NRECA Benchmarking Background

• Participants are anonymous
• Participation list is not revealed to anyone.
• No inference about “good” or “bad” reliability
• Intended to provide information to allow participants to assess their performance relative to others
• This information with raw data is provided to the participants so that they can make/share their own graphs.
• Data is provided to Touchstone Energy for use in the Balanced Performance Scorecard.
System Avg. Interruption Duration Index

SAIDI SCORES FOR INDIVIDUAL STUDY CONTRIBUTORS – 2016

- Min: 11.28
- 1st Quartile: 65.55
- 2nd Quartile: 119.91
- 3rd Quartile: 170.51
- Max: 394.01
- Avg: 126.92
Customer Avg. Interruption Duration Index

CAIDI SCORES FOR INDIVIDUAL STUDY CONTRIBUTORS – 2016

- Min: 5.37
- 1st Quartile: 71.35
- 2nd Quartile: 94.29
- 3rd Quartile: 106.94
- Max: 453.85
- AVG: 98.73
Year to Year Performance

<table>
<thead>
<tr>
<th>Year</th>
<th>Average SAIDI</th>
<th>Average SAIFI</th>
<th>Average CAIDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>128.60</td>
<td>1.40</td>
<td>97.00</td>
</tr>
<tr>
<td>2013</td>
<td>118.80</td>
<td>1.20</td>
<td>97.30</td>
</tr>
<tr>
<td>2014</td>
<td>131.29</td>
<td>1.35</td>
<td>95.88</td>
</tr>
<tr>
<td>2015</td>
<td>112.41</td>
<td>1.30</td>
<td>89.35</td>
</tr>
<tr>
<td>2016</td>
<td>126.92</td>
<td>1.32</td>
<td>98.73</td>
</tr>
</tbody>
</table>

Note: We don’t track specific members so the yearly performance shown is a generic average over the entire population of respondents.
This is an example of a SAIDI score that is trending up over time. Note the removal of Major Event Days reveals the operational efficiency trend that would be hidden in the data.
Typical SAIDI trending over time
Typical product quality lifecycle
Evaluate:

Is this the distribution reliability trend we want? If not, what actions are we going to take?
Set Goals:

What should our goal be?
How are we going to accomplish the goal?
Case Study – 2014 Worst SAIDI

SAIDI SCORES FOR INDIVIDUAL STUDY CONTRIBUTORS – 2014

- **Min**: 28.30
- **1st Quartile**: 82.45
- **2nd Quartile**: 121.55
- **3rd Quartile**: 177.36
- **Max**: 332.90
### System Avg. Interruption Duration Index

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Minutes of Interruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>10.05</td>
</tr>
<tr>
<td>1st Quartile</td>
<td>63.75</td>
</tr>
<tr>
<td>2nd Quartile</td>
<td>112.41</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td>160.35</td>
</tr>
<tr>
<td>Max</td>
<td>398.84</td>
</tr>
</tbody>
</table>

Moved from 333 min SAIDI in 2014 to 201 min in 2015 by using PwrMetrix to guide their reliability efforts.
Thank You

Tony Thomas
Sr. Principal Engineer
NRECA
tony.thomas@nreca.coop
703-850-4718