Proposed Revision: SD-4 Electric System Reliability

Presented to: Systems Committee
November 1, 2023
SD-4: Reliability metrics

Whole system with a future focus
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<tr>
<th>Category</th>
<th>Current</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>Overall</td>
<td>Customer energy requirements met 100% of the time</td>
<td>No change</td>
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</table>
| Generation          | Equivalent Availability Factor:  
                        | - Baseload only  
                        | - 36-month average  
                        | - 90% or greater    | Equivalent Forced Outage Rate:  
                        | - All utility scale owned generation  
                        | - 12-month  
                        | - Mid second quartile (~8% or less) |
| Transmission        | Comply with NERC transmission reliability standards                    | No change |
| Distribution        | SAIDI:  
                        | - 36-month average  
                        | - Excludes major event days  
                        | - Top Quartile - 90 minutes | SAIDI:  
                        | - 12-month  
                        | - Excludes major event days  
                        | - Top Quartile  
                        | SAIFI:  
                        | - 12-month  
                        | - Excludes major event days  
                        | - Top quartile |
Reliability: Generation

Equivalent Forced Outage Rate (EFOR)
*Measures the probability that a group of units will not meet their generating requirements because of force outages or derates.*

**Why this metric?**
- Focus on unplanned outages
- Measures performance of ALL owned generation
- Recognizes the importance of asset investment
- Aligns with SPP future capacity policy
- Industry standard measurement

**Target:** Mid-second quartile (Currently ~8%)
Reliability: T&D

In addition to SAIDI...

Second distribution metric: SAIFI
- Frequency of sustained customer outages.
- Adds a focus to the number of outages as well as the duration

Target: First quartile
- SAIDI ~90 Minutes
- SAIFI ~0.9 Outages
Key outcomes

- **Measurement** of reliability across all key OPPD systems
- Clear **alignment with SPP** capacity accreditation
- Emphasizes **maintenance-focused planning**
- Drives enhanced focus to reduce **unplanned outages**, both in generation and T&D
- **Drives continuous improvement** for a better customer experience
System Committee Review: October 4, 2020

Is there anything that requires further clarification?

Is there anything that the committee should consider before moving this forward for public review and comment?

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<tr>
<th>Policy No. and Name:</th>
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<tr>
<td>SD-4: Reliability</td>
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<tr>
<th>Category:</th>
<th>Strategic Direction</th>
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<td>System Management and Nuclear Oversight Committee Board Report</td>
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<th>Date of Approval:</th>
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<td>00700144440444</td>
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<td>October 13, 2016</td>
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The growth and well-being of vibrant and thriving communities depends upon safe, reliable, and resilient energy sources at a reasonable cost. As our communities become more reliant on electric services, the reliability of that service must also continue to improve. The Generation Fleet, Transmission System, and Distribution System are all elements of OPPD’s vertically integrated systems to deliver energy service to our customer-demesne. And the reliability of each of these system elements contributes to overall reliability of our service.

Therefore, to demonstrate reliable operations of their electric utility system by OPPD shall:

- Ensure all customer energy requirements are met through the use of its generation resources and purchased power portfolio 100 percent of the time.

  **Generation**
  - Maintain OPPD’s owned generation fleet Equivalent Forced Outage Rate (EFOR) at or below the middle of the second quartile of the benchmark fleet of comparable generation, and
  - Maintain the System Average Interruption Duration Index (SAIDI) to top quartile performance for electric utilities, excluding Major Event Days; and

  **Transmission**
  - Operate and maintain the system in accordance with all applicable NERC Reliability Standards; and

  **Distribution**
  - Maintain the System Average Interruption Frequency Index (SAIFI) to top quartile performance for electric utilities, excluding Major Event Days.

All measures will be tracked on a 12 month rolling average base.

* Defined in glossary
Appendix
Reliability in Resilience

What is it?
The ability of the system and its components to prepare for, withstand, respond to, adapt to, and quickly recover from a non-routine event.

SD-9 Integrated System Planning
- System Capacity & Margin
- System Expansion Planning
- System Redundancy

SD-4 Electric System Reliability
- Asset Inspection, Management Programs
- Preventive Maintenance
- Engineering Design Standards
- Event Response Plans

Prepare  Withstand  Respond  Adapt  Recover