered – inter-class subsidies and intra-class subsidies. The term "*inter-class subsidies*" refers to subsidies that are provided from or to one class of customers to or from another class of customers, and the "*intra-class subsidies*" refers to subsidies that are provided from or to customers within the same rate class. KCEC's proposed rates are designed to make progress towards reducing both *inter-* and *intra-class* rate subsidies while continuing to recognize the ratemaking principles of gradualism and rate stability. As already discussed, the apportionment of the total revenue increase to the customers were developed in such a manner as to provide a gradual reduction in *inter-class subsidies*. The rate making principle that should be followed to avoid *intra-class subsidies* is that fixed costs should be recovered through fixed charges (such as the customer charge and demand charge) and variable costs should be recovered through variable charges (such as the energy charge and the wholesale power cost adjustment charge). If fixed costs are recovered through variable charges, such as the energy charge assessed on a kWh basis, each kWh contains a component of fixed costs and customers using more energy than the average customer in the class are paying more than their fair share of the cooperative's fixed costs, while customers using less energy than the average customer in the class are paying less than their fair share of the

cooperative's fixed costs. These fixed costs should be collected through the billing units associated with the appropriate cost driver, and energy usage clearly is not the correct cost driver for collecting fixed costs.

The collection of fixed costs through the energy charge typically results in customers with above-average usage subsidizing customers with below-average usage. In order to eliminate this source of intra-class subsidies, Kit Carson proposes a rate design that more closely follows the ratemaking principle of recovering fixed costs through fixed charges and variable costs through variable charges than does its current rate design.

Increasing the customer charge and adopting a flat energy charge rate design will eliminate subsidies by bringing the charges toward the actual cost of providing service. Because Kit Carson's unit customer cost is $26.67 per month, increasing the customer charge from $14.50 to $20.50 will eliminate subsidies that high usage customers are currently providing low usage customers. Furthermore, because no element of KCEC's costs are inverted, the current inverted block rate is also inconsistent with the cost of providing service. Therefore, the use of an inverted rate structure also creates subsidies.

Q: TYPICALLY, WHO ARE THE LOW-USAGE CUSTOMERS WHO WOULD BE PAYING HIGHER ENERGY BILLS ONCE THE SUBSIDIES ARE REMOVED?

A: For Kit Carson, low-usage customers are loads such as hunting camps, fishing camps, garages, vacation homes, services run to barns or shops, stock tanks and electric fences. These loads typically consume very few kilowatt hours during the

course of a year and the usage is sporadic. However, the Cooperative often incurs significant fixed costs to install the minimum system requirements necessary to serve these loads. Further, these loads are seldom located near roads and existing distribution lines. A rate design with a customer charge that does not recover a large portion of non-volumetric fixed costs, and with a significant portion of non-volumetric fixed cost recovered through the energy charge, would result in revenue that was insufficient to support the investment in the minimum amount of equipment necessary to serve loads such as vacation homes, hunting camps, barns, and other similar loads. Such a rate design would result in these customers being subsidized by the other Cooperative customers who have above-average usage.

Kit Carson's Board, which is comprised of individuals who are both members and customers of the Cooperative, does not believe that this is appropriate. A rate design that recovers a significant portion of the Cooperative's non-volumetric fixed cost through the energy charge sends improper economic signals to customers. It sends a signal that it is relatively inexpensive to provide the minimum amount of physical equipment necessary to provide service to customers, and this is definitely not the case for Kit Carson.

Q: WHAT IS THE IMPACT OF A HIGHER CUSTOMER CHARGE AND ELIMINATION OF THE INVERTED BLOCK RATE STRUCTURE ON FIXED AND LOW INCOME CUSTOMERS?

A: Low income customers will see a benefit from the elimination of the inverted block rate design and a higher customer charge. For low income customers to

benefit from a rate design with a lower customer charge and higher energy charge, these customers would need to have an energy usage that is lower than the class average. This is rarely the case for low income customers, and it does not appear to be the case for Kit Carson's low-income customers based on 2014 usage data for LIHEAP customers. Based on 2014 usage data, Kit Cason's LIHEAP customers used an average of 541 kWh per month while the average usage for the residential class as a whole was 461 kWh. Therefore, during the test year, non-seasonal LIHEAP customers used approximately 17.4 percent more kWh energy than the average non-seasonal residential customer.

Thus, as shown on page one of KCEC Exhibit No. ___ (WSS-17), based on average monthly usage of 541 kWh per month, Kit Carson's low income customers would see a 13.1% increase compared to a 14.0% increase for the residential class as a whole. Low income customers would therefore benefit from the proposed change in rate design because they would no longer subsidize the low usage customers, such as those with vacation homes, hunting camps or barns. In addition, it is my experience that, because they have a stock of appliances similar to other customers and are frequently home all day, fixed income customers generally have usage levels in the neighborhood of the class average and also would not differ significantly from the impacts experienced by residential customers as a whole.

Kit Carson's proposed rates, which eliminate the inverted block rate design and move the customer charge closer to cost of service, will benefit LIHEAP customers relative to the current rate design. While residential

customers as a group will see a 14% increase under KCEC's proposed rates, we estimate that customers receiving LIHEAP assistance will see a 13.1% increase. Because low income customers on average use more energy than other residential customers, an inverted rate design, which cannot be justified on the basis of cost of service, would increase the burden on the very customers who can least afford to pay their electric bills. If the inverted block rate design were retained, then the increase to LIHEAP customers would exceed the 14 percent increase currently proposed by Kit Carson for the residential class as a whole.

Q: IN YOUR EXPERIENCE, DO LOW INCOME CUSTOMERS IN OTHER STATES ALSO USE MORE ELECTRICITY THAN THE AVERAGE RESIDENTIAL CUSTOMER?

A: Yes. In fact, it has been my experience that the housing stock in which many low income customers are living is relatively inefficient from an energy usage standpoint, so their energy usage is frequently above the class average. This was the case in Virginia, where we found for Northern Neck Electric Cooperative ("NNEC") that:

> NNEC collected load research data on customers who meet the state standards for participating in low income energy assistance programs. The average annual usage for NNEC's Residential customers is 13,969 kWh per year while the annual average usage for low income customers is 14,871 kWh per year. (Case No. PUE-2008-00076 before the Virginia State Corporation Commission.)

This was also the case in Indiana, where we found for Jackson County Rural Electric Membership Cooperative that:

> Jackson County calculated that the average usage for LIHEAP customers, who are used as the proxy for low income customers, was 16,606 kWh per

> year, while the average annual usage for the Basic Service class as a whole was 15,984 kWh per year. This indicates that low income customers would not be significantly harmed or burdened by the increase in the facilities charge that Jackson County is seeking. (Cause No. ___3861 before the Indiana Utility Regulatory Commission)

The inefficient energy usage of the dwelling in which many low income customers live has typically resulted in the price of the dwelling being discounted to a level that low income customers can afford. The tradeoff is a lower initial purchase price in exchange for higher monthly energy bills than if a more energy efficient home were purchased. In these cases, typical low income customers would actually benefit from a rate design that had a higher customer charge and a lower energy charge, as these customers, because of their higher usage, would no longer be required to subsidize low usage customers.

Q: DO THE RATES THAT KIT CARSON IS PROPOSING IMPOSE AN UNDUE HARDSHIP ON FIXED INCOME CUSTOMERS?

A: No. Although any increase results in a higher electric utility bill and having no rate increase would be preferred by many customers, not increasing rates is simply not possible for Kit Carson if it is to remain financially viable. In a regulatory context, "undue" and "unfair" refer to charges that do not accurately reflect the cost of providing electric service to customers. This criterion for fairness that has been developed through litigated regulatory processes is one of cost causation; namely whether those who cause costs to be incurred pay those costs. The terms "undue" and "unfair" do not refer to achieving social policy goals through the utility ratemaking process. The customer charge and energy

charge that Kit Carson is proposing are cost based as indicated by the cost of service study and reflect the costs of serving customers in the residential class.

It is important to recognize that fixed income customers are not necessarily low income customers. A fixed income customer could have a fixed income that is higher than the income of other customers, particularly low income customers. Furthermore, because most fixed income customers have a stock of appliances similar to other customers and because they are frequently home all day, the impact on fixed income customers would not be unduly large or unfair compared to other residential customers. The consumption of fixed income customers would be much closer to the average consumption of other residential customers than it would be to the typical low usage customers, such as barns, vacation homes and hunting camps that receive significant subsidies under the current rate design. All customers, including fixed income customers, cause Kit Carson to incur non-volumetric fixed costs to install the minimum amount of equipment necessary to provide them with electric service, and Kit Carson is seeking to recover these non-volumetric fixed costs through a fixed monthly customer charge that will assure recovery of these costs.

Q: DOES KIT CARSON HAVE INFORMATION ON WHICH RESIDENTIAL CUSTOMERS ARE ON A FIXED INCOME?

A: No. While Kit Carson does have data on customers who receive LIHEAP assistance, the Cooperative has no way of identifying fixed income customers. Presumably, most fixed income customers who do not receive LIHEAP assistance

are retirees, The Cooperative simply does not have records that could be used to identify fixed income customers that do not receive LIHEAP assistance.

Q: PLEASE ELABORATE ON THE STATEMENT YOU MADE EARLIER THAT NONE OF KCEC'S COSTS ARE INVERTED.

A: The single largest component of KCEC's cost structure is purchased power expenses. KCEC's purchased power expenses are clearly not inverted. Purchased power expenses do not increase on a unit cost basis as KCEC purchases more electric energy. KCEC is billed under a flat rate structure from its current supplier and if KCEC begins purchasing power from another supplier then it is a virtual certainty that Kit Carson will purchase power under a flat rate schedule. But even if Kit Carson continues to purchase power from its current supplier, Tri-State, under a tariff that includes a coincident peak (CP) demand charge, the demand charges from Tri-State will almost certainly be flat demand charges, as they currently are. There is no trend with G&Ts or other power suppliers to utilize an inverted rate design for wholesale rates, and there has been no indication from Tri-State that it plans to adopt an inverted rate design.

Furthermore, even when considered on a kWh basis, there is no indication whatsoever that purchased power demand costs increase on a per kWh basis as customers use more energy, particularly as residential customers use more energy. Residential load data indicates that there is no upward inflection in the relationship between purchased power CP demands (which determine KCEC's current purchase power demand costs) and residential usage as customers use more energy.

Q: HOW CAN IT BE DETERMINED THAT PURCHASED POWER DEMAND COSTS DO NOT INCREASE ON A PER KWH BASIS AS RESIDENTIAL CUSTOMERS USE MORE ENERGY?

A: The Prime Group prepared a statistical analysis for residential customers from load data retrieved from Kit Carson's advanced metering infrastructure (AMI) system. Specifically, we calculated the CP load factor for each customer for which AMI demand data were available for the most recent 12-month period. CP load factors were calculated by dividing each customer's monthly kWh usage by the product of the customer's demand determined at the time of Tri-State's peak and the number of hours during the month, as follows:

$$LF_{cp} = \frac{kWh}{(CP\ Demand)\ x\ (Hours\ in\ Month)}$$

We then performed a correlation analysis and a regression analysis between monthly kWh usage and CP load factor. For the correlation analysis we calculated the correlation coefficient between kWh usage and CP load factor, and for the regression analysis we performed a regression analysis using kWh as the independent variable (exogenous variable) and CP load factor as the dependent variable (endogenous variable). We found that for most months there was essentially zero correlation between kWh usage and CP load factor. Furthermore, from the results of the regression analysis, for most months, there was no statistically meaningful increase or decrease in CP load factor indicated from

increases in kWh. In other words, for most months, customer CP load factor (or purchased power demand costs per kWh) did not increase or decrease in relation to monthly kWh usage.

The only exception was for the month of July, during which Kit Carson realized its peak sales. During July, the load data indicated that customers' CP load factor increased as they used more energy. While the correlation coefficient between residential customer kWh usage and CP load factors hovered around zero for all months except July, the correlation coefficient between kWh usage and CP load factor during July was 0.1478, indicating that purchased power demand costs during July actually decreased on a per kWh basis for customers with higher kWh usage. This result suggests that purchased power demand costs are not inverted for residential customers, but are in fact declining, at least for the month of July 2015. Thus, for purchased power costs, there is more support from a cost of service perspective for a declining block rate structure than for an inverted block rate structure.

Q: ARE KIT CARSON'S DISTRIBUTION COSTS INVERTED?

A: No.. The Cooperative's unit distribution costs do not increase as its customers use more energy. In fact, distribution costs per kWh decrease as customers use more energy. The fact that the unit cost per kWh of distribution facilities decreases as customers use more energy is one of the traditional justifications for a *declining block rate structure*, i.e., a rate structure in which the price per kWh or per kW decreases as customers use more energy.

Q: CAN YOU PROVIDE AN EXAMPLE OF HOW THE COST PER KWH OF A PARTICULAR PIECE OF DISTRIBUTION EQUIPMENT DECREASES AS A CUSTOMER USES MORE ENERGY?

A: Yes. Consider the cost of a 15 kVA line transformer that is installed to provide electric service to a single customer. Let's assume for purposes of this example that the installed cost of the transformer is $850. For a distribution cooperative the annual revenue requirement for this transformer would be in the neighborhood of $93.50, assuming an 11 percent carrying charge rate ($850 x 11% = $93.50). The carrying charge rate for a distribution cooperative would include cost of capital, depreciation expenses, operation and maintenance expenses, and ad valorem or other taxes. For this example, I am assuming a cost of capital of 5 percent, a depreciation rate of 3 percent, and operation, maintenance and taxes of 3 percent. If the customer uses a monthly average of 600 kWh per month, then the cost per kWh associated with the transformer would be 1.30 cents per kWh ($93.50 ÷ (600 kWh x 12 months) = 1.30 ¢/kWh). But if the customer increases its average monthly energy usage from 600 kWh per month to 1,000 kWh per month, then the cost per kWh associated with the same transformer would be 0.78 cents per kWh ($93.50 ÷ (1,000 kWh x 12 months) = 0.73 ¢/kWh). As illustrated by this example, the cost of serving this customer actually decreases on a per kWh basis if the customer uses more energy. In this example, I have assumed a range of usage (600 kWh per month to 1,000 kWh per month) that would likely be served by the same type of transformer. Although Kit Carson's investment in line transformers represents the single largest component of its distribution assets, the

same type of analysis could be performed with any type of distribution equipment – service lines, overhead conductor, underground conductor, meters – and the result would be the same: as the customer uses more energy the unit cost per kWh for distribution facilities will go down. Therefore, there is no cost support for an inverted block rate design, neither with respect to Kit Carson's purchased power expenses nor with respect to its distribution costs.

Q: CAN AN INVERTED BLOCK RATE DESIGN BE SUPPORTED ON THE BASIS OF COST OF SERVICE?

A: No. An inverted block rate cannot be justified on the basis of cost of service. An inverted block rate is not cost based; rather, it is a rate structure designed to modify behavior instead of reflect cost causation. Because inverted block rates are not cost based they create cost subsidies and therefore raise basic issues of equity and fairness, which are particularly problematic considering low income customers tend to use more electric energy than the average for residential customers. Therefore, an inverted block rate structure forces low income customers to subsidize higher income customers.

Q: IS KIT CARSON ENGAGED IN PROMOTING ENERGY EFFICIENCY AND THE INSTALLATION OF RENEWABLE DISTRIBUTED GENERATION TECHNOLOGIES?

A: Yes. Kit Carson firmly supports member initiatives to use electric energy more efficiently and to implement cost-effective distributed generation alternatives (such as solar generation) that will provide long-term financial benefits to consumers and help protect the environment. While KCEC supports energy

efficiency and distributed generation initiatives, it must be recognized that such initiatives, as they are designed to do, will inevitably result in lower usage of electric energy by consumers.

Q: WHAT HAS BEEN THE CONSEQUENCE OF KIT CARSON'S INVERTED BLOCK RATE STRUCTURE ORDERED BY THE COMMISSION IN 2010 IN THE FACE OF DECLINING kWh CONSUMPTION?

A: It must be recognized that because a significant portion of KCEC's fixed distribution costs are recovered through its energy charge (currently an inverted-block energy charge), when its members reduce their energy consumption through the implementation of energy efficiency and distributed generation initiatives, KCEC's distribution costs are not reduced as a result of the reduction in its members' energy usage. This results in a growing revenue shortfall because while KCEC's purchased power expenses are reduced as its members reduce their demand and energy consumption, virtually all of KCEC's distribution expenses are *fixed costs* and are thus unaffected by reductions in energy consumption by its members. KCEC's purchased power expenses are generally *avoidable*, meaning that as its members use less demand and energy, KCEC's purchased power expenses are also reduced. In contrast to its purchased power expenses, essentially all of KCEC's distribution costs are fixed and are therefore *not avoidable*.

Q: DOES THE CURRENT RATE DESIGN PROVIDE THE RIGHT RETAIL RATE ENVIRONMENT FOR KIT CARSON TO PURSUE ENERGY EFFICIENCY AND CONSERVATION?

A: No. With a significant portion of fixed cost recovered through the energy charge assessed on a kWh basis, Kit Carson foregoes about 2.6 cents of non-volumetric fixed cost recovery for each kWh that it helps a customer save. This creates a win/lose scenario where the cooperative would forego fixed cost recovery whenever it helped a customer to conserve energy or use energy more efficiently.

Q: WHAT COSTS WOULD KIT CARSON SAVE AS A RESULT OF CUSTOMERS PURSUING ENERGY EFFICIENCY, CONSERVATION OR SELF GENERATION?

A: Customers pursuing energy efficiency, conservation or self-generation would reduce the kWh that Kit Carson would have to purchase to meet customer needs and would save Kit Carson some of the energy charges and possibly some of the demand charges that it pays to Tri-State. However, the costs of installing, maintaining and operating Kit Carson's distribution system are fixed costs that do not vary with customer purchases and thus, would not be "saved" if customers reduced their purchases from Kit Carson. Kit Carson is willing to share with customers cost reductions resulting directly from customers pursuing energy efficiency, conservation or self-generation. However, it would be financially detrimental to Kit Carson to include any fixed distribution system costs in the savings that it provides to its customers who pursue energy efficiency,

conservation or self-generation, as these actions by customers have done nothing to reduce Kit Carson's distribution system costs.

Q: WOULD THE PROPOSED RATE DESIGN PROVIDE A BETTER ENVIRONMENT FOR KIT CARSON TO PURSURE ENERGY EFFICIENCY AND CONSERVATION?

A: Yes. With a much larger portion of Kit Carson's non-volumetric fixed costs and margins recovered regularly through a monthly Customer Charge and not subject to variations due to customer energy usage, Kit Carson would be in a better position to pursue energy efficiency and conservation programs. The proposed rate design would more accurately reflect cost causation and create a better environment for Kit Carson to pursue energy efficiency and conservation than the current rate design. Allowing the cooperative to recover its non-volumetric fixed costs and margins regardless of how much energy the customer consumes, or perhaps more to the point, does not consume, creates a win/win environment in which the cooperative can actively promote energy conservation and energy efficiency. The reduced energy charge in the proposed rates would more accurately reflect the actual savings that Kit Carson realizes from reduced purchases from Tri-State than does the current rate design. The current rate design variabilizes about 2.6 cents of non-volumetric fixed costs in every kWh, which provides customers who pursue energy efficiency and conservation with bill reductions well in excess of any savings that Kit Carson has actually realized as a result of customer actions. The current rate design awards customers with larger

savings than the Cooperative actually incurs, which is not consistent with a cost causative approach to rate design.

Q: WOULD THE PROPOSED RATE DESIGN DISCOURAGE CONSERVATION?

A: No. Kit Carson's distribution system costs are almost entirely fixed costs. Once these fixed costs have been incurred by the Cooperative, they must be recovered from customers in order to leave the Cooperative financially whole. Energy efficiency and conservation are aimed at reducing the variable costs that the cooperative incurs, namely generation, transmission and purchased power costs that can be affected by reduced customer usage. However, reducing customer usage will have no effect on the Cooperative's fixed distribution system costs which it has already incurred to meet the needs of its customers. It is non-volumetric distribution system fixed cost that Kit Carson proposes to recover through the customer charge and these fixed costs are not reduced if customers use less kWh. It is not appropriate to provide these non-volumetric fixed costs to customers as savings if customers reduce their kWh usage because no distribution system costs to the Cooperative are saved through these usage reductions. Allowing the Cooperative to recover its non-volumetric fixed costs through a fixed monthly customer charge would not discourage conservation. Indeed, if the Commission forces Kit Carson to recover its non-volumetric fixed cost through a kWh charge, the Cooperative has a strong incentive to encourage kWh sales rather than help customers reduce their kWh usage. Putting the Cooperative in a position that it had to encourage kWh sales to recover its fixed distribution system

costs does not align the Cooperatives need to recover its fixed costs with the customer's desire for a lower energy bill. If the Cooperative were allowed to recover its non-volumetric fixed distribution system costs through a fixed monthly customer charge the Cooperative could recover its non-volumetric fixed costs without needing to encourage kWh sales, which would align the interests of the Cooperative and its customers. Thus, recovering non-volumetric fixed costs through a monthly customer charge rather than through an energy charge does not discourage conservation and energy efficiency, but rather helps to encourage conservation and energy efficiency by aligning the interest of the Cooperative and its customers. If non-volumetric fixed distribution costs are variablized by recovering them through a kWh charge, the Cooperative may over-recover the necessary fixed distribution system costs when sales are high and may under-recover fixed distribution system costs when sales are low, neither of which is appropriate or necessary if the right rate design is adopted. By recovering its non-volumetric fixed distribution system costs through a fixed monthly customer charge, the Cooperative is free to work with customers aggressively in pursuing energy efficiency and conservation goals without harming itself financially. By aligning the interests of the Cooperative and its customers, the customer charge of $20.50 that Kit Carson is proposing creates a better environment for the Cooperative to aggressively pursue energy efficiency and conservation than does the current rate design.

Q: GIVEN KIT CARSON'S RATE DESIGN WHICH HAS AN UNDERSTATED CUSTOMER CHARGE AND INVERTED BLOCK RATE STRUCTURE, WHAT HAPPENS TO KCEC'S MARGINS WHEN ITS CUSTOMERS REDUCE ENERGY AS A RESULT OF ENERGY CONSERVATION OR THROUGH THE INSTALLATION OF DISTRIBUTED GENERATION TECHNOLOGIES?

A: In this scenario, the Cooperative's margins deteriorate. Because the Cooperative's fixed costs are not reduced when customers reduce their energy usage, when customers reduce their purchases there is a reduction in revenues but not a commensurate reduction in expenses. Consequently, when customers reduce their energy usage, Kit Carson's margins suffer.

Q: HAS KIT CARSON'S RESIDENTIAL USAGE PER CUSTOMER DECREASED SINCE THE IMPLEMENTATION OF RATES FROM ITS LAST RATE CASE?

A: Yes. Since its last rate adjustment, KCEC has experienced a decrease in its average residential usage per customer. As discussed earlier in my testimony, in 2011, the average monthly usage for a residential customer served by KCEC was 483 kWh; but in 2014, the average monthly usage for a residential customer was 462 kWh. In 2015, the average monthly residential usage has now gone down to 458 kWh, an even further drop. KCEC attributes the reduced usage in part to the installation of distributed generation (particularly, solar generation) and increased energy efficiency by residential customers. As testified by Mr. Reyes, Kit Carson currently has 269 solar installations (four of which are owned by KCEC) and four

wind generation installations ranging from .235 kW up to 1.5 MW on the KCEC system. Kit Carson believes that solar generation on its system makes up a larger portion if its source of generation than any cooperative or investor-owned utility in the State. This reduction in sales has not been limited to the residential rate class. For over a decade, there has been a significant and steady decline in KCEC's overall usage per customer, as discussed earlier in my testimony.

Q: IS KIT CARSON'S AVERAGE RESIDENTIAL USAGE ALREADY LOWER THAN MOST OTHER ELECTRIC COOPERATIVES?

A: Yes, much lower. According to CFC's 2014 KRTA, the median for the average monthly residential usage for cooperatives nationally was 1,199 kWh per month in 2014. This compares to 481 kWh per month for Kit Carson. The median for cooperatives in New Mexico was 528 kWh per month in 2014, according to the 2014 KRTA report.

Q: HOW DOES KIT CARSON'S AVERAGE RESIDENTIAL USAGE RANK IN COMPARISON TO OTHER COOPERATIVES IN NEW MEXICO?

A: I performed an analysis of residential usage based on the information submitted to the Commission pursuant to NMPRC Rule 510. In this comparison, both seasonal and non-seasonal residential usage is included in the average. The analysis is shown in KCEC Exhibit No. ___ (WSS-18). The following table shows the ranking of all cooperatives in New Mexico based on average monthly residential usage:

Average Residential Usage Per Customer in 2014		
Cooperative	Customer Charge	Avg. kWh Usage Per Customer
Central Valley Electric Coop	$20.00	1,063
Roosevelt County Electric Coop	25.00	1,042
Lea County Electric Coop	14.00	1,010
Duncan Valley Coop	21.00	783
Farmers Electric Coop	17.50	766
Continental Divide Electric Coop	17.00	585
Central New Mexico Electric Coop Inc	15.75	575
Northern Río Arriba Electric	24.00	560
Rio Grande Electric Coop	35.00	539
Jemez Mountains Electric Coop	14.00	529
Columbus Electric Coop	20.00	527
Otero County Electric Coop	26.00	520
Southwestern Electric Coop	20.00	515
Socorro Electric Coop	15.00	511
Sierra Electric Cooperative, INC.	15.00	499
Springer Electric Coop	25.60	488
Kit Carson Electric Coop	14.50	462
Mora - San Miguel Electric Coop	20.00	426
Navopache Electric Coop	19.50	402

Table 3

As can be seen from Table 3, Kit Carson ranks third from the bottom in terms of monthly residential usage per customer. Furthermore, there does not appear to be any correlation between energy usage and the level of the customer charge. Most likely, the differences in residential usage for the cooperatives in New Mexico are related more to geographical and demographic considerations than with the level of the customer charge or with the inverted-block rate design.

Q: HOW DOES KIT CARSON'S RESIDENTIAL USAGE COMPARE TO THE AVERAGE RESIDENTIAL USAGE PER CUSTOMER FOR PUBLIC SERVICE COMPANY OF NEW MEXICO (PNM)?

A: In 2014, PNM's average residential usage was 579 kWh (3,169,071,000 ÷ 455,907 Customers ÷ 12 Months = 579 kWh/Customer/Month), which is 25 percent higher than Kit Carson's average residential usage.

Q: CONSIDERING THAT KIT CARSON HAS ABOUT THE LOWEST RESIDENTIAL USAGE IN NEW MEXICO, WHAT ARE THE CONSEQUENCES OF DRIVING THE USAGE EVEN LOWER?

A: Kit Carson has been very effective in promoting energy efficiency and the installation of renewable distributed generation. But the ongoing efforts to drive usage down even further will have a continuing debilitating effect on Kit Carson's earnings. While Kit Carson continues to be a proponent of energy conservation and renewable distributed generation, steps need to be taken to prevent the downward spiral in the Cooperative's earnings. This is not just a problem that Kit Carson faces, but one faced by cooperative and investor-owned utilities all over the country. As utilities promote energy conservation and distributed generation their margins will quickly deteriorate, especially if the utilities have significant portions of their fixed costs recovered through their energy charges, but even more especially if they have inverted block rates. For Kit Carson, its low residential customer charge, the adoption of an inverted block rate and the

concomitant reduction in average residential usage have had devastating consequences on the Cooperative's margins.

Q: DO KIT CARSON'S RESIDENTIAL SALES MAKE UP A SIGNIFICANTLY LARGER PERCENTAGE OF ITS TOTAL SALES THAN MOST OF THE OTHER COOPERATIVES IN NEW MEXICO?

A: Yes. In 2014, Kit Carson's residential sales made up 48.5 percent of its total sales. For all electric cooperatives in New Mexico, residential sales represented only 22.5 percent of total sales in 2014. Consequently, Kit Carson is much more sensitive to the reduction of residential sales on its system.

Q: IF AN INVERTED BLOCK RATE DESIGN AND LOW CUSTOMER CHARGE RESULTS IN DECREASED USAGE AND THEREFORE LOWER MARGINS FOR THE COOPERATIVE, DOESN'T THIS CREATE A REPEATING CYCLE OF EVER INCREASING RATES AND EVER DECREASING MARGINS FOR THE COOPERATIVE?

A: Yes, it does. As consumers continue to reduce their energy usage through the implementation of energy efficiency measures and distributed generation, KCEC will be forced into a repeating cycle of continuously being required to increase its rates due to the under-recovery of fixed costs created in large part by reduced energy consumption. As rates continue to increase as a result of declining usage, customers will then look for ways to further reduce their energy consumption. In economics this effect on consumer demand due to increases in price is called *price elasticity*. Price elasticity is a recognized phenomenon in the electric utility industry. As prices go up consumers will take specific measures to decrease their

purchases. To reduce their electric energy bills, consumers can insulate their homes, cut back on their thermostats, and install more efficient appliances. With the emergence of more cost effective solar and wind generation, consumers now can install distributed generation technologies behind the meter. This pattern can be illustrated by the following graph, which is not an unfamiliar one with natural gas utilities, which experienced the same pernicious cycle for decades:

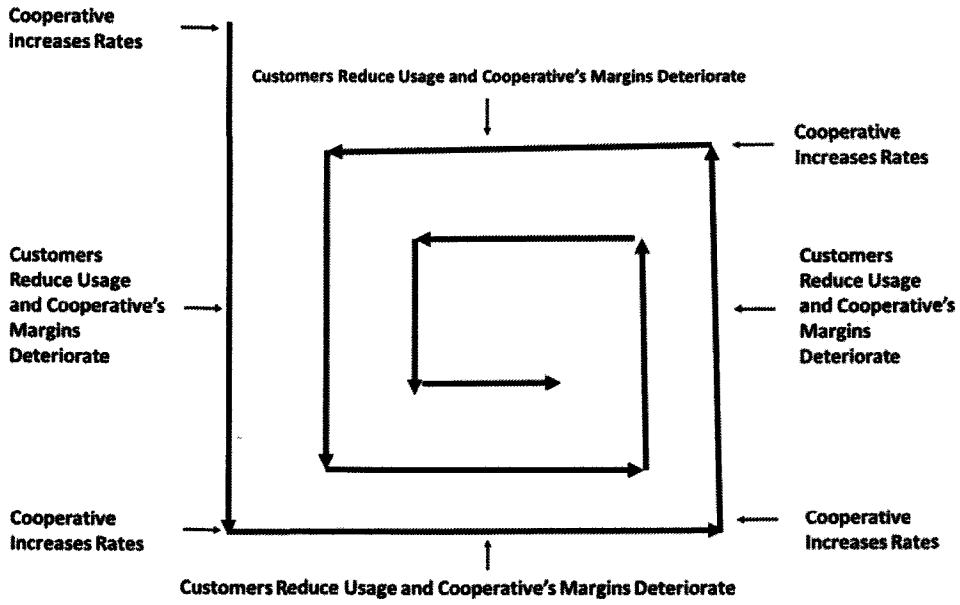

Figure 4

Q: DOES THE CURRENT RATE DESIGN WHICH CONSISTS OF AN INVERTED BLOCK RATE DESIGN AND LOW CUSTOMER CHARGE PROVIDE KIT CARSON AN OPPORTUNITY TO EARN MARGINS THAT ARE FAIR, JUST AND REASONABLE?

A: No. As mentioned earlier, the *Bluefield* and *Hope* standards require that rates be determined to allow the utility the *opportunity* to earn fair, just and reasonable margins. With a rate design that penalizes the Cooperative when customers lower

their energy usage and that is specifically designed to induce customers to lower their energy usage, ***the Cooperative is prevented by the very nature and intent of the rate design from earning the margins determined in a rate case.*** With an inverted rate design and a low customer charge, the Cooperative is not provided an opportunity to earn fair, just and reasonable earnings. Therefore, without taking additional measures to protect the Cooperative against lost earnings resulting from the adoption of an inverted block rate structure and understated customer charge, the Cooperative will not be provided with an opportunity to earn a fair, just and reasonable return as required by *Bluefield* and *Hope*.

Q: WILL KIT CARSON'S PROPOSED RATE DESIGN HELP ADDRESS THE DETIORATION IN ITS MARGINS DUE TO FURTHER PROGRESS WITH ENERGY CONSERVATION AND IMPLEMENTATION OF DISTRIBUTED GENERATION?

A: Yes. Kit Carson's proposed residential rate design will help to prevent the erosion in its margins in comparison to the current rate design. While Kit Carson is not proposing the adoption of a cost-based customer charge and will continue to recover a significant portion of its fixed distribution costs through the energy charge, the Cooperative will continue to experience margin erosion as customers reduce their energy usage even further.

Furthermore, Kit Carson's proposed rates will help stabilize fluctuations in the Cooperative's margins. When fixed costs are recovered through variable charges, such as an energy charge per kWh, a cooperative's fixed cost recovery is impacted by sales fluctuations due to weather, energy efficiency, conservation or

self-generation. If fixed costs are loaded in every kWh that the cooperative sells, then increased sales due to extreme weather, either hot or cold, result in over recovery of fixed costs. Similarly, mild weather, conservation, energy efficiency or self-generation would result in both reduced sales and under recovery of fixed cost by the cooperative. The result is a rollercoaster effect for cooperative revenue and margin recovery. This rollercoaster effect can be eliminated if the cooperative is permitted to follow the principle of recovering fixed costs through fixed charges, such as the customer charge. Recovering fixed costs through fixed charges aligns the interests of customers and the Cooperative by allowing the Cooperative to recover its fixed costs regardless of sales, thus freeing the Cooperative to work closely with its customers in reducing the costs that the Cooperative pays to its supplier and reducing customer energy bills.

An additional benefit to stabilizing the Cooperative's revenues is that the Cooperative may not need to file rate cases as frequently to address the revenue fluctuations. A cooperative is required to maintain certain levels of revenue to remain eligible for loans though the RUS, and consequently, it has no choice but to seek a rate increase if it falls below these levels over time. Therefore, all member customers benefit if the Cooperative has a more stable revenue stream by avoiding costly and time consuming rate cases.

Q: WILL THE ELIMINATION OF THE INVERTED BLOCK RATE DISCOURAGE CONSERVATION?

A: No. The trend that is now evident in the electric utility industry for consumers to install renewable generation technologies and use energy more efficiently will

likely continue regardless of the type of rate design that is utilized. It has been my experience that residential customers respond more to the level of their bills than to a careful consideration of the features of a particular rate design. ***Furthermore, consumer interest in energy conservation and renewable generation is largely a mindset.*** Consumers in certain regions of the country are more committed to the implementation of renewable generation than in other regions of the country. The region around Taos, New Mexico, is particularly committed to conservation and the adoption of renewable technologies. Regardless of whether the decrease in residential usage on Kit Carson's system is a result of the inverted block rate design or the mindset of its customers, the goals of energy conservation and adoption of renewable generation need to be balanced with maintaining the financial health of the Cooperative. Although energy conservation and the use of renewable generation are important goals, the financial health of the Cooperative cannot be sacrificed in the process of promoting these objectives. As I discussed earlier, it is not in the public interest to have a financially crippled Cooperative.

Q: ARE THERE OTHER REGULATORY FRAMEWORKS THAT COULD BE CONSIDERED TO PROTECT THE COOPERATIVE'S MARGINS WHILE ENCOURAGING REDUCED ENERGY USAGE?

A: Yes, there are. Specifically, the Commission could consider the adoption of a Straight Fixed Variable (SFV) rate design, an Earnings Sharing Mechanism (ESM), or Revenue Decoupling. While all of these alternative regulatory frameworks are intended to address problems associated with declining revenues

and margins from energy conservation and new technologies, in my experience there is no perfect answer for dealing with lost revenue. Based on my experience, a rate design such as the one proposed by Kit Carson provides a reasonable approach for addressing the problem. In my opinion, adjusting the rate design should be the first step for dealing with the Cooperative's declining customer usage. However, if the Commission determines it is necessary to maintain the current inverted block rate structure, then in order to preserve the financial health of the Cooperative, an alternative regulatory framework must be pursued.

Q: PLEASE DESCRIBE THE SFV RATE DESIGN AND EXPLAIN HOW AN SFV RATE DESIGN WOULD PREVENT MARGIN DETERIORATION FROM THE REDUCED ENERGY USAGE?

A: An SFV rate is a rate design in which all of the Cooperative's distribution costs would be recovered through a flat monthly charge, such as a customer charge. Only purchased power expenses would be recovered through the Cooperative's energy charge. SFV rate designs have been used extensively in the natural gas industry to deal with declining usage, downward spiraling margins, and the recovery of fixed costs. Under an SFV rate design, Kit Carson's customer charge would be $40.30 instead of $20.50 as proposed by the Cooperative. The SFV rate design would insulate the utility against lost revenue due to energy conservation and the installation of distributed generation. Only the Cooperative's avoidable costs would be recovered through an energy charge, specifically, the Cooperative's purchased power costs. All distribution-related costs would be recovered through the customer charge, thus fully protecting the Cooperative

from the deleterious effect on margins from reductions in customer usage. A problem with the rate design is that it is not cost based. Because it would result in such a large increase in the Cooperative's customer charge, an SFV rate design would likely be considered by the Commission to be inconsistent with the principles of rate continuity and gradualism.

Q: PLEASE DESCRIBE ESM AND EXPLAIN HOW IT WOULD PREVENT MARGIN DETERIORATION FROM THE REDUCED ENERGY USAGE?

A: An ESM is an automatic adjustment clause that would provide for a rate sur-charge if the Cooperative's margins fall below a specified minimum threshold and would provide for a rate sur-credit if the Cooperative's margins exceeds a specified maximum threshold. For an electric cooperative, an ESM could be structured so that the cooperative would perform within a band around a specified OTIER. For example, an OTIER band of 1.80 to 2.00 could be established for the cooperative. If the cooperative's OTIER were to fall below 1.80 then a sur-charge would be calculated that would bring the cooperative's margins up to the bottom end of the band, e.g., up to 1.80. Likewise, if the cooperative's OTIER were to move above 2.00 then a sur-credit would be calculated that would bring the cooperative's margins down to the top end of the band, e.g., down to 2.00. The revenue deficiency (or excess) would then be divided by annual kWh sales to calculate a surcharge (or sur-credit) that would be applicable to all kWh sales for an upcoming 12-month period. Because the ESM would be designed to prevent the cooperative's margins from falling below the bottom end of the OTIER band,

the ESM would prevent the erosion of margins from energy conservation and the implementation of distributed generation technologies by customers.

Q: PLEASE DESCRIBE REVENUE DECOUPLING AND EXPLAIN HOW IT WOULD PREVENT MARGIN DETERIORATION FROM THE REDUCED ENERGY USAGE?

A: Revenue decoupling is designed to decouple the link between energy usage and the amount of net revenues collected by the utility. Decoupling has been implemented by numerous utilities across the U.S. It is generally implemented as a rate adjustment mechanism that operates with annual sur-charges or sur-credits. With decoupling, the annual amount of net revenues (total revenues less purchased power expenses) (distribution-related revenues) for a particular rate class would be compared to the distribution-related revenue requirement determined from the cooperative's rate case for that rate class, as adjusted to reflect increases or decreases in the number of customers served. If the net revenues collected from the customer class for a 12-month period is less than the distribution revenue requirement for the customer class determined from the rate case (as adjusted for changes in the number of customers served) then a sur-charge is calculated based on the deficiency and then applied to kWh sales in a subsequent 12-month period. Likewise, if the net revenues collected from the customer class for a 12-month period is greater than the distribution revenue requirement for the customer class determined from the rate case (again, as adjusted for changes in the number of customers served) then a sur-credit is calculated based on the excess revenues and applied sales in a subsequent 12-

month period. Since decoupling allows the cooperative to collect net revenues equivalent to the distribution revenue requirement from its last case, the cooperative would be protected against loss of revenues due to conservation and the adoption of distributed generation technologies by customers, but unlike an ESM, the cooperative would not be protected against cost increases. Decoupling mechanisms have often been adopted instead of ESM because they provide more of an incentive for the cooperative to manage its costs. Decoupling and other lost revenue mechanisms have been implemented by a number of utilities in conjunction with energy conservation and demand-side management programs in order to keep the utilities whole.

Q: ARE YOU RECOMMENDING THAT AN SFV RATE DESIGN, ESM OR DECOUPLING MECHANISM BE ADOPTED FOR KIT CARSON?

A: It is my recommendation that the Commission approve the rate design proposed by Kit Carson, which reflects a moderate increase in its customer charge and the elimination of the current inverted block rate structure. KCEC's current low customer charge and inverted block rate structure along with significant decreases in energy consumption by customers are having a devastating effect on Kit Carson's margins. If the Commission concludes that it is in the public interest to continue to require Kit Carson to utilize the current non-cost-based inverted block rate design rather than a rate design that more accurately reflects costs, then some type of alternative regulatory framework will be necessary to prevent energy conservation and distributed generation from financially crippling the Cooperative. Without taking measures to protect the Cooperative from margin

erosion, a rate design with a non-cost based customer charge and a non-cost based inverted block rate structure cannot be considered fair, just and reasonable.

B. SEASONAL RESIDENTIAL SERVICE

Q: WHAT IS THE PROPOSED REVENUE INCREASE FOR SEASONAL RESIDENTIAL SERVICE?

A: Kit Carson is proposing a revenue increase of $245,717 for the Seasonal Residential rate class, which will be collected through an Energy Charge of $0.12884 per kWh and a Customer Charge of $24.00 per customer meter per month, as shown on page 3 of KCEC Exhibit No. ___ (WSS-14). The customer charge is higher for the Seasonal Residential class because most of these customers are provided with underground service, which is more expensive, and with larger electric services requiring larger transformers. The Residential class has a pro forma return on rate base of -1.44% in the cost of service study.

C. OTHER RATES

Q: PLEASE DESCRIBE THE APPROACH TAKEN IN DESIGNING RATES FOR THE OTHER RATE SCHEDULES.

A: For all other rate schedules, Kit Carson is proposing to move the unit charges closer to the cost of service. Kit Carson is proposing to roll in the cost adjustment riders into base rates. For Power Service, the Cooperative is not proposing a rate change other than to adjust rates to reflect the effect of the roll-ins. The proposed

rates for the non-residential schedules along with the impact of the proposed rates are shown on page 4 through 12 of KCEC Exhibit No. ___ (WSS-14).

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes, it does.