Q. Please state your name.

A. My name is Scott D. Thornton.

Q. Are you the same Scott D. Thornton that has testified previously in this case?

A. Yes I am.

Purpose of Testimony

Q. What is the purpose of your testimony?

A. My testimony is intended to rebut various portions of the testimonies provided by Mr. Maurice Brubaker of the UIEC, Mr. Kevin Higgins of the UAE, Mr. Paul Chernick of the OCS and Mr. Jonathan Nunes of the DPU.

Q. With regards to Mr. Brubaker's testimony, what areas do you intend to address?

A. Mr. Brubaker has made three assertions regarding the load research data used in this case. First, the load research samples are old. Second, the load research samples have not been shown to be representative of RMP's current customers. And third, class loads prepared by the Company's load research group should be reconciled to jurisdictional loads, with any difference between the two to be absorbed by the sample classes. I will address each of these issues in that order.

Age of Load Research Samples

Q. Do you agree with Mr. Brubaker's assertion that the samples used in this rate filing are old?

A. No, I do not. The sample data employed in this case was collected throughout the specified base year for this filing, 12 months ended December 2008. Mr. Brubaker has correctly noted that the sample **designs** were prepared in the very early 1990's, with

the sample customers being drawn from that same time period. While the load sample may have been put into service some years ago, the data that is collected is current.

Q. According to Mr. Brubaker, "The fact that the character and nature of the Residential class load has changed so dramatically over the last nearly two decades since the initial sample was drawn calls into question whether the sample as originally drawn continues to be representative of the usage patterns of the Residential customers today." Do you agree with Mr. Brubaker's concern?

A. While I agree that character and nature of the Residential class loads have changed dramatically over the last nearly two decades, I point out that Mr. Brubaker offers no proof that this has occurred. In fact, such change has occurred and I will demonstrate as much utilizing the data collected from the Residential load research sample. This data will show that the Residential load research sample reasonably reflects the usage of the Residential class for the base year defined in this rate case.

Q. What evidence do you intend to provide that will demonstrate that the previous Residential load research sample provided load estimates that were consistent with the Residential class as a whole?

A. I will provide both energy and demand data that validate the load research sample estimates tracked information retrieved from the billing system, as well as demand curve related data that shows the demand increasing over time.

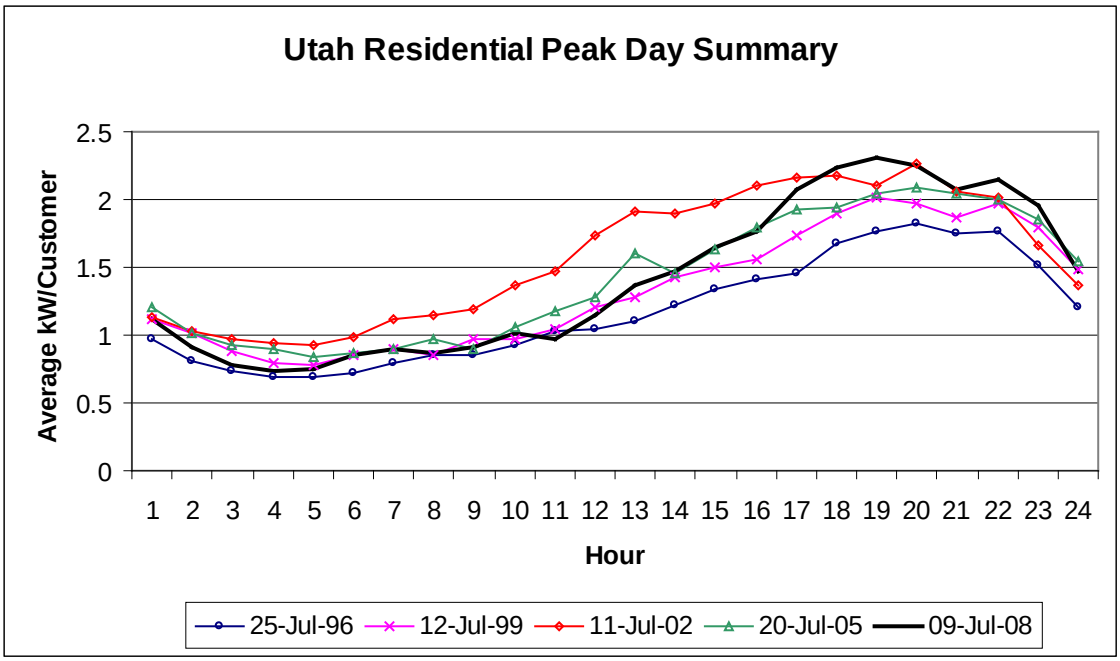
Q. How well have the Residential load research sample energy estimates tracked with the data that flows into the Company's billing system?

A. The sample data has compared very well. In 1999 the average Residential monthly

kWh/customer was 637.635 kWh. The sample design was re-weighted based on that level of usage. The sample annual energy estimate for 2006 was within 4.7 percent of that shown in the billing system. In 2007 the difference was, 0.8 percent. This data has been provided in case 07-035-93, UIEC 20-4 and is included as exhibit RMP___(SDT-1R) of this testimony. The adjustment factors detailed in this exhibit show that, for the residential load study, the difference between sample estimated energy and billed energy for 2006 was 4.69807 percent. In 2007, the difference was .089102 percent. In 2008, the base year for this rate filing, the difference, as detailed in RMP___(SDT-2R) was 0.088425%. That's less than a 1 percent adjustment for each of the last two years. I believe this clearly demonstrates that the residential load research sample tracks very well with the Company's billing data.

Q. You indicated that you would present demand curve data as well. What is that data?

A. The data in the graph attached below, which was originally provided to the UIEC in UIEC 2-34, and is provided as exhibit RMP___(SDT-3R) to this testimony, details the growth and change in the residential demand curve since 1996. These curves represent average Residential demand on the summer peak day for the years 1996, 1999, 2002, 2005, and 2008.



The curves clearly show growth in the afternoon and evening Residential loads. This growth in the afternoon loads, captured by the Company's residential load research sample, is consistent with the increased penetration of central air conditioning the Company has experienced.

Q. Can you draw any further inferences from these data?

A. Yes. There is a tendency to believe that older samples are no longer representative, particularly in the case of Residential load studies, because they do not account for gains or losses associated with new construction. I will state an obvious point: Houses, new or old, do not use energy. Rather, energy is used by appliances, at the direction of people. And, appliances wear out. The fact that sample customers were drawn in 1991 or 1999 is a minor argument. The customer we selected to participate in 1991 looked vastly different at that time than he does today. As the customer's appliances wore out, they were replaced with more energy efficient models. The

customer may have very likely also replaced his windows with a more energy efficient variety, and supplemented the insulation in his attic. And based on the number of customers who have done so, there's a strong possibility that the customer has replaced his old swamp cooler with a central air conditioner and is now participating in the Company's Cool Keeper program. Our customers are not static. They change over time. As such, a family of four living in a 20 or 30 year old, 2,500 sq. ft. home may have an energy usage profile very much like a family of four living in a 2,500 sq. ft. home built in the last two or three years. The fact that participants for a given study were drawn 5, 10 or even 20 years ago doesn't necessarily invalidate the results of that study. As long as those results still compare in an acceptable fashion to known variables, in this case billing data, the data should be deemed acceptable.

Calibration of Class Loads

Q. Mr. Brubaker has recommended that the class loads developed by the load research group be adjusted to match the jurisdictional loads and, further, that any differences between class loads and jurisdictional loads be allocated back to the sampled loads (Residential, Schedule 006 and Schedule 023). Do you agree with this approach?

A. No, I do not. Mr. Brubaker offers exhibits UIEC_(MEB-1) and UIEC_(MEB-2) to support his contention that the difference between class loads, which include both sample estimates and census measurements, and jurisdictional loads, which are deemed to be direct measurement, is substantial and getting worse. The data in these exhibits is based on forecast test years for several of the Company's rate filings. There are three significant causes for the differences, unrelated to the sample data. These

include:

- The method employed to calculate forecast class load data,
- losses, and
- the exclusion of certain customer loads

Q. Please describe the method used to forecast class load data.

A. The load research group estimates average per customer hourly demand for each customer / rate / class for every hour of the base year historical period. This historical data is then aligned with the forecast test year such that the first Monday in a given month aligns with the first Monday for the same month in the forecast year, the first historical Tuesday with the first forecast Tuesday, and so forth. Once the realignment has been completed, the class load data is then extrapolated to match the forecast monthly energy. The data is then further ratioed by the appropriate loss factor. These are static loss factors and are the same for every hour of the year. Finally, the class load data is extracted and summarized for those dates and times identified by the forecasting group as test year system peaks.

Q. You've identified this methodology as a possible significant cause for the differences Mr. Brubaker has identified. Would you explain why this is so?

A. Yes. In response to the concerns raised by Mr. Brubaker, the Company looked at how the alignment of the historical calendar to the forecast calendar might be distorting the loads. It was discovered that the shift of the data was creating situations where the forecast peak dates and times didn't necessarily align to what would be considered the peak for the historical data. As such, the relationship of loads between the classes that would be expected on a peak day was not being maintained.

Q. Would you explain how this realignment distorts the class load relationships you've identified?

A. Yes. The monthly system peaks mark singular events, the highest level of demand required by the system for a given time period. While we can't always pinpoint when the event will occur, we can pinpoint the time of likely occurrence based on several factors, most notably, temperature. Summer peaks are likely to occur later in the week, following several days of hot temperatures. Winter peaks, in like fashion, are likely to occur after several days of cold temperatures. Temperature sensitive classes, such as residential and small commercial, and to some extent irrigation, will experience their highest levels of demand at these times. As described previously, summarizing the load data based on forecast dates and times, presented us with situations where the forecast peak date didn't necessarily align with a historical peak date. As such, we were losing the relationship between the classes that would be expected under a true, peak day scenario.

Q. What would be a likely result of this loss of relationships between the classes?

A. As a result of this methodology, a disparity between forecast jurisdictional loads and forecast class loads was exaggerated, because the system peaks defined by the jurisdictional load data didn't necessarily align to what would have been the system peaks associated with the class load data.

Q. Has the Company made any changes as a result of this analysis?

A. Yes. As a result of this analysis, the cost-of-service group requested that the alignment of historical dates to forecast dates be discontinued. They further requested that, after the base year estimates had been adjusted to reflect forecast energy levels,

the customer / rate / class load summaries be based on the dates and times of the historical system peaks. Load summaries have been prepared based on these requests and provided to the cost-of-service group.

Q. What has been the effect of this change?

A. Based on analysis performed by the cost-of-service group, the comparison between class loads and jurisdictional loads, as identified by Mr. Brubaker, has been reduced to an average of about 2 percent difference for the test year.

Q. You also mentioned losses as a significant cause for the differences identified by Mr. Brubaker. Please explain.

A. Jurisdictional loads are measured at the source of generation, or at the various jurisdictional tie lines and so are considered to contain actual losses. Loads collected for load research purposes are collected at the customer meter and so contain no losses. In order to adjust them to loads plus losses, a single, voltage specific, static loss factor is applied to the data. These loss factors were prepared by Managements Applications Consulting, Inc. and are based on an analysis of system losses for 2007. Obviously, any difference between actual jurisdictional losses and static class load losses should be spread across all classes, not just the sampled ones.

Q. Finally, you mentioned the exclusion of certain customer loads as a cause for the difference. Would you please explain that assertion?

A. Jurisdictional loads are assumed to represent the total load for the jurisdiction for any given point in time. In order to accurately compare customer class loads, as presented in the Company's class cost-of-service-study, to these loads, that study would also have to include estimates of all loads within the jurisdiction. That is not the case. The

class cost-of-service-study does not include electric furnace loads serviced under schedule 21, backup loads serviced under schedule 31, or the partial requirement loads. As such, a meaningful comparison cannot be made.

Q. So is it your recommendation that, because the source of the differences cannot be isolated, class loads should not be reconciled to jurisdictional loads.

A. Yes, but I'm not the only one that has made that recommendation. In a report presented to the Utah Commission on July 1, 2002, the Load Research Working Group, comprised of members from the DPU, the CCS, the Company, and other interested parties, "generally agreed that any one of three components (load research data, census data, and/or Utah Border Load data) could have an error that impacted these calibration factors."

Q. Did the Working Group make a recommendation to the Commission regarding the practice of calibrating class loads to jurisdictional loads?

A. The Working Group agreed that the Company should discontinue the practice of calibrating Utah load research data to Utah jurisdictional loads.

Q. What is your overall assessment of the assertions made by Mr. Brubaker related to the load research data used in this filing?

A. Mr. Brubaker continues to insist that the Company's load research samples are unreliable, but offers no proof beyond the age of the sample designs and the mismatch between the sum of the class loads vs. the jurisdictional loads. Testimony and exhibits presented by the Company indicate that the data used in this filing, collected throughout the 2008 base year, presents an acceptable estimation of the classes represented. Further, the Company has shown why the calibration of sample data to

jurisdictional data continues to be a bad idea, and why the Load Research Working Group in 2002 recommended the practice be dropped. As witness Brubaker has offered no evidence to support his claims of the "unreliable nature of the Residential load research data that RMP uses in its class cost-of-service-study", I recommend that the Commission accept the Company's use of these load estimates in this rate filing.

Q. Does this conclude your rebuttal of Mr. Brubaker's testimony?

A. Yes, it does.

Q. Continuing on, you wished to rebut a portion of the testimony supplied by Mr. Higgins of the UAE. What specific points of Mr. Higgins testimony did you wish to address?

A. Mr. Higgins mentions three areas of concern. First, he feels that the size of the load research samples, specifically the Residential sample, are insufficient to provide reliable load estimates for the group. Second, he believes that the comparison of monthly billed energy to monthly load estimates confirms that these samples are not performing as designed. And third, as with Mr. Brubaker, Mr. Higgins feels that class loads as developed by the load research group should be adjusted to match jurisdictional loads, with any differences rolled into the sampled classes only. I will address each of these issues in that order.

Sample Sizes

Q. Do you agree with Mr. Higgins assertion that "the small samples may not be producing sufficiently accurate cost allocations"?

A. No I do not, and I offer this extreme example: Suppose that all 660,000 Utah residential customers used energy in exactly the same fashion, and that they used

exactly the same appliances at exactly the same time, all the time. Under this extreme scenario, the group could be accurately sampled with one meter. What this example shows is that it's not the size of the population that is the main driver in determining the proper sample size. Rather, it is the variability of usage with the group, or population.

Q. Is there a specific sampling philosophy that the Company employs for its load studies?

A. The Company utilizes stratified sample designs to develop its load studies. Each sample is designed to achieve plus or minus 10 percent precision at the 90 percent confidence level. More simply put, the samples are designed to provide estimates of load that will fall within plus or minus 10 percent of the actual load, nine out of ten times. This type of design is widely employed and accepted within our industry. The technique is endorsed and more fully described by the Association of Edison Illuminating Companies in their Load Research Manual, Second Edition, published in 2001.

Q. Could you explain the assumptions behind stratified sampling?

A. Yes. Stratified sampling is utilized to divide a given population into more homogeneous sub-groups, balancing the size of the sub-group against the variability of usage within the group. Exhibit RMP___(SDT-4R) details the bill frequency listing employed in the latest Utah residential sample design. The frequency has been divided into three sub-groups: 0 to 750 kWh, 751 to 1,500 kWh and 1,501 to 191,500 kWh. These values represent average monthly usage based on 12 consecutive months of data. The first group, 0 to 750 kWh, which includes 53 percent of the total

population, has fairly low variability. All customers are contained by a narrow 750 kWh band. The same situation exists for the second group, also contained within a narrow 750 kWh band. This group contains 39 percent of the population. The final group encompasses a huge amount of variability within the group, 1,500 to 191,500 kWh, but represents only 8 percent of the population. Stratified sample designs recognize that the residential class contains a large amount of variability on the whole, but that the major portion of that variability is assignable to a very small portion of the population.

Q. Why does the Company prefer Stratified Random Sampling over other options, such as Simple Random Sampling?

A. There are a combination of factors, but the most common is cost vs. benefit. Simple Random is easily understood and accepted, but there is a significant cost increase in moving from Stratified Random to Simple Random. If both types of samples will provide load estimates that are statistically identical, it is more prudent for the Company to adopt the method that costs the least.

Q. Can you provide an illustration of what you mean by "significant cost increase"?

A. Yes. The cost for the installation of the Residential load study that was activated in October of 2008 was $43,722, and has monthly reading charges of $1,190. That study, as Mr. Higgins has pointed out, is comprised of 170 meters. If we had employed a Simple Random Sample design, we would have installed 840 meters, as detailed in exhibit RMP___(SDT-5R). This type of sample would cost almost 5 times that of the stratified design. And what we would have received from that latter sample is the same thing we get from the Stratified design: an estimate of demand at the time of the

monthly system peaks, designed to achieve 5 percent precision at the 90 percent confidence level.

Validation of Sample Performance

Q. Mr. Higgins asserts that your samples aren't meeting specified precision and confidence levels. He offers as proof the exhibit from your prefiled testimony, RMP___(SDT-1). Do you agree with Mr. Higgins assessment?

A. No, I do not. The portion of the exhibit referred to by Mr. Higgins is reproduced below, and the entire exhibit is included as RMP___(SDT-2R). Mr. Higgins states that "the Residential sample kWh estimate for July 2008 was 17.6 percent below the actual billing kWh for that class." The table listed below indicates that Mr. Higgins is correct in that statement. In fact, it appears that an adjustment of 1.1758659 is required to pull the load research data back in line with the billing data. It can also be seen that the July Billing kWh referenced by Mr. Higgins is about 58 percent higher than the previous month. The corresponding comparison for the load research data shows a 37 percent increase between June and July.

UT RES CL	**200801**	**200802**	**200803**	**200804**	**200805**	**200806**	
Sample Kwh	599,052,461	505,423,370	488,541,661	424,951,959	420,716,078	521,822,055	
Billing Kwh	616,786,238	437,532,253	476,334,093	454,181,654	436,548,899	512,946,266	
Adj. Fact.	1.0296030	0.8656748	0.9750122	1.0687835	1.0376330	0.9829908	
	200807	**200808**	**200809**	**200810**	**200811**	**200812**	**Total**
Sample Kwh	688,250,949	636,891,744	426,580,113	461,603,441	502,048,676	689,048,996	2,960,507,584
Billing Kwh	809,290,790	681,314,801	456,841,069	451,428,261	478,732,013	614,726,834	2,934,329,403
Adj. Fact.	1.1758659	1.0697498	1.0709385	0.9779569	0.9535570	0.8921381	**0.9911575**

Q. Billing data measures actual usage. Do you have an explanation as to why the July billing data presents such a sharp divergence from the load research data?

A. Yes, I do. Sample data is processed into strict calendar month blocks. Billing data is collected throughout the month on billing cycles. In an attempt to allocate billing data

into like calendar month blocks, customer data is converted into average per day usage. If a meter is read for billing on August 15th, then 15 times that average daily usage will be allocated to August and 15 (or 16) times that usage will be allocated to July. This process can be distorted by extremes in weather or operations. This means that, on a monthly comparison basis, you're comparing load research estimates to billing data that has been allocated to calendar month values based on a fixed set of procedures. As such, a significant monthly difference doesn't necessarily point to a problem with the sample data.

Q. If the samples can't be verified against actual billing data on a monthly basis, is there a way to gauge how effective they are?

A. Yes. If you compare annual adjusted billed energy to the annual sample estimates, the effects of the monthly calendar adjustments to billing data have largely washed out. Looking again at the table presented above, the Residential sample estimates for the year fall within 0.9 percent of what was recorded in the billing system.

Q. Do you believe that the Company's load research samples continue to provide the reliable load estimates required to effectively allocate costs?

A. Yes, I do. For the reasons I have just discussed, I believe the load research samples continue to provide reliable load estimates and can be effectively used to allocate costs among customer classes.

Calibration of Class Loads

Q. Mr. Higgins has also stated that he believes that "The decision several years ago to stop calibrating estimated loads to the measured jurisdictional loads is causing

an unreasonable detrimental impact on Schedules 8 and 9 in the cost-of-service study." Do you agree with his statement?

A. No, I do not. Mr. Higgins is making the assumption that any difference between class loads and jurisdictional loads is solely attributable to sample data, in the form of sample error. As I pointed out in my response to Mr. Brubaker, who shares the same concern, there are a number of factors which contribute to this difference.

Q. What is your overall assessment of the assertions made by Mr. Higgins?

A. The load research group prepares samples that are designed to achieve, at a minimum, confidence and accuracy levels based on industry accepted practices. Mr. Higgins has not shown that those practices are deficient. As to Mr. Higgins assertion that class loads should be calibrated to jurisdictional loads, the Company has presented several very good reasons why this is not done, and why the various parties who participated in the Load Research Working Group agreed it should not be done.

Q. Does this conclude your rebuttal of Mr. Higgins testimony?

A. Yes it does.

Q. You also wished to rebut a portion of Mr. Chernick's testimony. What, specifically would you like to address?

A. Mr. Chernick asserts that the irrigation load study over-estimates the actual irrigation load, as evidenced by the adjustment factors.

Irrigation Sample Validation

Q. Do you agree with Mr. Chernick's assertion?

A. I agree with Mr. Chernick's assertion, and stated such in prefiled testimony. I disagree with his assessment of the results. As previously stated, the irrigation sample was not

drawn from the entire irrigation class. Rather, it was drawn from those customers who had actively irrigated in the previous two years. The purpose of the study was to develop a load shape for actively irrigating customers to produce load estimates of active irrigation. As a result, when these estimates are expanded by the total population of the irrigation class, the results are overstated, and hence, the adjustment factors are disproportionately large. This is by design. These load estimates are then ratioed down to match billed energy for the period.

Q. Why did you sample only a portion of the irrigation class?

A. The irrigation class presents a number of challenges from a sampling viewpoint. The irrigation demand curve relies on several factors, including weather and crop rotation. Past studies have also shown that a given customer may not irrigate every year. When employing a stratified random sampling philosophy, the loss of a single sample customer can have significant impact on the load estimates.

With this in mind, we approach irrigation samples in a different fashion. Sample customers are drawn from a pool of the irrigation customers who were actively irrigating in the prior two year period. The effect of this change is that the sample estimates will always be greater than the energy derived from billing records. This is by design. Our intent is to accurately construct the load curve of those customers actively irrigating. We avoid overstating the peak demand of the irrigation class by then adjusting that load curve down to the level of the billed energy. This explains the large downward adjustment factor shown for the irrigation class in Exhibit RMP___(SDT-2R).

Q. Mr. Chernick asserts a key assumption in this downward ratioing of the irrigation load data is that class demand factors are constant in proportion to energy use. Do you agree with this assessment?

A. Yes, I do. Mr. Chernick correctly points out that this adjustment results in no change to the load shape, and carries with it the assumption of a constant relationship between class demand factors and energy use. Mr. Chernick argues that this assumption is unrealistic. The Company agrees, but also asserts that there is a strong correlation between the variables of interest in this sample, demand at the time of the system peak and energy. If Mr. Chernick has evidence that supports the notion that any adjustment in energy results in a **greater** adjustment in demand, which would reduce the irrigation class contribution to system peak, we would be happy to evaluate how that evidence might affect our results.

Residential Sample Clarification

Q. Does this conclude your response to Mr. Chernick?

A. No, I would like to make one clarification to a statement made in Mr. Chernick's testimony. Mr. Chernick stated that the 2008 Utah Residential load study recommended only 73 meters. This is correct for the six strata, 90/10 design. This was not the sample design employed for the actual installation of this study. In fact, the Company adopted a three strata, 90/05 design that called for the installation of 144 sample sites. The Company supplemented this design by an additional 26 sites bringing the total number of installations to 170. Both of these sample designs have been provided as exhibits RMP___(SDT-6R-A) and RMP___(SDT-6R-B).

Q. **Does this conclude your response to Mr. Chernick?**

A. Yes, it does.

Q. Finally, you wished to rebut portions of Mr. Nunes testimony. What specific areas would you like to address?

A. Mr. Nunes makes two assertions. First, the Company's samples do not meet the PURPA standard of plus or minus 10 percent precision at the 90 percent confidence level, and second that the Company's samples could be improved by employing various techniques that he suggests. I will address both of these points in that order.

Sample Validation

Q. Do you believe that the Company's samples meet the standard described by Mr. Nunes?

A. Yes and no. As with other witnesses, Mr. Nunes states that a comparison of sample data to billed data on a monthly basis results in unacceptable differences. Again, I disagree. As stated in my rebuttal to Mr. Higgins, gauging the performance of the samples should be done on the annual level, rather than monthly. With that in mind, and referencing RMP___(SDT-2R), I believe the Residential sample absolutely meets the criteria. The estimates of annual energy are within 0.9 percent of the values measured in the billing system, and the monthly differences fall on both the high and low side of billing data, indicating a lack of bias. The Schedule 23 sample provided annual estimates within 6.3 percent of billing, but the monthly differences tended to be on the low side, indicating possible bias. This sample was replaced in 2008. The Schedule 6 sample fell outside the 10 percent margin at 12.1 percent, and the monthly adjustment factors were all on the low side of billing, indicating bias. This sample was

also replaced in 2008. I've already addressed the issues related to the irrigation sample in my response to Mr. Chernick.

Sample Design Improvement

Q. Mr. Nunes also asserts that there are various ways to improve the sample designs, or make them more effective. His suggestions include increasing the confidence interval to 95 percent, increasing the number of strata, stratifying on a different variable such as location with the service area, home age, housing density, seasonality of energy usage or other proxy variables. Do you agree with Mr. Nunes assertion?

A. I agree that increasing the confidence interval is an excellent way to improve the sample design, although at an additional cost. An alternative to that proposal would be to increase the precision level, which is what the Company has done. The Residential sample that went into effect in late 2008 was designed to achieve 5 percent precision at the 90 percent confidence level.

Q. Can increased precision be achieved by increasing the number of strata?

A. It can. There are several potential downsides to looking at this as a solution, however. The first is sample maintenance. If you are defining your sample boundaries so narrowly that the addition of a single appliance by a customer, say a flat screen TV, knocks them into a different strata, then you end up spending way too much time babysitting the sample to insure that the sample customers are properly allocated. The other significant downside is that if there is a requirement to include a minimum number of sites per stratum, which the Company has, you quickly reach the point where the addition of strata increases the total sample size. As Mr. Nunes has pointed

out, however, defining an optimum number of strata can be an effective tool in increasing both confidence and precision levels.

Q. Mr. Nunes also mentions employing alternate stratification variables as a way to improve the sample. Is this an effective means to obtain better results?

A. Generally speaking, no. Let me explain why. The fundamental question that must be answered before sample design can begin is "What is the purpose of the sample"? The purpose of all cost-of-service related load studies designed by the Company are to provide estimates of monthly system demand. That's all. And that's why, in large part, sample sizes are so small. They are designed for one purpose only. Mr. Nunes has suggested a number of possible alternate variables for stratification. Most do not further the objective of providing an estimate of demand at the time of the system peak. Rather, they seek to expand the versatility of the sample.

Q. Would the employment of the stratification variables suggested by Mr. Nunes make the sample more versatile?

A. Yes, but at additional cost. One of the variables listed was location within the service area. You might select this as a variable if you wanted the sample to not only provide system peak estimates, but to do so by location within the service area. But is this added versatility worth the increased cost of the sample design? Since rates are not designed this way, you would be increasing the sample size for dubious purpose.

Q. There are several variables mentioned related to housing. Could these be useful stratification variables?

A. No, for several reasons. First, one of the requirements for stratification variables is that the data be readily available for all members of the population. The Company does not

collect or store this type of data. And second, as I pointed out earlier in this testimony, houses don't use energy. As such, there can be no correlation to system peak demand.

Q. Can you summarize your conclusions about Mr. Nunes comments?

Q. Yes. Witness Nunes states that a comparison of sample data to billed data on a monthly basis results in unacceptable differences. The Company agrees. For reasons stated in response to Witness Nunes testimony, the Company believes that this comparison should not be done on a monthly basis. Because billed energy must be re-apportioned into calendar month blocks, this month-to-month comparison is effectively comparing one estimate to another. Monthly billed energy does not provide a solid standard to be gauged against. On an annual basis, the effects of unbilled revenue are effectively washed out, and a more reliable comparison can be made.

Q. Does this conclude your response to Mr. Nunes?

A. Yes it does.

Q. Does this conclude your testimony?

A. Yes it does.