San Joaquin Pilot Reliability
Rulemaking 15-03-010

May 7th, 2019
Tulare, California

Larry Franco, SCE Engineer and Jonathan Brownstein, SCE Engineer
Meeting Topics

- SCE System
- Reliability Programs
- Pilot Communities
- Metrics

- Reliability Overview
  - California City
  - Ducor
  - West Goshen
SCE System Overview

- We delivered more than 87 billion kWh of electricity and powered a total of:
  - 15M Residents
  - 5M Customers
  - 5K Large business
  - 280K Small business
  - 180 Unincorporated Cities
To deliver power safely, reliably and affordably, we monitor and maintain a vast electricity system:

- 50K Square Mile
- 4,600 Circuits
- 1.5M Poles
- 119K Miles of D&T lines
- 730K Transformers
Reliability Programs

• **Daily Operations Call**
  • Review large outages
  • Discuss operational performance and lessons learned
  • Discuss projects/solutions for easier/quicker restoration

• **Regional/District Grid Team Meetings**
  • Discuss rolling circuit performance list
  • Identifies circuit issues and solutions
  • Create projects on a local level

• **Worst Performing Circuits (WPC) Program**
  • Historical performance for problematic circuits
  • Identify projects on circuits in worst 1% of durations and frequency indices
  • Solutions for ease of restoration as well as preventing outages

• **Worst Circuit Rehabilitation (WCR) Program**
  • Risk based circuit identification for reliability projects
  • Similar projects to WPC program
Pilot Communities

Customer Count by Community

<table>
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<tr>
<th></th>
<th>California City</th>
<th>Ducor</th>
<th>West Goshen</th>
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<tbody>
<tr>
<td>Non-Pilot Customers</td>
<td>5,276</td>
<td>0</td>
<td>84</td>
</tr>
<tr>
<td>Pilot Households</td>
<td>100</td>
<td>222</td>
<td>127</td>
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Metrics

SAIDI: System Average Interruption Duration Index
• The amount of time the average SCE customer experiences a sustained outage(s) in a given year
  • “What’s the total time my power service will be unexpectedly interrupted this year?”

\[
\text{SAIDI} = \frac{\text{Total minutes every SCE customer was without power due to sustained outages (CMI)}}{\text{Total number of customers}}
\]

SAIFI: System Average Interruption Frequency Index
• The number of times the average SCE customer experiences a sustained outage in a given year
  • “How many times will my power service be unexpectedly interrupted this year?”

\[
\text{SAIFI} = \frac{\text{Number of sustained customer outages experienced by all SCE customers (CI)}}{\text{Total number of customers}}
\]
Circuits feeding California City compared to the average SCE circuits contribution. Circuits feeding California City compared to the average circuit contribution of the top 1%.
Circuits feeding California City compared to the average SCE circuits contribution. Circuits feeding California City compared to the average circuit contribution of the top 1%.
California City
Extended Electric Cause Categories

**Extended Electric Outage**: is identified as an interruption greater than four hours that affects at least 10 customers

- **3rd Party**
  e.g. balloon, car hit pole, dig-in

- **OH (Overhead)**
  e.g. equipment failure

- **Operations**
  E.g. urgent maintenance w/o 3-day notice

- **Other**
  E.g. patrolled

- **UG (Underground)**
  e.g. equipment failure

- **Weather**
  e.g. wind, fire
California City
In Flight Projects
Circuits feeding Ducor compared to the average SCE circuits contribution.
Circuits feeding Ducor compared to the average circuit contribution of the top 1%.
Circuits feeding Ducor compared to the average SCE circuits contribution. Circuits feeding Ducor compared to the average circuit contribution of the top 1%.
**Ducor Extended Electric Cause Categories**

**Extended Electric Outage:** is identified as an interruption greater than four hours that affects at least 10 customers

- **3rd Party**
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In Flight Projects

- IR Circuits & Cable
  - WCR - Circuits (OH)
  - WCR - Circuits (UG)
  - WCR - UG Cable
  - CIC - Cable in Conduit
  - OCP

- DSP Load Growth
  - 4kV Cutover (OH)
  - 4kV Cutover (UG)
  - 4kV Sub-Elimination (OH)
  - 4kV Sub-Elimination (UG)
  - New Circuit (UG)
  - New Circuits (OH)
  - Non-New Circuit (OH)
  - Non-New Circuit (UG)

- Structures & Equipment
  - Plant Betterment (OH)
  - Underground Structures
  - New Caps (OH)
  - 485 Cap Banks (OH)
  - RCS & RAR Auto (OH)
  - Auto Reclosures (OH)
  - Oil Switches
  - Plant Betterment (UG)
  - New Caps (UG)
  - 485 Cap Banks (UG)
  - RCS & RAR Auto (UG)
  - Auto Reclosures (UG)

- Poles
  - Distribution Det Pole
  - Transmission Det Pole
West Goshen
SAIDI Contribution

Circuits feeding West Goshen compared to the average SCE circuits contribution.
Circuits feeding West Goshen compared to the average circuit contribution of the top 1%.
West Goshen

SAIFI Contribution

Circuits feeding West Goshen compared to the average SCE circuits contribution.
Circuits feeding West Goshen compared to the average circuit contribution of the top 1%.
West Goshen
Extended Electric Cause Categories

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  e.g. wind, fire
Thank you

Customer Support
Home > Customer Support > Contact Us

Report an Outage
(24-hours a day, 7-days a week): 1-800-611-1911

Customer Support
(USA & Canada): 1-800-655-4555

Payments, Extensions or Payment Options: 1-800-950-2356

Multicultural Services

Cambodian: 1-800-843-1309
Chinese: 1-800-843-8343
Korean: 1-800-628-3061
Spanish: 1-800-441-2233
Vietnamese: 1-800-327-3031