Goleta Reliability and 2016 El Niño

February 10, 2016
Discussion Items for Today’s Meeting

• Santa Barbara Transmission Constraints
• On-Going Reliability Projects
• 2016 El Niño Preparedness
• Agency Coordination
• Safety Tips for the Community
Santa Barbara Local Resources:
- 220kV Transmission Lines
- 66kV Subtransmission Lines
- Local Generation
On-Going Reliability Efforts

• Santa Barbara County Reliability Project (66kV subtransmission upgrade)
  – Construction began in 1999
  – Suspended in 2004 by local permitting challenge
  – CPUC has approved; Coastal Commission approval expected in 2016 for 2018 completion

• Additional local generation:
  – Refurbishment of Ellwood Generating Station
  – Additional future generation, including local preferred resources

• Downtown Santa Barbara distribution grid investments and upgrades
Goleta Area Resiliency Plan

Near Term Mitigation
- Emergency Generator (EG) Deployment
- Extension of Elwood GS Contract
- Tie-line Protection Reconfiguration
- Erosion and Flood Control

Intermediate Solutions
- 66 kV Reconductor Project
- Ellwood Refurbishment
- Preferred Resource Procurement

Long Term Solutions
- Transmission
- Conventional Generation
- Distributed/Preferred Resources
- Microgrids

Confidential: Contains non-public Transmission information - Distribution is limited pursuant to FERC standards of conduct.
2015-2016 El Niño Forecast

- Strong El Niño predicted for 2016
- Heightened risk of severe weather, including high winds and heavy rain
- Extended drought increases risk of floods, landslides, mudslides, and other hazardous conditions
2016 Storm Preparation Efforts

- Territory-wide hazard assessments
- Pre-storm preventative maintenance and mitigation
- Expedited repairs in the event of damage
- Emergency service restoration plan for Santa Barbara
State and Local Agency Coordination

• Collaboration and consultation with:
  – Santa Barbara County Office of Emergency Management
  – Santa Barbara County Air Pollution Control District
  – California Office of Emergency Services
  – California Independent System Operator
  – California Department of Transportation
  – California Highway Patrol
What about the foundations of the transmission towers?

- Towers designed to meet or exceed required standards
- SCE follows robust maintenance and inspection schedule
- SCE visual inspections have revealed no structural concerns
- Records audited and lines visually inspected by CAISO in 2014
- Visual damage to footings on this line, as referenced by media, is cosmetic and causes no structural concerns
Restoration of Service

Mitigation Plan

• Obtain emergency generation from NRG’s Ellwood Generating Station — — — — → 50MW

• Operate 66kV tie lines at emergency limit — — — — → 150MW

• Deploy portable generation at substations such as Goleta and Ortega — — — — → 50MW 250MW

Peak Demand; 250MW
Storm Safety & Community Outreach

- Key safety messages:
  - Emergency kit
  - Downed lines
  - Traffic safety
- Safety brochures for constituents
- Media outreach
- Outage Schools
  - 12/9/15
  - 1/29/16 (Pending)
- Prepare SoCal
- Online Resources
  - SCE.com/Safety
  - facebook.com/sce
  - twitter.com/sce
  - youtube.com/sce

SCE.com/Safety
Emergency Contact Information

• Report downed wires: 911

• Report an outage:
  – SCE Outage App
  – SCE.com/Outage
  – Or call 800-611-1911 or 855-683-9067
  – Email scepoc@sce.com (non-emergency)

• SCE Customer Service: 800-655-4555
  – Contact this number as well if a generator will be used
Understanding Your Reliability Report

• As your electric utility, we want you to always have power when you need it. To get there, we constantly track and monitor electric outages across our service territory, and we measure our “system reliability” from this data.

• The two metrics we rely on are common in the electric utility industry: the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI). Both are described in more detail on the next page.

• Replacing and upgrading our infrastructure will help SCE maintain or improve SAIDI and SAIFI measurements.

• This report provides historical reliability data for the circuits that serve your jurisdiction and our proposed infrastructure upgrades for the current year.

• To view other reliability reports, visit on.sce.com/reliabilityreports
## Overview of Goleta

There are 13 circuits that serve Goleta

<table>
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<tr>
<th>Circuit Type</th>
<th>Sum of Customers</th>
<th>Circuit Type</th>
<th>Sum of Customers</th>
<th>Circuit Type</th>
<th>Sum of Customers</th>
<th>Circuit Type</th>
<th>Sum of Customers</th>
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<tbody>
<tr>
<td>ACE(16KV)</td>
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<td>BIDDER(16KV)</td>
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</tbody>
</table>

**Grand Total** 21,248
**SAIDI** = the cumulative amount of time the average customer is interrupted by “sustained” outages each year.
SAIFI = the number of times the average customer is interrupted by “sustained” outages each year.
Circuit Reliability Management

To perform circuit rehabilitation in 2015, the process started in 2012


Note: The significant volatility in circuit performance requires evaluation of performance over a long period of time to ensure the targeting of “actual” versus “apparent” problem circuits.

2012: Identify candidate “worst” circuits based on outage statistics.

Refine list of circuits based on field personnel input, e.g., engineering, operations, public affairs.

2013: For each targeted circuit, identify improvements and/or replacements which would cost-effectively improve future reliability based on past outage causes and locations, equipment age, and circuit design.

Work may include equipment replacement, installation of isolation devices, and provisions for providing alternate sources of power

2014: Survey the job sites, develop the construction Work Orders, obtain easements, & identify needed permits.

2015: Project construction.

Rehabilitating circuits is a systematic and objective process.
Goleta Projects

- FLIR
- LED Street Light Project
- Underground Conversion – Storke
- Hollister Village
- Village @ Los Caneros
- Hilton & Marriott- Hollister
- Hollister Bike Path-Relocation
- Direct Relief-Warehousing Project
- Goleta Valley Hospital Remodel
- Cabrillo Business Park
- Taco Bell Remodel-
- Highway Patrol Hub
- Old Town Road Improvement

Upcoming 2016

- WASP Infrastructure
- Fraternity Infrastructure
- Preventative Maintenance
- Deteriorated Poles