Q. Please state your name.

A. My name is Richard W. Anderson.

Q. What is your business address and by whom are you employed?

A. My business address is 1407 W North Temple Street, Salt Lake City, Utah. I am employed by Rocky Mountain Power Company (the "Company").

Q. What is your position with Rocky Mountain Power Company and what are your responsibilities?

A. My current position is Manager, Load Research in the Metering Business Unit. I am responsible for the development of all class load profile estimates utilized in cost allocation, rate design, forecasting and special studies. I direct the design, implementation, and maintenance of all load studies performed by both Rocky Mountain Power and Pacific Power Companies. I am responsible for the development of load coincidence factors and for the determination of the distribution system peak for the Company.

Q. What is your educational and work experience?

A. I have a Bachelors Degree in Accounting from the University of Utah. I have over 30-years of experience with the Company in the areas of accounting, auditing, and load research (27-years). I served as Chair and Co-Chair of the Western Load Research Association and as Sub-Committee Chair of the Association of Edison Electric Companies (AEIC) Load Research Committee. I co-authored past and current editions of the AEIC Load Research Manual and have been an instructor at AEIC Load Research training courses.

Purpose and Summary of Testimony

Q. What is the purpose of your rebuttal testimony?

A. My rebuttal testimony is in response to the Testimony of Committee of Consumer Services witness Anthony Yankel. My rebuttal focuses on the method Mr. Yankel used to calculate the load factor data presented in his testimony. I will then present a more appropriate representation of load factor data by usage level.

Load Factors

Q. Do you agree with Mr. Yankel's representation of the average coincident peak load factors presented on pages 4 and 5 of his testimony?

A. No. Mr. Yankel's load factor calculations misrepresent and distort actual customer usage patterns in favor of his analysis and resulting recommendations. Mr. Yankel has erroneously determined the average coincident load factor for each usage level by taking a simple average of the average load factors for each sample customer. This is not a sound mathematic process, is empirically incorrect, and when used will produce incorrect results. The correct approach, which is consistent with how load research estimates are universally prepared, is to calculate the aggregate or weighted average load factor for the customers in the load size grouping. Under this approach, load factors are derived using average weighted energy consumption per customer in each load size group, divided by the hours in the period of interest, divided by average weighted coincident demand per customer in the load size group.

Q. How were you able to determine that Mr. Yankel's methodology is flawed?

A. Using the same data files that Mr. Yankel used, and through some trial and error, our analysts were able to exactly replicate Mr. Yankel's results.

Q. Apart from averaging the average factors are there other problems with Mr. Yankel's methodology?

A. Yes; I take issue with two other aspects of Mr. Yankel's approach. Before I address these issues, it should be noted that Mr. Yankel's approach effectively post-stratifies the current load research sample in an attempt to estimate loads for usage blocks, or strata, for his analysis. This approach is reasonable if done correctly. I take issue with these two aspects of Mr. Yankel's method:

- After segregating the load research customers for the residential class, Mr. Yankel neglected to appropriately weight the customer data to more reasonably reflect the number of customers represented by the stratified load groups.
- Mr. Yankel's methodology re-assigns sample customers to different segregated groups or strata, for each month depending on their usage. Load research practitioners refer to customer movement between stratified groups as strata migration; a condition that should be minimized because of its distorting impact on calculated sample estimates.

Q. Relative to weight factors; have you calculated appropriate weight factors for the stratified usage groups in Mr. Yankel's testimony?

A. Yes; these weight factors are presented in Table 1 below:

Table 1

Strata Range	Weight Factors	Strata Range	Weight Factors
0-400 kWh	0.28320	0-400 kWh	0.28320
401-600 kWh	0.21422	401-1000 kWh	0.50340
601-1000 kWh	0.28918	>1000 kWh	0.21340
>1000 kWh	0.21340		

Q. Did Mr. Yankel have access to data from which these weight factors were calculated?

A. Yes; this data was provided by the Company in its response to Data Request CCS 2 Request 2.5 and again in response to CCS Data Request 29.1.

Q. What affect does not weighting this data correctly have on these load factor calculations?

A. Not weighting the raw load research customer data, or application of incorrect weight factors, will result in less precise estimates of the contribution of individual strata to the total class. By not applying weight factors, Mr. Yankel makes the assumption that every residential load research sample customer is an equal representative of the total population (residential class, 650,000 customers). This implies that the small usage sample customer group has equal representation in the total class population as the medium to very large usage sample customer groups. As indicated in Table 1, the numbers of customers represented by the stratified groups used in Mr. Yankel's analysis are not evenly distributed between the strata.

Q. You stated that strata migration exists in Mr. Yankel's analysis and that this causes distortion in the calculated class estimate. Will you please explain this further?

A. Movement of sample customers between strata ignores the natural diversity of the individual sample customer load. This methodology tends to over-emphasize the monthly contribution of the migrated customer to the total stratum load. This distortion can result in either an inappropriate increase or a decrease in the strata contribution to the total class load, depending on the usage pattern of the migrated customer.

Q. Has the Company produced load factor estimates that are more representative of customer usage groupings being analyzed by Mr. Yankel?

A. Yes. These data are presented below.

Table 2

Monthly NonCoincident Peak Load Factor, Sample of 145 Schedule 1 Customers, Summer 2004*

Average Monthly Usage	NCP_LF May-04	NCP_LF Jun-04	NCP_LF Jul-04	NCP_LF Aug-04	NCP_LF Sep-04	Avg Monthly LF for Summer
0-400 kWh	12%	12%	15%	15%	14%	14%
401-1000 kWh	17%	19%	22%	20%	17%	19%
> 1000 kWh	23%	25%	31%	29%	23%	26%
0-400 kWh	12%	12%	15%	15%	14%	14
401-600 kWh	16%	17%	19%	17%	16%	17%
601-1000 kWh	18%	21%	25%	23%	19%	21%
Total	19%	21%	25%	23%	19%	22%

* : Monthly noncoincident peak load factors are developed by first grouping the sample of customers by their monthly usage, and then calculating the load factors by the dividing the average monthly usage per customer by the average Indiviual Customer Monthly Maximum demand (ICMD).

Monthly Distribution Peak Load Factor, Sample of 145 Schedule 1 Customers, Summer 2004 *

Average Monthly Usage	DCP_LF May-04	DCP_LF Jun-04	DCP_LF Jul-04	DCP_LF Aug-04	DCP_LF Sep-04	Avg Monthly LF for Summer
0-400 kWh	106%	72%	82%	65%	84%	78%
401-1000 kWh	87%	72%	61%	56%	71%	67%
> 1000 kWh	75%	75%	61%	55%	62%	64%
0-400 kWh	106%	72%	82%	65%	84%	78%
401-600 kWh	113%	63%	53%	50%	84%	65%
601-1000 kWh	73%	80%	68%	62%	64%	68%
Total	81%	73%	62%	57%	67%	67%

* : Monthly distribution peak load factors are developed by first grouping the sample of customers by their monthly usage, and then calculating load factors by the dividing the average monthly usage per customer by the average peak load per customer at the time of Utah's distribution system peak.

Monthly Coincident Peak Load Factor, Sample of 145 Schedule 1 Customers, Summer 2004 *

Average Monthly Usage	CP_LF May-04	CP_LF Jun-04	CP_LF Jul-04	CP_LF Aug-04	CP_LF Sep-04	Avg Monthly LF for Summer
0-400 kWh	85%	84%	73%	71%	77%	77%
401-1000 kWh	78%	62%	71%	57%	66%	66%
> 1000 kWh	69%	65%	66%	58%	51%	61%
0-400 kWh	85%	84%	73%	71%	77%	77%
401-600 kWh	83%	71%	74%	63%	65%	71%
601-1000 kWh	73%	56%	69%	54%	66%	62%
Total	73%	65%	69%	59%	58%	66%

* : Monthly coincident peak load factors are developed by first grouping the sample of customers by their monthly usage, and then calculating coincident load factors by the dividing the average monthly usage per customer by the average peak load per customer at the time of PacifiCorp's system peak.

Summary

Q. You have stated three reasons for concern relative to Mr. Yankel's calculation of load factors and subsequent analysis:

a. Averaging the averages

b. Inappropriate weighting

c. Strata migration

Is one of these factors more problematic than the others?

A. Yes; averaging the average load factors is by far the most influential problem and in this case has resulted in load factor estimates that are distorted in a direction that aides Mr. Yankel's analysis but have no basis in fact, are mathematically incorrect, and are intuitively wrong.

Q. Does this complete your rebuttal testimony?

A. Yes it does.