Proposal for an Alternative Approach to Reporting Electric Reliability Statistics for Avista's Service Quality Measures Program

May 6, 2015

Hello, All.

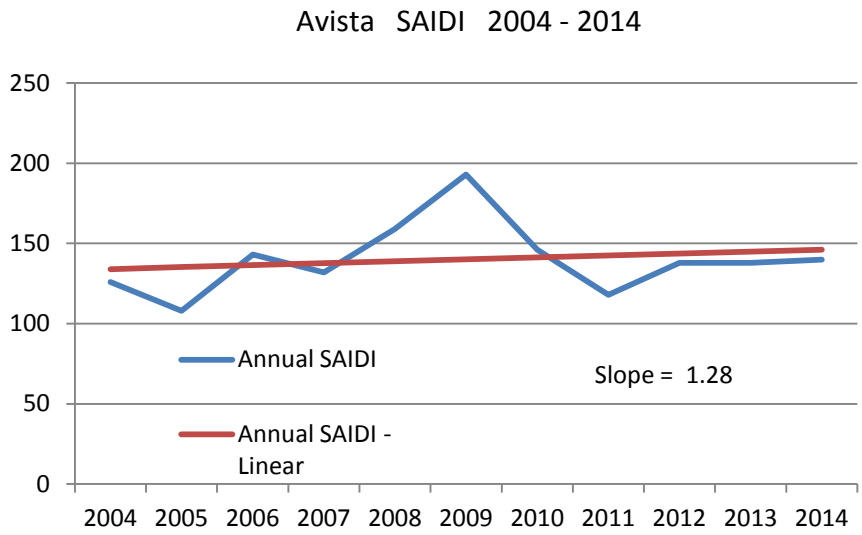
In our recent group discussions about the applicability of different reliability benchmarks, I believe it was Brad (*I know you will correct this if not*) who mentioned something like the need for a measure 'to see the long-term trends in the Company's reliability, to understand if it's declining, improving, or holding steady.' That idea resonates with us, as we have all grappled with the challenges of setting appropriate annual benchmarks for judging the performance of Avista's system, and for understanding and managing its likely long-term trajectory.

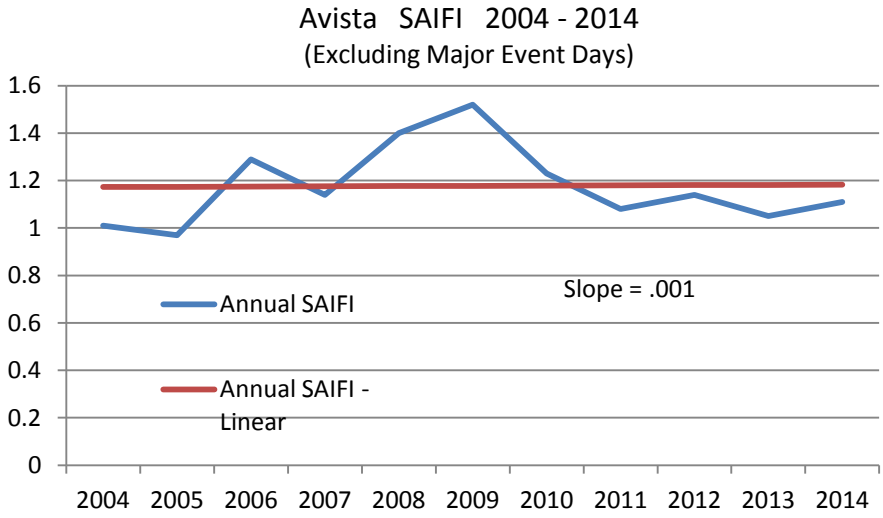
In developing an alternative to annual targets for evaluating the Company's electric reliability performance for system power interruptions (SAIFI), and system outage duration (SAIDI), we believe it's helpful to first explain the rationale for such a proposal. The following narrative and charts, which highlight a few points related to the Company's recent trends in reliability, and provide a little bit deeper look into the underlying data, is our attempt to accomplish that.

Avista's Current Trends

To begin, the two familiar charts, below, show Avista's annual SAIDI and SAIFI values for the period 2004 – 2014. This data set includes one more year (2014) than the information Brad recently provided to the group. In addition to showing the annual numbers, we have also included the regression line (linear) for each set of data. The data in these two charts, consistent with our practice for the purpose of reliability reporting, excludes the Major Event Days.

The overall linear trend suggests a slight decrease in the Company's reliability performance, more notable for SAIDI, and less so for SAIFI.

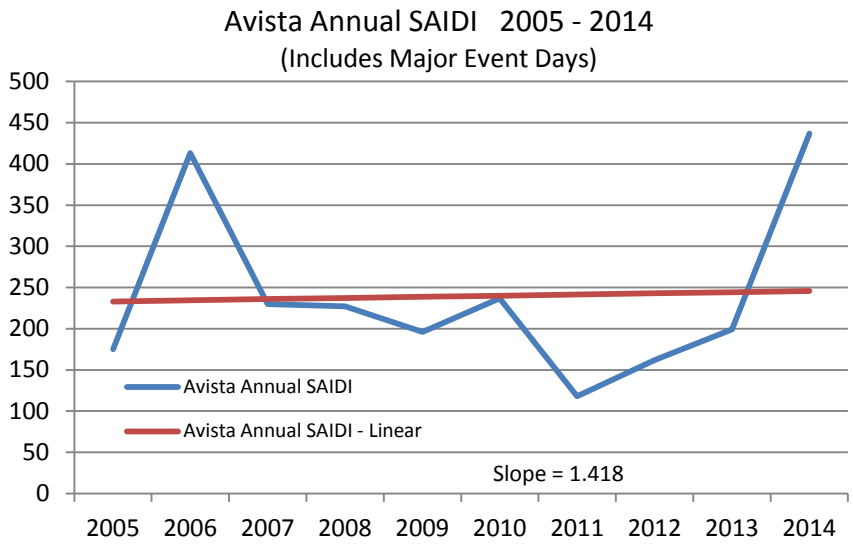


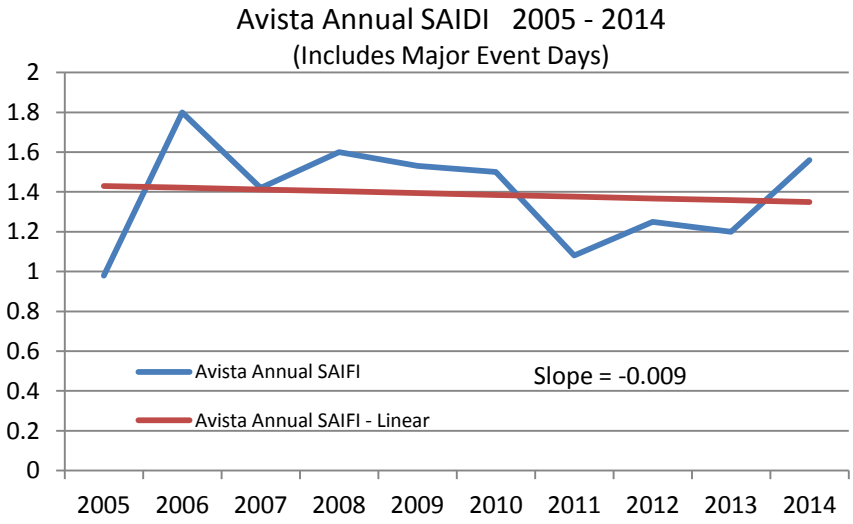


Excluding Major Events

One of the issues in evaluating reliability performance is agreeing on what data to exclude, particularly the major event days, as well as how the utility determines what constitutes a major event day, and how it's calculated. Avista, and most utilities, use the IEEE 2.5 beta method.

Because the decision to remove certain storm days, or to calculate them differently, is somewhat arbitrary (even though it may comport with an industry standard), we thought it would be useful to see how the long-term trend in Avista's reliability statistics might change in the case where no major event days were removed (all data included). Charts reflecting these data for Avista's SAIDI and SAIFI are shown, below.





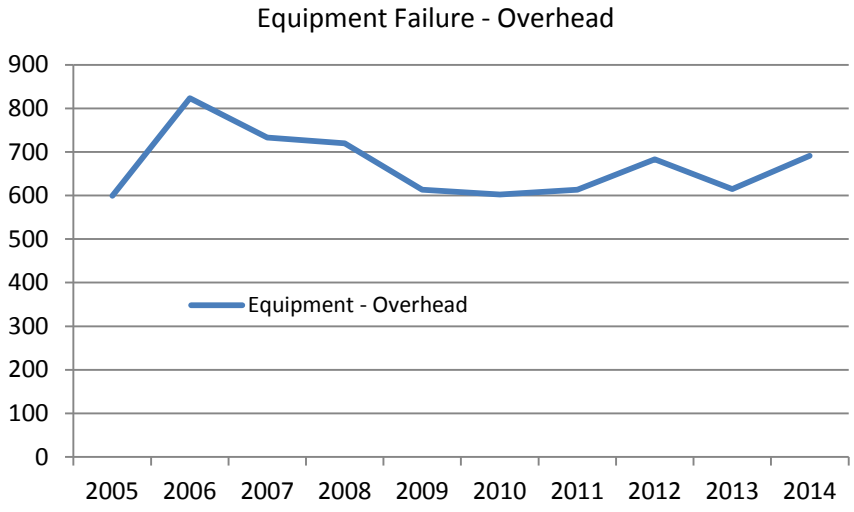
With all major event days included in data, the annual SAIDI and SAIFI values increase substantially, as would be expected. The overall linear trend for SAIDI is similar to the trend for data that excluded major event days, but for SAIFI, the overall linear trend changes from a slight decline in performance to a trend of slight improvement. To us, it was striking how similar the trend lines were between the cases of including and excluding major events. Another interesting point is that even when the major event days are removed (as shown in the top two charts), there is still a notable impact on reliability due to weather. The case in point is Avista's 2009 data for both SAIDI and SAIFI. Though 2009 is the significant peak (poorest performance) for the years when major event days are excluded, it was not the highest storm year for this period. In fact, 2009 had no major event days. But it did have several major storms that were just under the threshold of what constituted a major event day.

Evaluating Trends in Performance

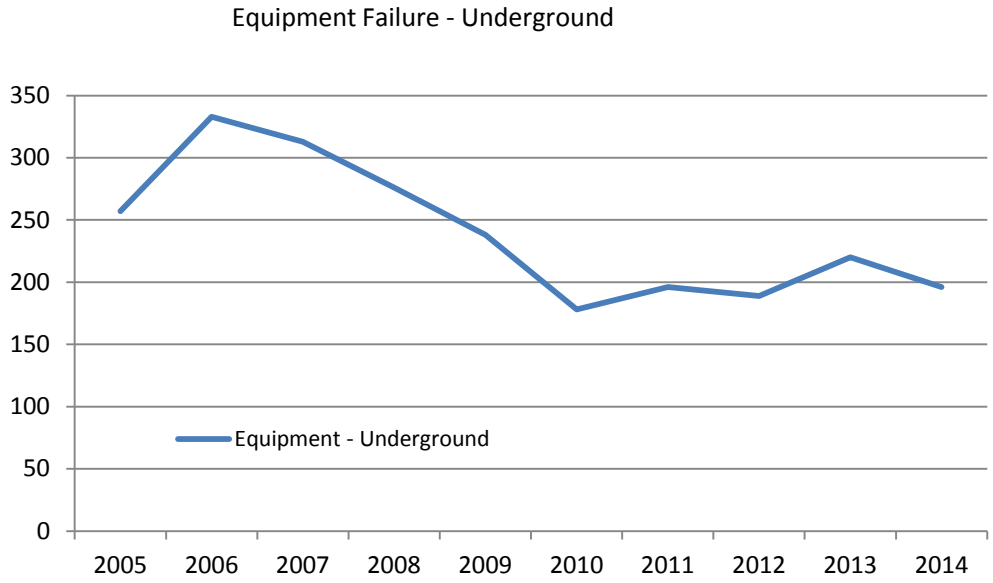
Based on the above charts, it's reasonable to suggest that the overall, long-term trend in Avista's electric reliability performance is one of slight decline. That result (or really, any result) should prompt an evaluation of the underlying factors that largely make up system reliability, to help assess whether the overall pattern likely reflects an actual decline in performance.

That assessment can be facilitated by looking at the "causes" associated with the Company's outages. For each electric outage, Avista notes the source or cause of the outage for those cases where the cause can be isolated. We use 12 cause categories that include a range of types of equipment failure, company-caused outages, such as planned outages, and external causes, such as animals, citizen caused, trees, or weather. This cause data can be useful in better understanding some of the year-to-year trends in causes, the degree of the utility's control of causes, as well as how each type of cause can impact the Company's annual reliability performance. Following, are charts for some of the Company's cause data showing the year-to-year variation for each category.

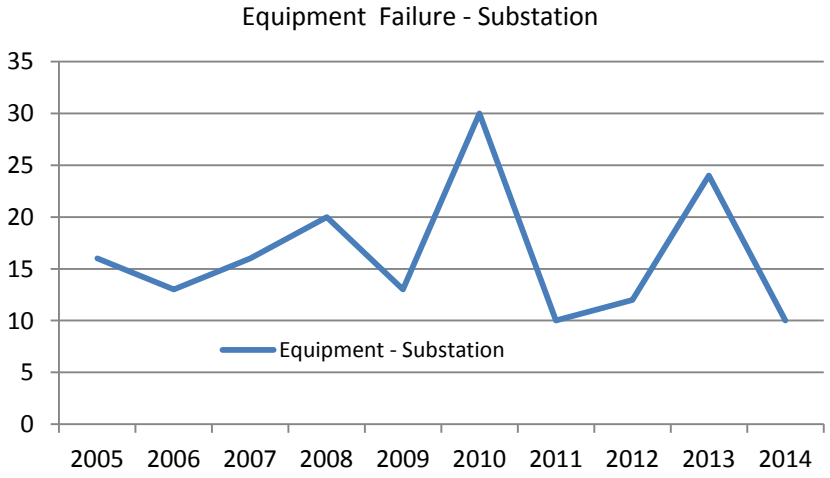
Equipment Failure – Overhead This chart, below, shows the pattern in the number of outages each year for the cause category "Equipment Failure – Overhead," which includes transmission and distribution lines, and service drops to our customers. The data appear to reflect a generally-stable trend over the years 2005 – 2014. Cause data for 2004 is incomplete, so that year of record was not included in the reporting of cause data.



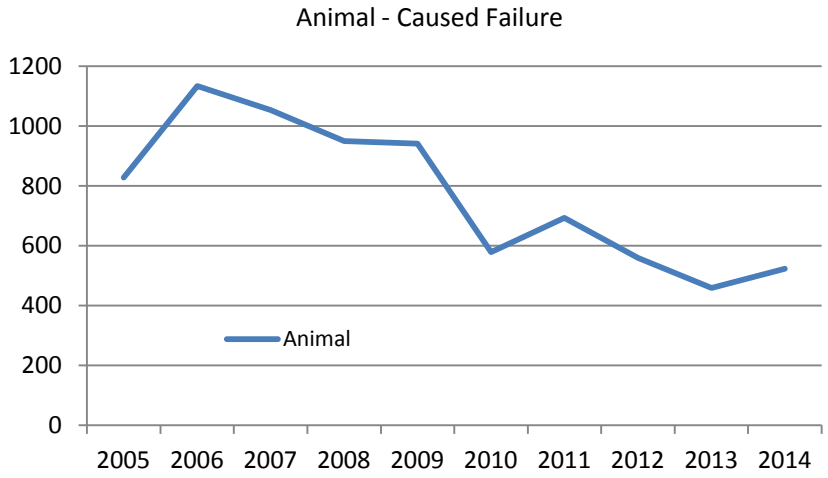
Equipment Failure – Underground This chart, below, shows the pattern in the number of outages each year for the cause category "Equipment Failure – Underground," which includes some distribution lines, but, particularly, underground service lines to our customers. The pattern for these failures shows a trend of improvement in performance associated with the Company's long-term program (has been underway about 20 years) to replace ageing and failing underground services.



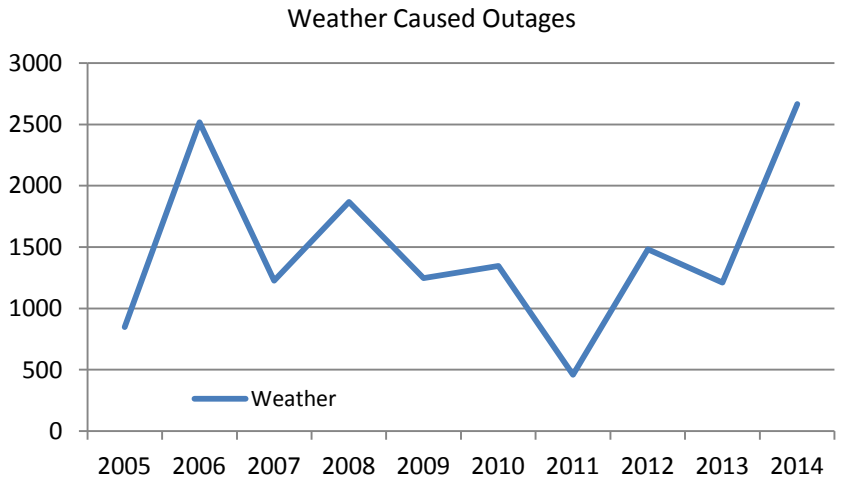
Equipment Failure – Substations This cause chart, below, shows the pattern in the number of outages each year for the cause category "Equipment Failure – Substations," which includes equipment such as reclosers, breakers and voltage regulators. Though the data may appear to reflect a generally-stable linear trend, the number of outage events has been somewhat variable, and is of special interest to the Company. This is primarily because of the age of some of our substation equipment, and because substation outages can impact a relatively large number of customers and can require sometimes significant time to restore.



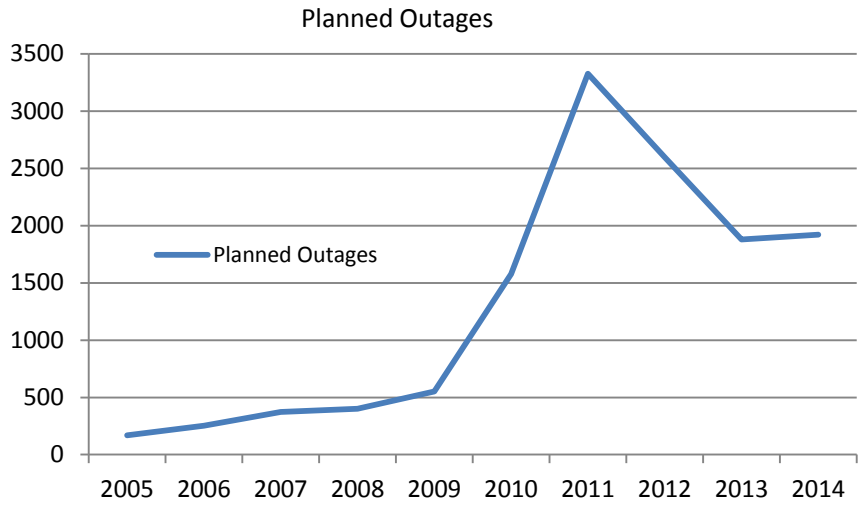
Animal-Caused Failure - The chart, below, shows the pattern in the number of outages each year for the cause category "Animal" Caused Failure, which tends to impact distribution transformers. The pattern for these failures shows a trend of improvement in performance that is a reflection of the Company's long-term program (has been underway about 12 years) to place animal guards on equipment such as midline reclosures and transformers.



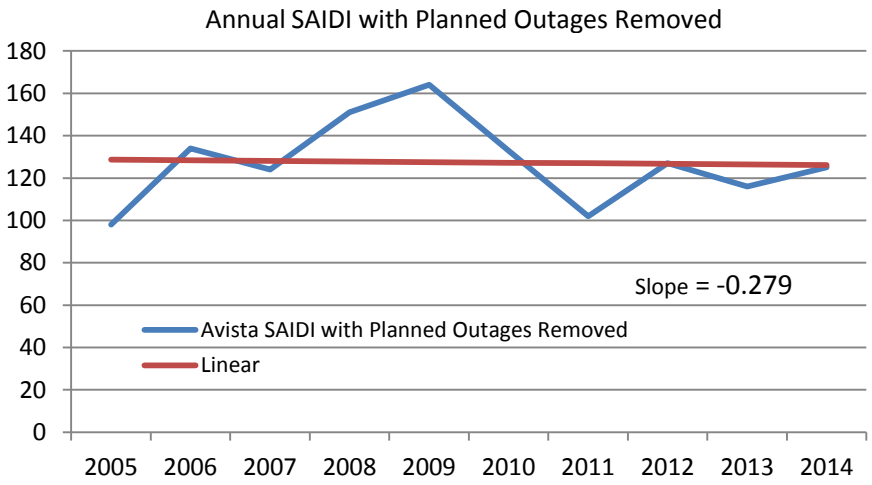
Weather-Caused Outages The chart, below, shows the pattern in the number of outages each year for the cause category "Weather," which includes outages of a range of types, but that are the result of weather factors, such as wind, snow and ice. These data tend to show the variable impact of weather on reliability performance, even with the weather-related impact of major event days removed.



Planned Outages Finally, the chart, below, shows the pattern in the number of outages each year for the cause category "Planned Outages," which is composed of the outage events associated with the Company's electric system maintenance programs. The pattern for these outage events reflects the substantial increase over this period in the Company's electric system maintenance programs. Although planned outages are included in Avista's reported reliability results, they are often excluded from a utilities' reliability reporting data.



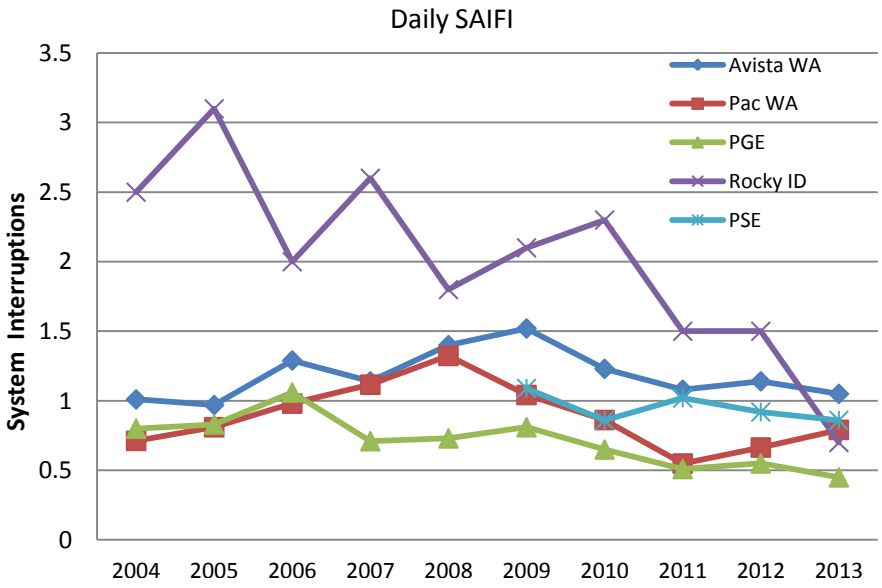
Eliminating planned outages from the Company's reliability data, did not materially change the SAIFI trend, but did change the long term trend line for SAIDI, from slightly declining performance (shown at top), to a trend of slightly improving performance, as shown below.



The Nature of System Reliability

The point we're attempting to make is that a utility's annual system reliability is naturally quite variable, especially when all the outage data is considered (i.e. no exclusions for major event days). Removing major event days does tend to reduce the magnitude and overall variability in performance statistics, but the year-to-year pattern can still be quite variable because it's composed of many, often highly-variable inputs (causes), that may or may not be under the control of the utility, or follow any particular pattern of occurrence. It's the interaction of these many variables that produced (for Avista) a high degree of reliability in 2005, and a much lower degree in 2009, or for the results when no major event days were excluded, a high degree of

reliability in 2011, and much lower degrees in the years 2006 and 2014. This variability is evident in the patterns of annual reliability for every utility, to varying degrees, based on the characteristics of their systems, customer density, weather, staffing, etc., as is reflected in the chart Brad provided, below.



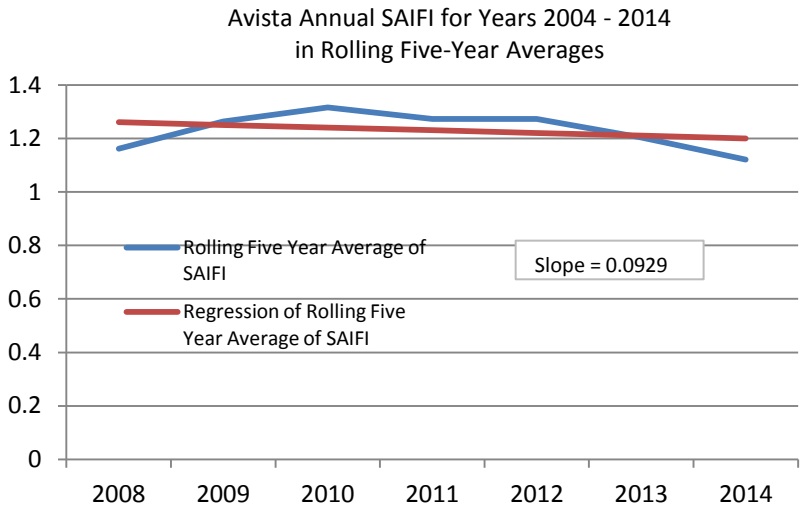
The point of highlighting this variability, is to better-illustrate why it's a challenge to set a meaningful single statistic for SAIDI or SAIFI (or other reliability measures), for which everyone agrees, that whether achieved or not achieved, provides the basis for judging the utility as providing either acceptable or unacceptable service in any given year.

An Alternative to Annual Benchmarks

As an alternative to setting a single annual benchmark (e.g. 200 minutes), we believe a reasonable regulatory policy, related to electric system reliability, ought to focus on understanding the long-term trends in a utility's reliability performance, and to explore the factors, both within and beyond the utility's control, that give meaning and interpretation to the trend, as a basis for understanding that utility's reliability trajectory. By trajectory, we mean the reasoned understanding of whether a utility's performance is likely to decrease, improve, or be sustained under the present and expected conditions. And more importantly, to be able to identify opportunities to improve long-term reliability that are understood and supported by the utility and its regulator. This is essentially the approach taken by the California Commission in 2006 when it departed from the use of specific, short-term measures for SAIDI and SAIFI (with penalties) to a program focused on the long-term improvement in distribution reliability based on the identification and implementation of projects or activities expected to likely maintain or improve reliability. While there is no penalty mechanism associated with the utility's annual SAIDI and SAIFI results, the utility is required to demonstrate that it has made the agreed-to investments.

Proposal:

- Avista would report its annual reliability results for SAIDI and SAIFI to its customers, which would include an explanation of the principal factors responsible for the past year's reliability performance, and would compare those results with the Company's long-term reliability trend. The long-term trend could be expressed in a variety of ways, such as rolling five-year averages of performance, as shown in the chart, below. The explanation could also talk about the Company's current efforts to improve reliability.



- Avista would report its annual reliability results to the Commission as part of its annual electric reliability report. The Company would provide an analysis of the past year's results, which it already does, but would go further in identifying expected trends for select outage causes, and would identify a strategy(ies) for managing those causes for which there was agreement that an improvement in that category was important in supporting the Company's long-term reliability objectives.

- As a start, we could report our reliability performance and analysis (as described above) for the first year, and agree as part of our service quality measures program, to meet with Staff and the parties to further-specify and agree on more detailed reporting and performance requirements for subsequent years.

Thank you for taking the time to review this background and proposal. We look forward to our discussion.

Larry