



# SCE Santa Barbara County Emergency Generator Project

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# Project Introduction



- In Dec. 2015, SCE installed 41 emergency generators (a total of 79.5 MW) at 3 existing substations in Santa Barbara County
- These emergency generators were installed in response to SCE's El Niño planning efforts following the prediction of severe storms during the Winter and Spring months of 2015-16 (Dec.-Apr.)

# Presentation Outline



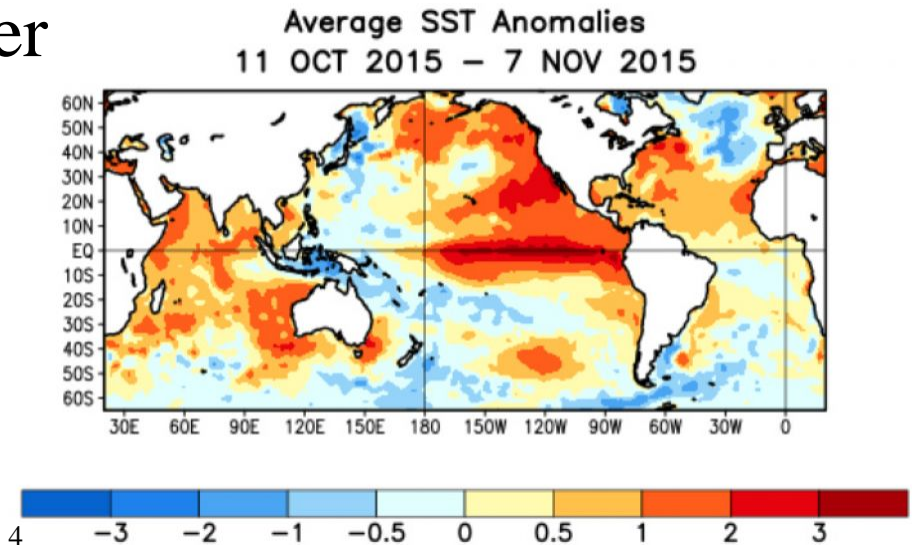
- El Niño Planning Efforts
- Project Need
- Siting Issues
- Regulatory Review
- Air Quality Permits
- Proposition 65
- Conclusions



# El Niño Overview



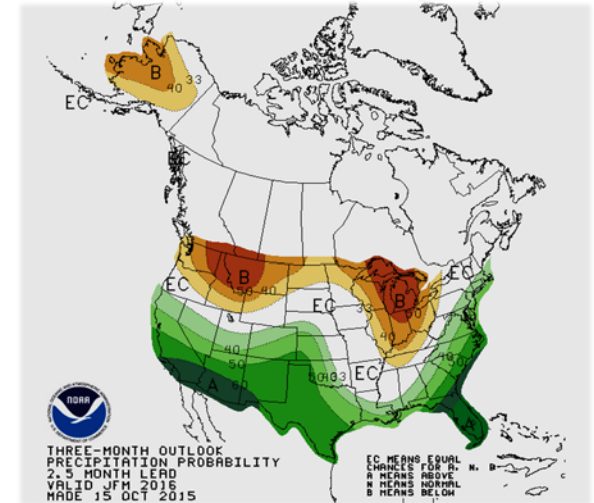
- El Niño is a warming of the eastern Pacific Ocean that causes abnormal weather around the world
- In August 2015, NOAA predicted that the 2015 El Niño “could be among the strongest in the historical record dating back to 1950.”
- Severe storms and higher than normal rainfall were predicted for California



# El Niño Statewide Planning



- Governor Brown issued an Emergency Proclamation (Executive Order B-36-15):
  - Accelerated Approvals of Water Projects by State and Regional Water Boards
  - Provided Funding (\$5 million) for Reliable Drinking Water Projects
  - Expedited CEC Power Plant Applications Related to Wildfire Damage
  - Facilitated Efforts to Capture Water from Storms
  - Suspended CEQA Compliance for Activities Required to Implement Directives
- All Southern California cities, counties, and first responders initiated emergency storm preparations



# Southern California Edison



- SCE is the “Load Serving Entity” for:
  - 15 million people in 186 cities, 15 counties, and 13 Native American reservations in Southern California
  - Delivers electricity to 5 million customer accounts
  - Covers 50,000 square miles of service area



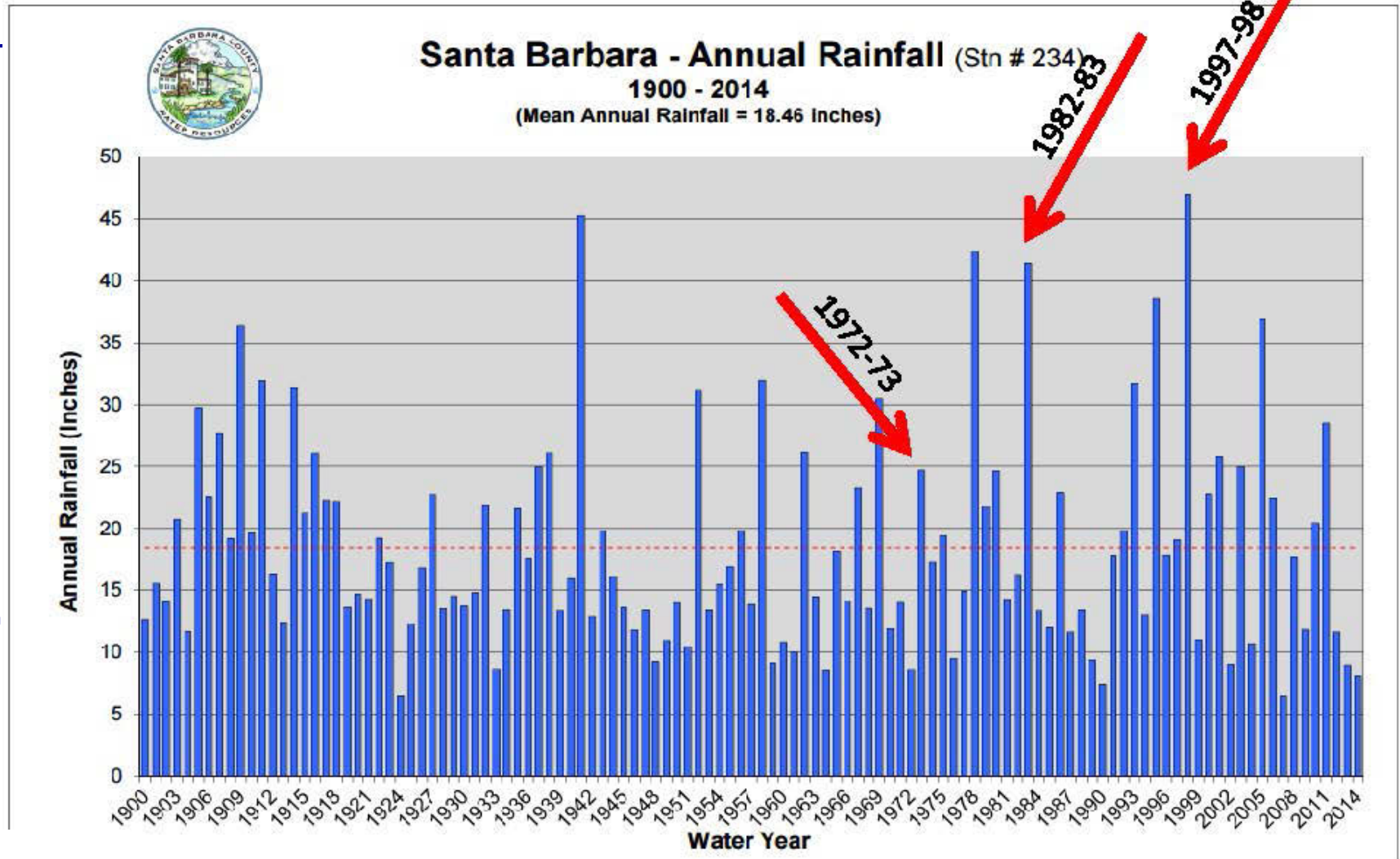


# SCE El Niño Planning Efforts



- Conducted a system wide El Niño hazard analysis
- Created an El Niño specific emergency response plan and initiated an Incident Command System during this period
- Set up specialized “on call” response teams in each area
- Tasked meteorologists with predicting heavy storms
- Coordinated and ran multiple drills internally and with state, county and city emergency response organizations
- Inventoried & stockpiled repair & response equipment at key locations
- Positioned berms/sandbags around at risk equipment
- Conducted preventative maintenance

# Notable Strong El Niño Rainfall Years





# Reliability Concerns in SCE's Santa Barbara Service Area



- The Area is served power by two 220 kV lines
  - SCE's hazard analysis identified these lines as being at risk from El Niño
  - Both lines are located on the same towers, creating risk of simultaneous outage
  - Towers located in hilly terrain where landslides caused by heavy rainfall create heightened risks
  - The Santa Barbara System is geographically isolated from the rest of SCE's service area, which limits SCE's ability to deliver power through alternate routes
  - Existing back-up power sources are not adequate to serve the entire area

# La Conchita Landslides



■ 1995 – No deaths



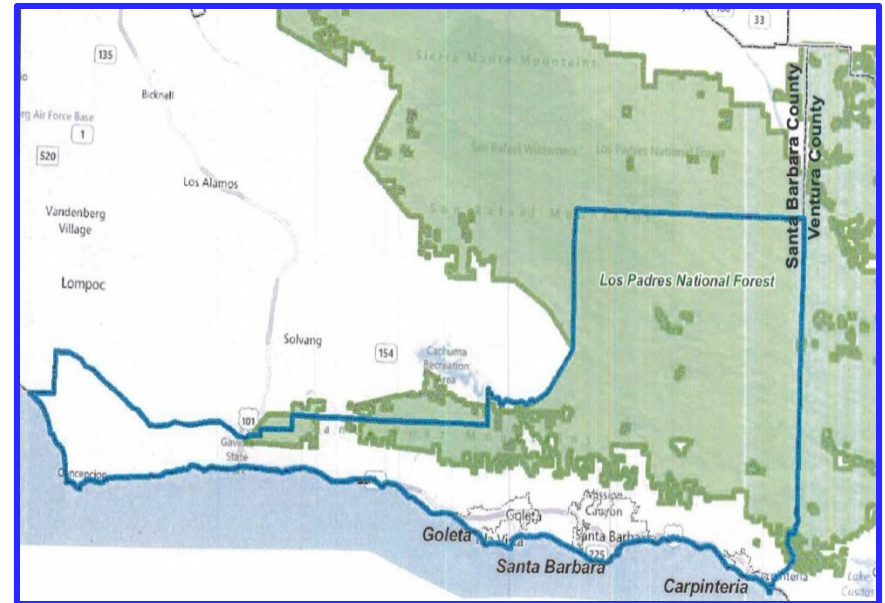
■ 2005 – 10 deaths



# SCE's Santa Barbara Approach



- Assessed transmission corridor for landslide risk areas
- Inspected towers and conducted preventative maintenance
- Implemented pre-storm preventive mitigation including sandbags, berms, plastic sheeting and tying footings together
- Created a backup plan to replace the entire 250 MW winter peak load in the event of transmission line loss





# Potential Impacts if 220 kV Transmission Lines are Lost



- If an outage of both lines were to occur, all 82,700 metered customers in South Santa Barbara County would lose power until emergency electrical power could be delivered to the area
- Service disruption would initially affect all customers, including critical services (e.g. hospitals, schools, universities, traffic lights and street lights)
- Rolling blackouts would then follow until repairs could be made
- A rain-induced landslide could limit access for transmission line/tower repair or replacement for up to several weeks



# Pre-planning vs. Emergency Deployment of Generation



## ■ Challenges

- Emergency exemptions do not apply
- Permits, regulatory approvals and standard filings are required
- Would the installation be a “Stationary Source?”

## ■ Benefits

- Sufficient time for planning, equipment procurement and installation
- Lag time until electrical service would be fully restored reduced from weeks to hours

# Generator Siting Issues

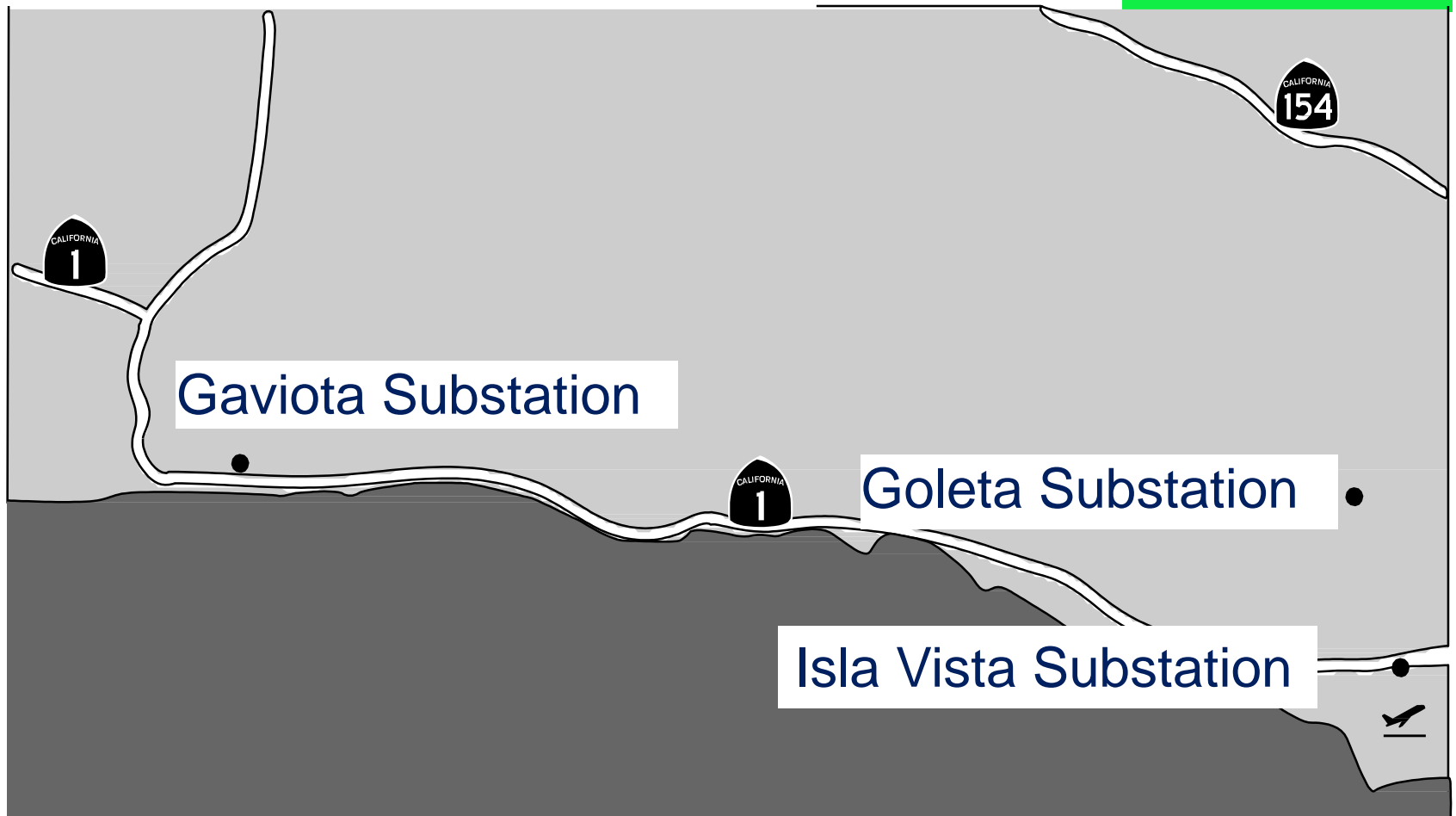


- Space
- Surrounding land uses
- Generation type
- Fuel type





# SCE Deployment Locations



# Goleta Substation



- 24 - 2 MW diesel generators
- Agricultural area w/ scattered homes



# Gaviota Substation



- 6 - 2 MW diesel generators
- 5 - 1.5 MW diesel generators
- Industrial area, adjacent oil infrastructure



# Isla Vista Substation



- 6 - 2 MW diesel generators
- Residential development on two sides



# Regulatory Agency Meetings



- State Agencies
  - California Air Resources Board
- Regional
  - Santa Barbara County:
    - Office of Emergency Management
    - Air Pollution Control District
    - Office of Planning & Development
    - Fire Department
  - City of Goleta
  - City of Santa Barbara Fire Dept.



# Air Quality Permitting Determinations



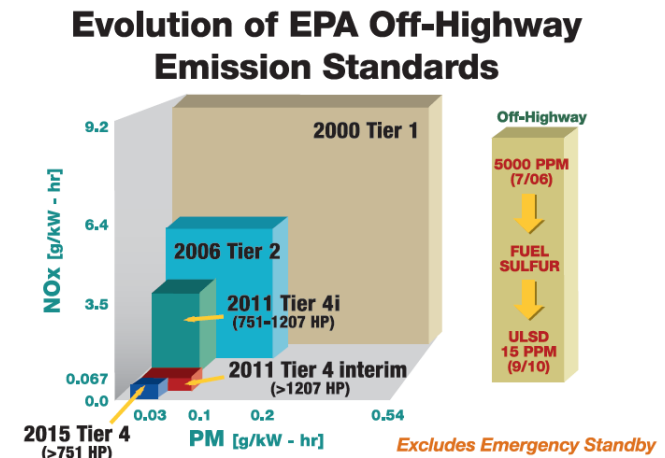
- No local air permits required
  - Santa Barbara APCD specific rules
- Federal PSD, NSR, Title V, NSPS, NESHAPs, MACT and “Stationary Source” definitions do not apply
- If >50 MW at a site, CEC and CPUC approval may have been needed



# Portable Equipment Registration Program (PERP) Issues



- Tier 4 vs. “flex engines”
- Out-of-state engines require PERP registration to test
- Engines cannot be used for “power production into the grid, except to maintain grid stability during an emergency event or other unforeseen event that affects grid stability”
- Engines in the aggregate may not interfere with the attainment or maintenance of any CA or Federal ambient air quality standard



# Other Permits & Filings



- Coastal Development Permit
  - California Environmental Quality Act (CEQA)
  - Noise
- Fire Code (NFPA, CFC)
- Fire Prevention Plan
- SPCC
- SWPPP
- Hazardous Materials Business Plan



# Health Risk Assessment

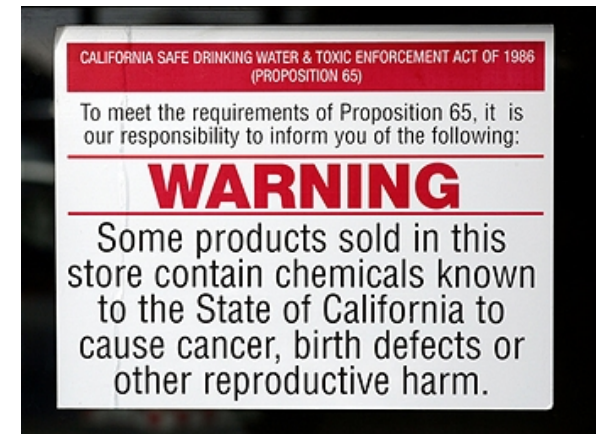


- California has two regulations that require HRAs of toxics in various circumstances:
  - AB2588 – an Assembly Bill adopted in 1987
  - Proposition 65 – Statewide Ballot Initiative in 1986
- AB2588 is required for permitting new sources and on-going reporting requirements
  - No permitting, so AB2588 did not apply
- Prop 65 requires notifications for potential exposure => needed to be addressed

# Proposition 65 Regulation



- Safe Drinking Water and Toxics Enforcement Act of 1986 -- Prohibition on contaminating drinking water
- Requires warning before exposure to a list of >900 chemicals known to the State of CA to cause:
  - Cancer
  - Reproductive toxicity
- Prop 65 allows for civil penalties up to \$2,500/day per violation; >\$1MM per year
- Prop 65 most recently amended in September 2016



# Proposition 65 Requirements



- No person in course of doing business (10 or more employees)
  - Shall knowingly and intentionally expose any individual
  - Must give *clear and reasonable warning* to such individual, unless the exposure poses *no significant risk*
- Cancer risk threshold of 10 in a million
- Prop 65 “safe harbor” levels have been established – No Significant Risk Levels (NSRLs) and Maximum Allowable Dose Levels (MADLs)
- Somewhat different than AB2588 Acute and Chronic Hazard Indices

# Project Emissions Methodology



- Manufacturers' equipment data sheets obtained for each of the generator models
- Particulate emissions were modeled as a surrogate for Diesel Particulate Matter (DPM)
- All potential toxics (TACs) modeled, not just DPM
- Many TAC emissions factors outdated or unavailable
  - When TAC factors not available, used NSRLs and MADLs developed based on a literature review for a prior study
  - Recent diesel fuel analyses were used to calculate SO<sub>2</sub>, Hg, Pb, and Cd factors



# Project Modeling Methodology



- AERMOD and HARP2 used per OEHHA 2015 Guidance
- The individual DPM constituents (Cd, Cr<sup>+6</sup>, Pb) evaluated for the reproductive endpoint
- Assessed on-site worker, residential and off-site worker risks
  - Cancer Risk (adjusted to account for short exposure period)
  - Reproductive Risk, including MADLs
  - Acute and Chronic Hazard Risk (AB2588)

# Risk Notifications



- Published notifications in two newspapers in English & Spanish
- Supplemented with individual letters to sensitive receptors such as schools
- Risk isopleths determined for each substation
- Mailed letters to all addresses where potential impacts might occur

# Proposition 65 Newspaper Warning Elements

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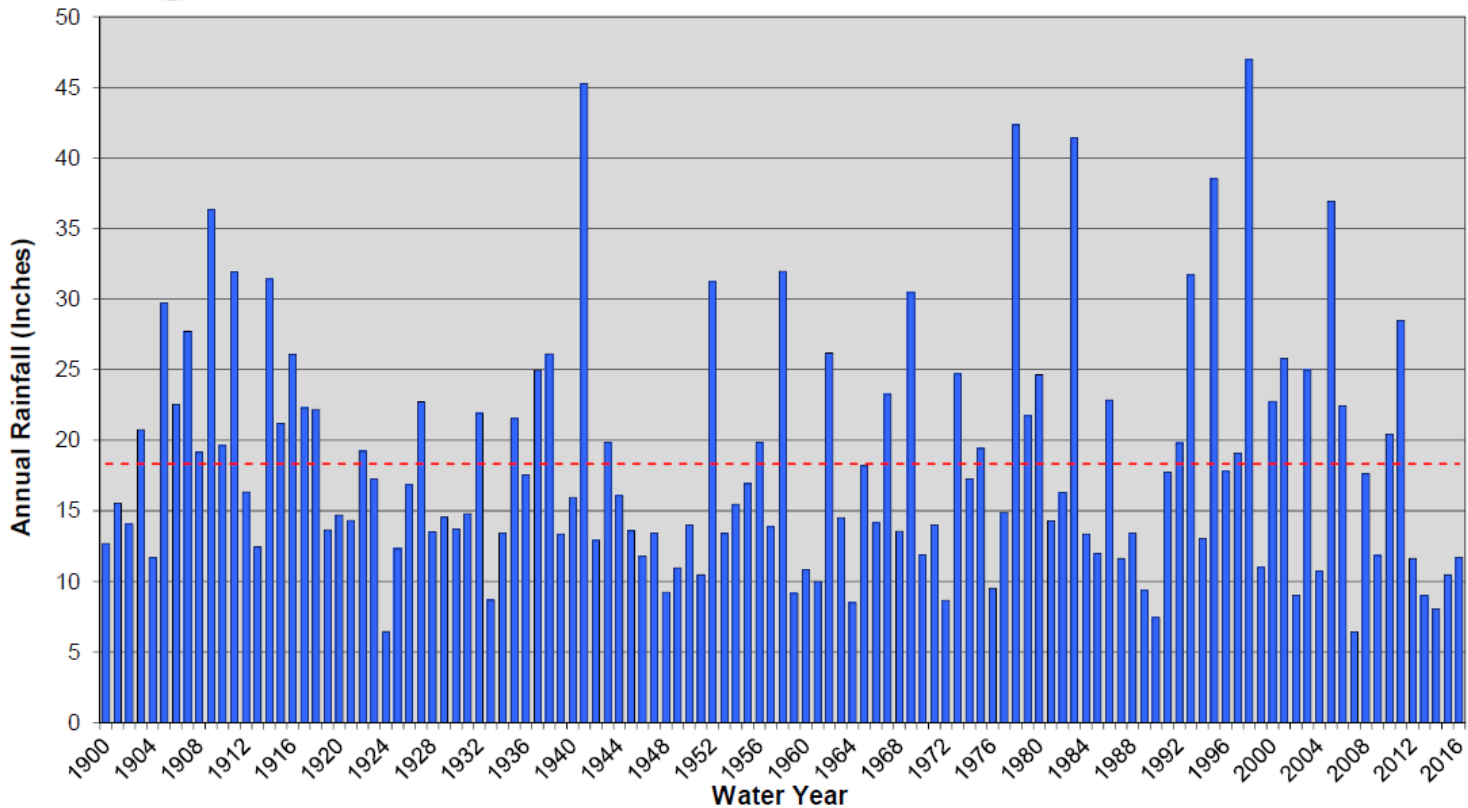


- Noted the El Niño prediction and SCE taking extra actions to prepare for the possibility of outages
- Explained backup diesel generators being staged at substations to provide temporary power in the event of an emergency
- Identified that diesel exhaust contains chemicals known to CA to cause cancer, birth defects & other reproductive harm, including gases & fine particles
- Notifications done in compliance with Prop 65

# Actual Rainfall in 2015-2016



**Santa Barbara - Annual Rainfall** (Stn # 234)  
1900 - 2016  
(Mean Annual Rainfall = 18.33 inches)



# The End Result



- Rainfall was less than average, and no outages occurred
- Except for testing, the engines were not operated and hence no exposures occurred
- Removal of Engines Delayed due to Nesting Birds!



# Conclusions



- There are advantages and disadvantages to pre-planning vs. emergency deployment
- A careful regulatory review is important, since regulations like Proposition 65 may not normally need to be dealt with
- Meet with agencies to minimize surprises
- Even in California, the weather can be unpredictable
- Even with careful planning, little things (like a bird's nest) can create big problems



# Questions?



■ Thank you!

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