Q. Please state your name, business address, and position with the Company.

A. My name is David J. Godfrey. My business address is 1407 West North Temple, Suite 320, Salt Lake City, Utah. My position is currently the Director of Asset Management and Compliance for PacifiCorp Energy.

Qualifications

Q. Please describe your education and business experience.

A. I have a Bachelor of Science degree in Mechanical Engineering from Brigham Young University. I have worked in the electric industry for almost 26 years. I have spent the bulk of my career in various engineering and management positions. I started out with the Company performing design studies and small project management for power plant improvement projects. I then filled many positions with increasing responsibility in the generation organization. In 2001, I became the Director of Asset Management for generation with responsibilities for the development of strategic asset plans and risk management plans for the generation fleet. I also oversee the management of the Company's Availability Information System and PacifiCorp Energy's compliance with the North American Electric Reliability Corporation Reliability Standards.

Summary of Testimony

Q. Please summarize your rebuttal testimony.

A. My rebuttal testimony responds to certain issues raised by Utah Division of Public Utilities (DPU) witness Mr. George W. Evans regarding the Company's forced outage rates and his proposal to use a single average North American Electric Reliability Corporation/Generating Availability Data System (NERC/GADS) statistic to adjust the Company's Net Power Costs (NPC).

Q. Please describe Mr. Evans' proposed adjustment related to the Company's forced outage rates.

A. Mr. Evans recommends that the Commission reject the Commission's long-time practice of calculating forced outages using actual historical data for each unit based upon a rolling four-year average. Instead, Mr. Evans proposes a benchmark that replaces the actual data used to calculate the NPC with a national average outage rate for units of a comparable size. Mr. Evans proposes using statistics from NERC/GADS to calculate his average national forced outage rate. The NERC data consists of utilities' self-reported Equivalent Forced Outage Rates (EFOR)—a different calculation than the Company's forced outage rate used in its power cost model. Mr. Evans justifies his adjustment after comparing the Company's forced outage rate to the NERC/GADS EFOR and concluding that the Company's units experience a higher than average outage rate.

Q. Why does the Company disagree with Mr. Evans' use of the NERC/GADS data to adjust the NPC?

A. The Company has four main objections to using the NERC data as proposed by Mr. Evans:

- First, his proposal is a significant departure from Commission precedent and nothing in the record suggests that his proposal will increase the accuracy of forecast outage rates;
- Second, it compares two different calculations—the NERC/GADS EFOR and the Company's forced outage rate—and then replaces one with the other

without accounting for the differences;

- Third, it focuses on a single statistic while ignoring overall fleet performance; and
- Fourth, it is a benchmarking mechanism that improperly compares the operations of a single unit to a potentially non-comparable NERC/GADS peer group average.

Commission Precedent

Q. Does Mr. Evans' proposal represent a departure from Commission precedent?

A. Yes. The Company uses each unit's actual, historical data to calculate the forced outage rate by use of a four-year rolling average. The Commission has consistently endorsed this method. For instance, in Docket No. 01-035-01 the Commission retained the use of the four-year average because it found that it provided a better approximation of forecast outages than the six-year average proposed by others in that proceeding. Mr. Evans' proposal, on the other hand, eliminates the historical average and substitutes a national industry average instead. This is a significant departure from past Commission practice.

Q. Why is this departure so significant?

A. Mr. Evans' proposal undercuts the purpose of the forced outage rate calculation. The underlying purpose of this calculation is to forecast the expected outage rate for each unit during the test period. This value is then used in the Company's GRID model to forecast NPC for the test period. A unit's past performance is the most accurate predictor of future outages.

Q. Did Mr. Evans address how his method affects the accuracy of the forecast?

A. No. Nothing in his proposal suggests that his method will improve forecast accuracy. His testimony fails to identify any substantive basis for his new method because he fails to show causation.

Moreover, Mr. Evans' proposal is a benchmark—it compares the Company's performance to that of the industry and disallows certain costs if the Company fails to meet the established benchmark. Benchmarking, however, is not a forecasting tool. The Company, therefore, does not support the use of benchmarking to single out specific units against an industry-wide benchmark to establish NPC or expectations for future performance.

The Company is also concerned that his proposal unfairly singles out one component of the test period NPC calculation and instead of using forecasting based upon historic data, it replaces the forecast with an industry average. Singling out specific components and replacing them with generic industry data is poor regulatory policy and undermines the whole purpose of a test period—using historic data to predict future NPC.

NERC/GADS EFOR Versus The Company's GRID Forced Outage Rate

Q. What is the Company's second concern with Mr. Evans' proposal?

A. As I describe in more detail below, Mr. Evans' analysis fails to correct for the fact that the Company's forced outage rate used in its NPC takes into account more outages than the outage rate reflected in the NERC/GADS data. A direct comparison of the Company's forced outage rate to the NERC/GADS EFOR is therefore inherently flawed. This flaw is further compounded when it is used to justify the replacement of the Company's data with the NERC/GADS data without accounting for the outages excluded from the EFOR calculation. This results in certain outages being excluded from the power cost model altogether.

Q. By way of background, can you please describe the different types of plant outages?

A. The are four main categories of outages used to describe a plant or unit when it is off-line:

- Planned outages;
- Unplanned outages;
- Deratings; or
- Reserve shutdowns

Q. Please describe a planned outage.

A. NERC/GADS defines a planned outage as "an outage that is scheduled well in advance and is of a predetermined duration, lasts for several weeks, and occurs only once or twice a year. Turbine and boiler overhauls or inspections, testing, and nuclear refueling are typical Planned Outages."

Q. Please describe an unplanned outage.

A. NERC/GADS defines an unplanned outage or derate as either maintenance or forced.

A maintenance outage is an outage that can be deferred beyond the end of the next weekend (Sunday at 24:00 hours), but requires that the unit be removed from service, another outage state, or reserve shutdown state before the next planned outage. Characteristically, a maintenance outage can occur any time during the year, has a flexible start date, may or may not have a predetermined duration, and is usually much shorter than a planned outage.

A forced outage is an outage that requires immediate removal of a unit from service, another outage state, or a reserve shutdown state. This type of outage usually results from immediate mechanical, electrical, or hydraulic control systems trips or operator-initiated trips in response to unit alarms.

Q. Please describe a derating.

A. A derating occurs whenever a unit is limited to some power level less than the unit's Net Maximum Capacity. A derating starts when the unit is not capable of reaching 100 percent capacity. The available capacity is based on the output of the unit and not on dispatch requirements. The derating ends when the equipment that caused the derating is returned to service, whether the operators use it at that time or not.

As with outages described above, a derating can be planned, maintenance, or forced.

Q. Please describe a reserve shutdown.

A. A reserve shutdown occurs whenever a unit is available for load but is not synchronized due to lack of demand. This type of event is sometimes referred to as an economy outage or economy shutdown.

Q. How does the Company model unavailability in its GRID model?

A. The Company combines all of the above-described unplanned outage and derate hours in the following formula to develop a rate that can be applied to all hours that the unit is scheduled to run:

$$Forced\ outage\ rate = \frac{FOH + EFDH + MOH + EMDH + EPDH}{FOH + MOH + SH} \times 100$$

Where:
SH = Service hours
FOH = Forced outage hours
EFDH = Equivalent forced derated hours
MOH = Maintenance outage hours
EMDH = Equivalent maintenance derated hours
EPDH = Equivalent planned derated hours

This calculation results in a forced outage rate that is a ratio of the hours a unit is unavailable to the hours the unit is scheduled to run. For instance, a forced outage rate of 10 percent means that the particular unit is unavailable 10 percent of the time the unit is scheduled to run. This calculation takes into account all outages a unit may experience.

Q. How does that differ from the EFOR number that Mr. Evans used?

A. Mr. Evans proposed replacing the above number with the EFOR number that comes from the NERC/GADS data. This number is based on the following formula:

$$EFOR = \frac{FOH + EFDH}{FOH + SH} \times 100$$

Where:
SH = Service hours
FOH = Forced outage hours
EFDH = Equivalent forced derated hours

Clearly, the two formulas differ because the EFOR does not account for any maintenance outages or the planned or maintenance derates. The Company's forced outage rate, therefore, includes outages that are not included in the NERC/GADS EFOR data. In this case, Mr. Evans is comparing apples and oranges.

Q. Did Mr. Evans account for these different formulas in his testimony?

A. No.

Q. How do these different formulas affect Mr. Evans' recommendation?

A. First, Mr. Evans based his recommended adjustment on his conclusion that the Company's forced outage rates are generally greater than the forced outage rates reflected in the NERC/GADS data. This result, however, is not surprising because the Company's forced outage rate includes types of outages that are not included in the NERC/GADS data. Mr. Evans failed to account for this important distinction and therefore failed to show that an adjustment is necessary.

Second, Mr. Evans' proposed adjustment replaced the actual historical data with the average EFOR without accounting for the fact that the EFOR does not include all the outages it is replacing. This means that those outages included in the Company's forced outage rate are effectively excluded from the power cost model. Mr. Evans provided no support for excluding these outages.

For these reasons alone the Commission should reject Mr. Evans' proposed adjustment.

Single Statistic Versus Overall Performance

Q. Are there any other problems with Mr. Evans' proposed adjustment?

A. Yes. Mr. Evans focused exclusively on the Company's forced outage rate and failed to consider how that single statistic fit into the overall performance of the Company's generating fleet—a fleet that consistently performs better than a comparable NERC/GADS peer group.

Q. What are the dangers of looking at just a single statistic?

A. There are several reasons why this is not a good practice. First, it can give misleading results. Second, it does not reflect the overall value being delivered by the generating fleet to the Company's customers.

Q. Please explain how it can give misleading results.

A. Focusing on one, single statistical measure can create misleading results when that single measure is used to compare the performance of two units without reference to other relevant factors. For example, Unit A could have annual overhauls which make it unavailable for 10 percent of the year and an unplanned outage rate of five percent. If there are no reserve shutdown hours this would provide an 85 percent availability rate for dispatch.

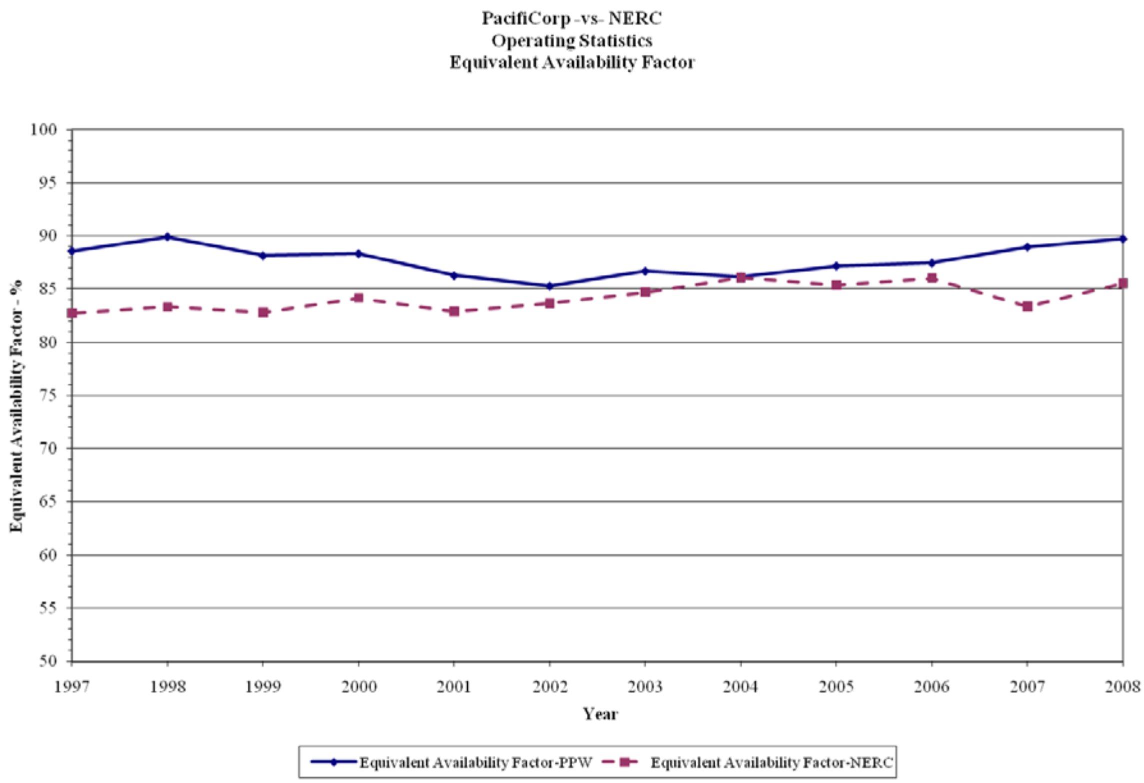
Unit B could be on a four-year overhaul cycle which makes it unavailable for three percent annually and have a 10 percent unplanned outage rate. If there are no reserve shutdown hours this would provide an 87 percent availability rate for dispatch.

If one looked only at the unplanned outage rate, one could draw the wrong conclusion that Unit B performs worse than Unit A. Even though Unit B has a greater overall availability rate, in isolation its unplanned outage rate appears excessive.

To fully understand how a utility is performing it is important to view a variety of factors. In particular, when analyzing the Company's forced outage rates, it is important to analyze the outage rates in the context of three other performance factors: equivalent availability, capacity factor, and planned outage hours.

Q. Why is equivalent availability an important statistic when comparing plant performance?

A. Equivalent availability is a measure of the optimal energy that could have been generated during a given report period. This eliminates the bias of market conditions. As the graph below illustrates, the Company fleet consistently has a greater equivalent availability factor than its NERC/GADS peer group.



Equivalent availability also takes into account all the reasons a plant could be off-line, including planned outages, planned derates, forced outages, maintenance outages, equivalent forced derates, and equivalent maintenance derates. This means that the equivalent availability data removes the bias that can appear if a Company outage is placed in a different category than a comparable outage from the NERC/GADS peer group. For example, it does not matter if an outage is classified as maintenance or forced; they are all treated equally in equivalent availability.

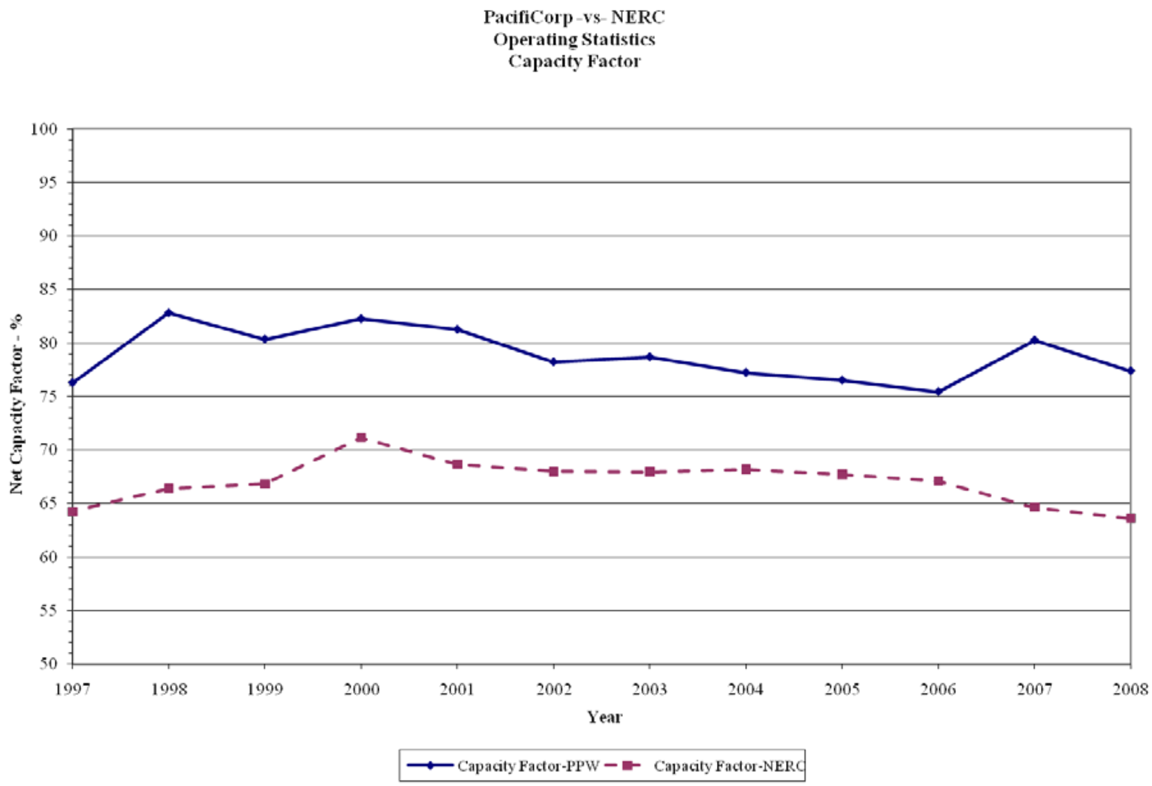
The above graph also shows that the Company fleet is improving its performance against the NERC/GADS peer group over the last four years.

Q. How is it possible that a Company outage could be placed in a different category than a comparable outage from the NERC/GADS peer group?

A. Each utility that reports data to NERC/GADS does so in a manner that they believe meets the NERC/GADS reporting criteria. However, the data is not audited, and therefore there is no way to ensure that there is consistency in reporting.

Q. Why should capacity factor be considered?

A. Capacity factor is the measure of actual output compared to the possible output. Therefore, the higher the capacity factor the more the plant has operated at or near its maximum capacity. Because this is the most efficient operating level, it means that power is produced at its lowest cost. It also means that the Company's fleet is able to generate more power thus offsetting the need for the Company to purchase power on the wholesale market. The Company fleet's capacity factor is consistently greater than the NERC/GADS peer group as illustrated in the graph below.



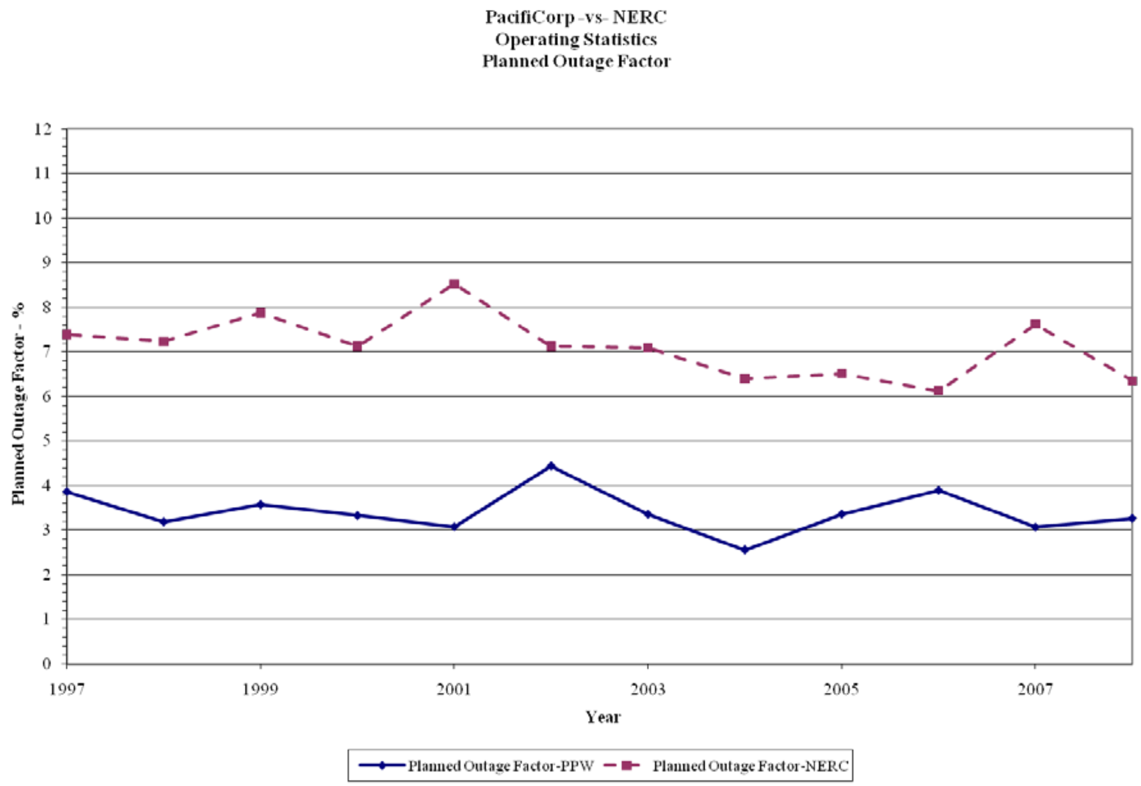
By operating the fleet at these high capacity factors the Company is able to provide greater benefit to its customers by supplying a low cost source of energy. Looking at the four-year average ending December 31, 2008, the Company fleet had a capacity factor of 77.4 percent versus the NERC/GADS peer group's capacity factor of 65.8 percent. The difference in capacity factor represents approximately 937 MW of capacity for the Company's fleet (using the average fleet capacity of 8,077 MW). This represents a substantial benefit to the Company's customers because it represents power the Company did not have to purchase on the more expensive wholesale market.

Q. **The Company's capacity factor for the four-year period ending December 31, 2008, is 11.6 percent greater than the NERC/GADS peer group average. What is the approximate value associated with the Company's above average capacity during this period?**

A. The value of the power associated with the Company's fleet running above the NERC/GADS peer group capacity factor for the four-year period ending December 31, 2008, is in the range of $250 million to $325 million. These savings have helped the Company maintain relatively low net power costs compared to other utilities.

Q. Explain the significance of the planned outage factor.

A. The planned outage factor simply divides the amount of planned outage hours by the total period hours. This is a measure of the percentage of time the plant was off-line for a scheduled maintenance outage. The Company fleet has less planned outage hours than its NERC/GADS peer group as illustrated by the graph below.



Looking at the four-year average ending December 31, 2008, the Company fleet had a planned outage factor of 3.19 percent as compared to a planned outage factor of 6.66 percent for the NERC/GADS peer group. This difference equates to a difference of 7.6 TWh of generation (using the average fleet capacity of 8,077 MW and the fleet capacity factor of 77.4 percent) over the four-year period.

Q. What conclusions can be drawn after comparing the generating fleet's overall performance to that of the NERC/GADS peer group?

A. When measuring the overall performance, the Company's fleet outperforms the NERC/GADS peer group. The Company operates its fleet to maximize the benefits to customers by reducing total net power costs. It does not operate its fleet to minimize forced outages at the expense of overall performance. Thus disallowing a significant portion of the Company's NPC simply because one statistic appears excessive is poor policy. If the Commission adopts Mr. Evans' proposal, it would create a strong incentive for the Company to focus its attention on one single measure of fleet performance and that may very well result in higher NPC to Rocky Mountain Power's Utah customers.

The comparisons are also important because Mr. Evans' based his adjustment solely on his conclusion that the fleet performs poorly with respect to one statistical measure. If overall the fleet performs well then there is no basis for his adjustment.

Benchmarking Mechanism Applied To Single Units

Q. What is the Company's final criticism of Mr. Evans' proposal?

A. Mr. Evans' proposed benchmark is problematic because it compares individual units to industry averages without accounting for the different characteristics of each unit.

Q. What are the Company's concerns about comparing single units to NERC/GADS average statistics?

A. This concern is similar to that discussed above regarding using a single, isolated statistic to measure fleet performance. Again, the Company operates its fleet to maximize the benefits to its customers. That means that overall as a fleet the Company compares well with NERC/GADS data or other industry indices. Comparing each individual unit to an industry average, without the context of its operation within the total fleet, can be misleading.

Moreover, this comparison ignores the fact that each individual unit has its own unique operating characteristics. Units with different capacities and different operating characteristics have different challenges and opportunities. Looking at the average NERC/GADS data for coal-fueled plants of a similar size and making inferences about how a specific plant should run is like comparing repair costs for your car to the average cost of repairs for all cars of similar make and model. Some cars are driven once a week while others are commercial vehicles. Ignoring these significant differences makes the comparison largely meaningless. If one is trying to compare the value of their vehicle, it is best to compare it to vehicles similar in size and similar in use.

When comparing a single unit, it is extremely critical to understand the peer group used to establish the comparison. It is imperative that the comparison include the right conversion technology, unit size and composition, operating regime, and age. If not fully understood and adjusted for, all of these factors can skew the results and give false expectations.

Q. Has NERC provided any guidance for selecting a peer group for the comparison of an individual unit?

A. Yes. The following quote is from the NERC website, under the benchmarking tab and describes the standards for selecting a peer group for individual unit benchmarking:

> "Whenever we benchmark a generating plant's performance, it is vital that we start by selecting a peer group that have as close a similarity in design and operating characteristics as possible. Certainly, we would never compare a fossil steam unit against a group that included nuclear, hydro or combined cycle units. However, many benchmarking programs have assumed that for fossil steam units, fuel type and size ranges are the proper select criteria. We have found from our extensive benchmarking studies

> that fuel types and especially the arbitrary size ranges (100-199MW, 200-299MW, etc.) are relatively much less statistically significant than other design and operational characteristics such as criticality, duty cycle, vintage, pressurized/balanced draft, etc. Because each individual unit is unique, our process ensures that the optimal peer group is selected; balancing the need for similarity in design and operations with the need for a large enough sample size for statistical validity. Without this objective analysis to find the optimal peer select criteria any conclusions drawn from the comparisons could very well be invalid and misleading."

Thus, even NERC warns that when benchmarking a single unit it is vital to use a truly comparable peer group or the results of the comparison may be invalid and misleading.

Q. Does the Company support comparing its fleet performance to NERC/GADS data for other purposes?

A. The Company supports the use of NERC/GADS data to benchmark or trend the fleet performance against a peer group. This type of comparison can help indicate long-term trends and identify potential areas for improvement. Importantly, however, the Company only supports benchmarks for these purposes and not for forecasting. The Company also uses benchmarking to compare its *entire fleet* to an industry average, not individual units.

Q. How does the Company develop its peer groups for comparison?

A. When the Company compares its entire fleet performance against the NERC/GADS data it creates a peer group by simulating a fleet of similarly sized units. This is accomplished by creating an equivalently configured system from the NERC/GADS database so that the number of units and the type of units within a given fuel category and size are the same as the Company fleet. Therefore, the makeup of our fleet from year-to-year is duplicated by using an equivalent system configuration, using the NERC/GADS database. For example, the Company fleet has one coal-fired unit in the 1-99 MW range, four coal-fired units in the 100-199 MW range, two coal-fired units in the 200-299 MW range, eight LM 6000 gas units, one geothermal unit, etc. The NERC/GADS capacity range averages are then weighted to simulate the Company fleet.

Q. Does Mr. Evans' proposed benchmark take into consideration these issues?

A. No. Mr. Evans' benchmark is based solely on comparing each The Company unit to all units of a comparable size in the NERC/GADS database. His proposal fails to consider each unit's operating characteristics and design and is therefore likely to result in invalid and misleading comparisons.

Q. Please summarize your rebuttal testimony.

A. The Commission should reject Mr. Evans' proposal and re-affirm its long-standing policy in favor of forecasting forced outage rates using each unit's actual historical data. Mr. Evans' entire proposal is based on his erroneous conclusion that the forced outage rate used in GRID is the same as the NERC/GADS EFOR. Because these calculations are different, a direct comparison will be flawed and replacing one value with the other will ignore and exclude certain outages. Moreover, Mr. Evans' analysis fails to consider the overall performance of the Company's fleet when he focused on one single statistical measure in isolation. Finally, his benchmark proposal improperly compares individual units to industry averages.

Q. Does this conclude your rebuttal testimony?

A. Yes.