CPUC/ENERGY SAFETY
PUBLIC MEETING ON SAFETY

Timothy O'Toole
Chair, SCE Safety and Operations Committee; Board Director, SCE

Jill Anderson
Executive Vice President of Operations, SCE

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Chief Risk Officer, SCE; Vice President, Enterprise Risk Management & Insurance and General Auditor, SCE

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Chief Safety Officer, SCE; Vice President of Safety, Security, and Business Resiliency, SCE

September 14, 2022

SOUTHERN CALIFORNIA EDISON®

SAFETY IS INTEGRATED INTO OUR BUSINESS THROUGH OUR VALUES AND MISSION

MISSION

To safely provide reliable, clean and affordable energy to our customers

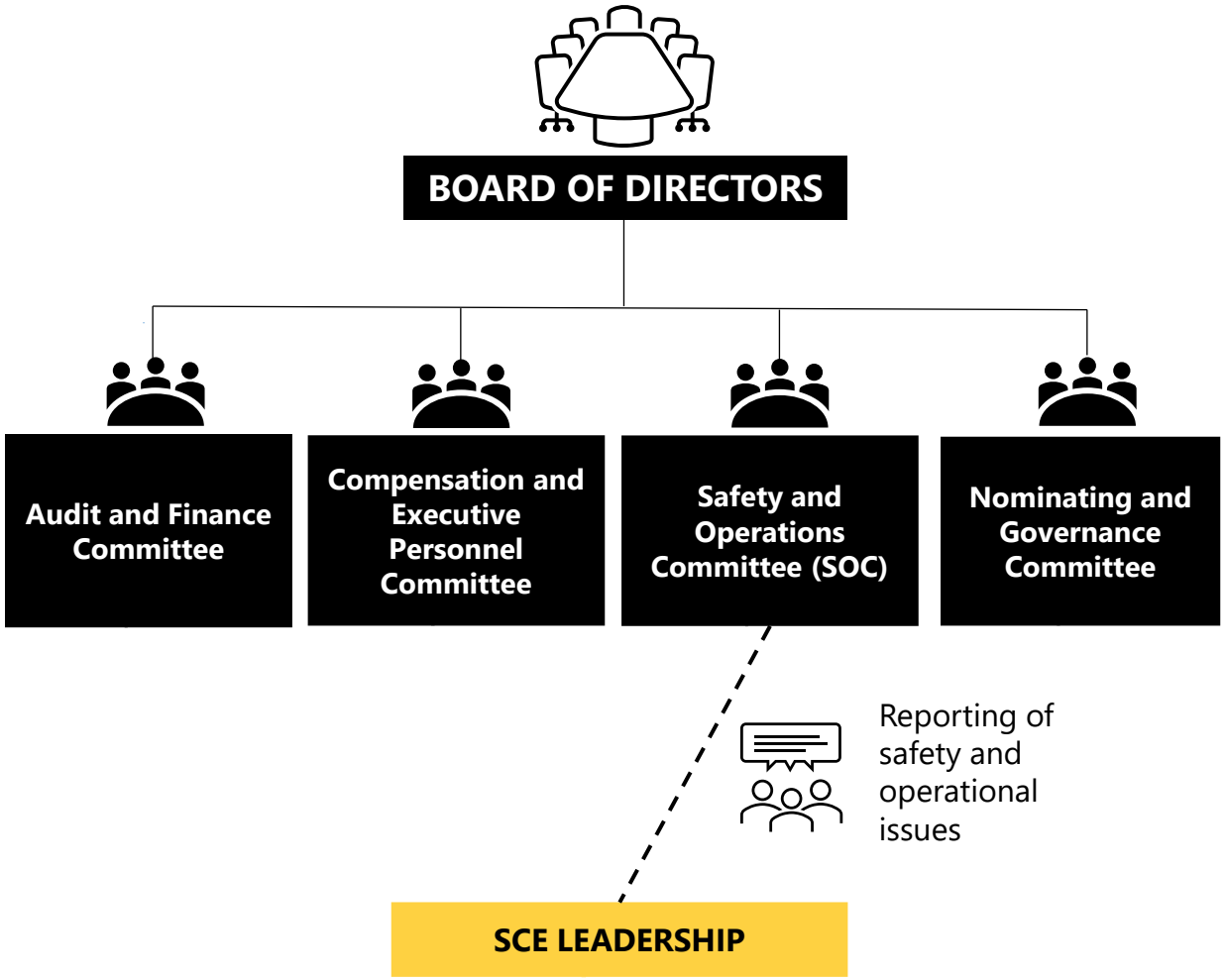
VALUES

- **Safety**
- **Integrity**
- **Excellence**
- **Respect**
- **Continuous Improvement**
- **Teamwork**

RISK-INFORMED SAFETY FOCUS AREAS

Public Safety	• Reduce risk of significant wildfires • Maintain/replace assets to avoid hazardous failures • Create awareness of potential hazards
Worker Safety	• Help avoid serious injuries and fatalities through enhanced data analytics and safety programs • Better manage our contractors to improve safety, quality and compliance
Safety Culture	• Evolve safety culture maturity • Improve leader ownership and accountability

CORPORATE GOVERNANCE



- Safety and Operations Committee (SOC) oversees SCE's safety performance, culture, operational goals, safety and operational risks, and significant safety-related incidents involving employees, contractors or members of the public
- SOC meets at least five times a year and receives regular reports from SCE Leadership on safety
- SOC provides input on operational goals to the Compensation and Executive Personnel Committee; works with Audit and Finance Committee on operational risk mitigations
- SOC Chair reports out to the full Board of Directors on key safety and operational updates at each Board meeting

ENTERPRISE RISK MANAGEMENT HELPS IDENTIFY ISSUES AND DRIVES IMPROVEMENTS IN PUBLIC SAFETY AND OTHER KEY RISKS


CLIMATE CHANGE


WILDFIRE / PSPS


CONTACT WITH ENERGIZED EQUIPMENT


UNDERGROUND EQUIPMENT FAILURE


SEISMIC


PHYSICAL SECURITY


CYBER ATTACK


HYDRO DAM FAILURE


EMPLOYEE SAFETY


CONTRACTOR SAFETY

- Enterprise Risk Management (ERM) systematically helps identify and drives mitigation of operational and other risks through a common risk management framework, tools, and taxonomy

- ERM maintains a risk register, including public safety risks, drivers of loss control, performs benchmarking, develops and communicates best practices, and utilizes quantitative risk assessments to assist leadership in its role to oversee management of the key risks of the company

CONTINUED FOCUS ON PUBLIC SAFETY RISK HAS PRODUCED POSITIVE RESULTS

Data-Driven, Quantitative Approaches Being Used to Improve Public Safety

- Five-step framework to identify and manage risk

- Data analytics, risk modeling, root cause analysis, bow-tie, failure modes and effects analysis, and other tools employed to determine risk drivers, mitigation options, and risk-prioritized implementation strategies
  - E.g., our wildfire risk models, risk-based occupational safety and health program, PSPS frequency and impacts, underground equipment failure model, AB 1054 fund durability calculation, and targeted undergrounding model
- Enhancing and driving uniformity across risk analysis tools, methods, and techniques to drive consistent evaluation of outputs

Meaningful Projects Underway to Help Reduce Public Safety Incidents

Covered conductor program has reduced primary wire downs in HFRA over past two years	Developed egress model to help prioritize areas for targeted undergrounding	Using data analytics and modeling to identify and develop mitigations to reduce car-hit-pole incidents

NUMEROUS METRICS ARE USED BY MANAGEMENT AND THE BOARD TO EVALUATE SAFETY PERFORMANCE

Performance of Selected Metrics[1] Regularly Reviewed by SOC *(Not Exhaustive)*

Key Risk Area	Metric	2019	2020	2021	2022 YTD - Actual	2022 YTD - Target
Employee Safety	Employee Serious Injuries and Fatalities (SIF) Rate	0.05	0.12	0.06	0.11	0.07
Public Safety	Public SIF due to system failures	1	1	0	0	0
Wildfire	CPUC reportable ignitions in High Fire Risk Areas (HFRA)	38	50	48	26	27
Cybersecurity	Significant disruption, data breach, or system failure	0	0	0	0	0

Representative Metrics Regularly Reviewed by SCE Management and/or SOC *(Not Exhaustive)*

Public Safety	• Public SIF due to system failures • Public SIFs reported to CPUC	• Wire down: Across SCE territory • Underground equipment failures
Worker Safety	• Safety Observations (employee and contractor)	• Potential SIF incident
Wildfire	• Vegetation Line Clearing: % of trims on time • Underground Equipment Failure: Explosion • CPUC reportable ignitions in HFRA • # of Ignitions Associated with SCE Equipment in HFRA • # of Faults in HFRA[2]	• Wire down: HFRA • Overhead Inspections: Complete ground and aerial HFRA inspection scope and remediations • Reduce duration of customer PSPS outages • Improve PSPS customer notifications
Cybersecurity	• No significant disruption, data breach, or system failure • BitSight Score[2]	• Phishing simulation click and reporting rates • Vulnerability Mean Time to Remediate[2]

[1] Performance as of July 31, 2022
[2] Indicates metric is reviewed by SCE management but not regularly reported to SOC

PROTECTING PUBLIC SAFETY BY REDUCING THE RISK OF SIGNIFICANT WILDFIRES AND REDUCING CUSTOMER IMPACTS

Wildfire mitigations have resulted in a ~65-70% reduction in the risk of experiencing significant wildfires[1]

- Grid Hardening
- Situational Awareness
- Risk Modeling
- Vegetation Management
- Inspections & Remediations
- Data Governance
- Emergency Preparedness
- New Technology
- PSPS
- Grid Operations & Protocols
- Customer Care Programs
- Community Partnerships

REDUCE RISK OF SIGNIFICANT WILDFIRES

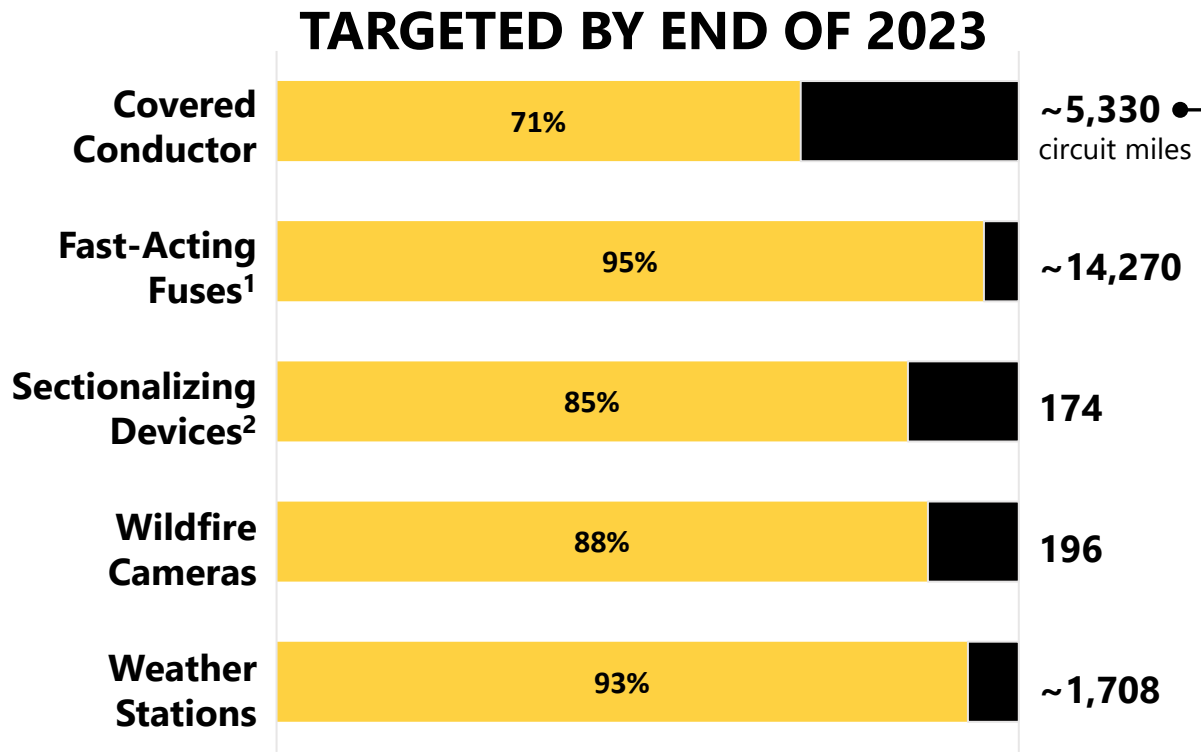
REDUCE CUSTOMER IMPACTS

[1] Based on model produced by Risk Management Solutions. Estimate is in comparison to 2018 risk, based on results through Q2 2022, and considers grid hardening, PSPS, vegetation management and inspections.

SCE HAS MADE SUBSTANTIAL PROGRESS ON GRID HARDENING AND SITUATIONAL AWARENESS MEASURES

INVESTMENTS IN GRID HARDENING AND SITUATIONAL AWARENESS THROUGH 2023

Yellow shading represents completed measures through July 31, 2022, compared to the 2023 forecast in SCE's 2022 WMP Update



Overhead Distribution Lines in HFRA

Circuit Miles

	Total Miles	Covered To-Date[3]
Tier 3	~5,700	~2,660
Tier 2	~4,000	~1,100
Total HFRA	**~9,700**	**~3,760**

[1] Includes new installation and replacement of existing fast-acting fuses
[2] Thousands of sectionalizing devices installed prior to 2018 before the wildfire mitigation program began
[3] About 200 circuit miles of covered conductor of storm restoration work was distributed evenly between the tiers

SCE IS MAKING MEANINGFUL PROGRESS IN MITIGATING WILDFIRE RISK TO OUR CUSTOMERS

COVERED CONDUCTOR has reduced faults, which could lead to ignitions

67%
FEWER
faults on fully covered circuits

EXPANDED VEGETATION MANAGEMENT and tree removal has reduced faults

52%
FEWER
tree-caused faults

HIGH FIRE RISK INSPECTION PROGRAM has reduced remediation needs

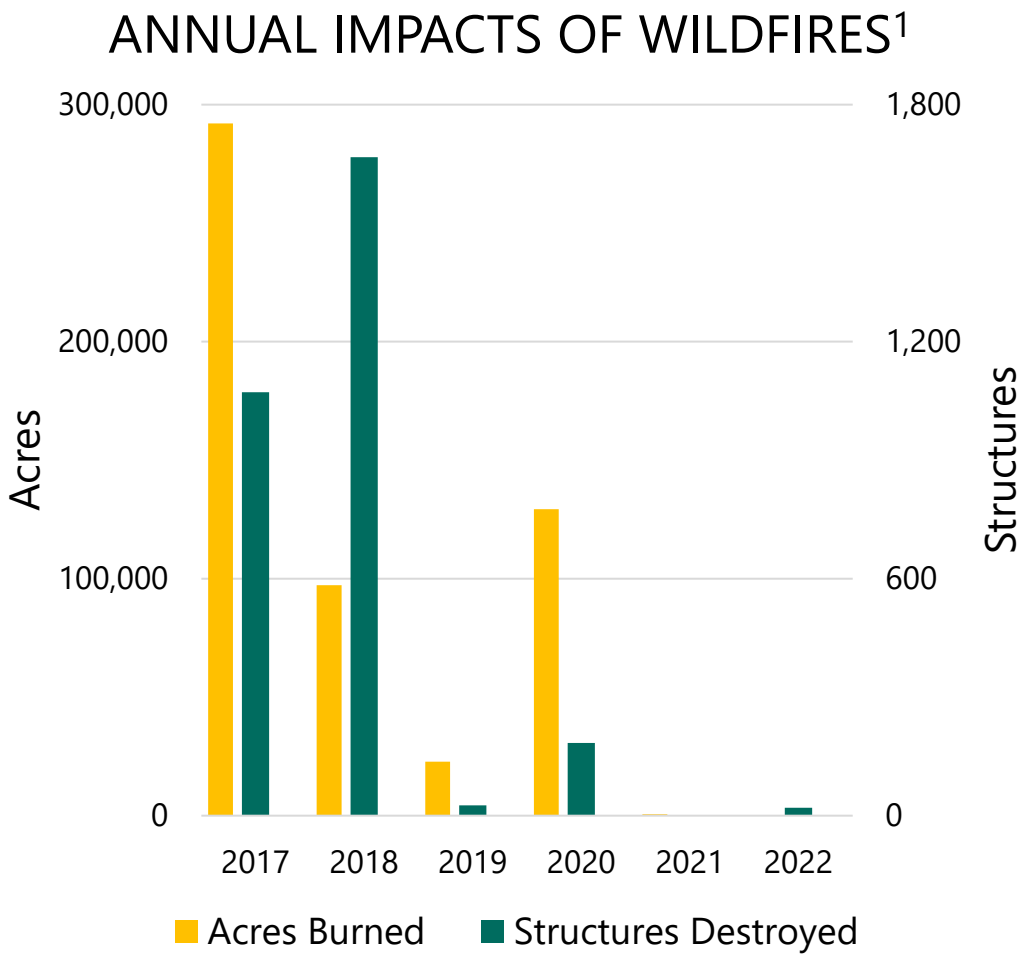
59%
LOWER
defect find rate

ON SEGMENTS WHERE SCE HAS COVERED BARE WIRE, THERE HAS NOT BEEN A CPUC-REPORTABLE IGNITION FROM THE DRIVERS THAT COVERED CONDUCTOR IS EXPECTED TO MITIGATE

OUTCOMES WILL CONTINUE TO IMPROVE AS SCE DEPLOYS MITIGATIONS OVER TIME

While ignitions have increased across system, the impacts of wildfires have decreased substantially:

- Acres burned and structures destroyed decreased considerably from the 2017/2018 time period
- Ignitions in High Fire Risk Area have grown slower than non-HFRA, and are now leveling off
- Risk assessment and mitigation efforts are augmented by incorporating lessons learned from past events into future mitigation strategies

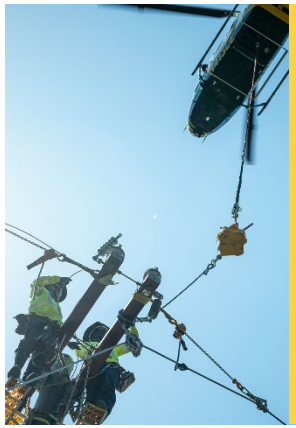


[1] Chart reflects data associated with CPUC reportable and ESIR ignitions. 2022 figures are through June 30, 2022, based on preliminary determinations. Provision of this information should not be construed as an admission of any wrongdoing or liability by SCE.

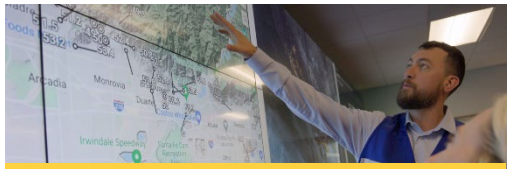
SCE MADE SIGNIFICANT PROGRESS IN 2021 TO REDUCE THE IMPACT OF PSPS ON OUR CUSTOMERS

System-wide

45%
Reduction in PSPS duration as a result of 2021 mitigation measures



700
Miles of expedited grid hardening



81,000
Customers removed from PSPS scope through exceptions and switching protocols

Frequently Impacted Circuits (FICs)

73%
Reduction in PSPS **duration** for the most frequently impacted circuits (FICs)

72%
Reduction in **scope** on FICs

49%
Reduction in event **frequency** on FICs

Note: January 2021 PSPS event is considered part of 2020 season as it was driven by 2020 weather and fuel conditions and managed with 2020 tools and capabilities

WHILE USE OF PSPS WILL CONTINUE, SCE IS TAKING ADDITIONAL MEASURES TO FURTHER REDUCE ITS IMPACTS

USE **PSPS** ONLY WHEN NECESSARY **TO PROTECT PUBLIC SAFETY** UNDER SIGNIFICANT FIRE-RISK WEATHER CONDITIONS

REDUCE THE NEED FOR PSPS	• Target 50+ circuits for expedited grid hardening • Continue circuit exception activities
EXECUTE PSPS EVENTS EFFECTIVELY	• Develop ~500 additional machine-learning weather models • Complete end-to-end process / system automation • Conduct monthly trainings and exercises
MITIGATE THE IMPACTS OF PSPS	• Build out Customer Resource Center availability • Continue to refine customer care programs • Expand programs and outreach for Access & Functional Needs customers
INFORM PARTNERS AND CUSTOMERS	• Improve customer and partner notification accuracy and timeliness through automation • Continue community and partner meetings
IMPROVE POST EVENT REPORTING	• Automate in-event/post-event data flows for more accurate and timely reporting

SCE IS MAKING TIMELY PROGRESS IN IMPLEMENTATION OF ENERGY SAFETY AND SCE SAFETY CULTURE ASSESSMENT RECOMMENDATIONS

SCE IMPLEMENTATION OF 2021 SAFETY CULTURE ASSESSMENT RECOMMENDATIONS

- **Improved safety-related communication concerning wildfire roles and decisions**, by enhancing wildfire safety protocol communications & conducting field workforce outreach
- **Evaluated progress of wildfire communication improvements** via surveys measuring PSPS protocol changes and communications effectiveness
- **Embedded learning organization concepts into culture**, by incorporating root cause and lessons learned into employee communications and initiating human & organizational performance training
- **Mitigated serious exposure posed by interactions with discontented members of the public**, by analyzing incident trends and training employees to proactively mitigate threats

SCE'S SAFETY CULTURE ASSESSMENT PROGRESS

- **Improved safety leadership and psychological safety,** by driving targeted activities to address key assessment findings, e.g., safety standups focused on speaking up
- **Implemented a risk-based approach to safety culture**, by focusing safety improvement efforts in targeted locations

Employees see safety culture improvements

- 78% agree safety culture has improved
- 75% see safety leadership improvements
- 91% "feel comfortable talking about safety concerns with their direct supervisors"

WORKER SAFETY PROGRAMS PRIORITIZE REDUCTION OF SERIOUS INJURIES AND FATALITIES

Performance Trends 2018-2022

Metric	2018	2019	2020	2021	2022[1]	Peer Benchmark Average[2]
Employee Fatalities	0	0	0	0	0	—
Employee Serious Injuries and Fatalities (SIF) Rate	0.11	0.05	0.12	0.06	0.11	0.07
Employee Days Away Restricted or Transferred (DART) Rate	0.98	1.17	0.90	1.05	1.16	0.53
Employee OSHA Rate	1.98	2.34	1.80	1.94	1.82	1.09
Contractor Fatalities	2	3	3	1	1	—
Contractor SIF Rate	0.32	0.13	0.19	0.12	0.09	—
Contractor DART Rate	0.55	0.35	0.45	0.36	0.26	0.40
Contractor OSHA Rate	0.92	0.56	0.65	0.57	0.43	0.88

[1] Safety performance data through July 2022
[2] Employee benchmark based on 2021 survey of Edison Electric Institute (EEI) member companies. Contractor benchmark based on separate 2020 EEI survey. "-" indicates that no peer benchmark is available

SCE's 12-month moving average employee SIF rate of 0.07 is below previous multi-year averages:

Time Period	# Yrs	Avg SIF Rate
2016-2018	3	0.11
2019-2021	3	0.08
2017-2021	5	0.09

Focus on leader safety ownership, hazard identification and controls, and embedding learnings from cause evaluations helps to improve worker safety

ENHANCING OUR CONTRACTOR MANAGEMENT SYSTEM TO IMPROVE SAFETY PERFORMANCE

OVERSIGHT	• Ratio of 1:30 contractor safety professionals to higher-risk[1] contract workers • Contractor Dashboard highlighting key metrics • Contractor Safety Quality Assurance Reviews
ACCOUNTABILITY	• Contractor badging and training qualification validation • 13% increase in SCE field safety observations of contractor work
CULTURE & ENGAGEMENT	• Contractor-led safety culture training for leaders of higher-risk contractors • SCE Management engaged in contractor incident reviews and lessons learned • Recognition program to acknowledge higher-risk contractor safety performance

[1] Higher risk in this context means contractors performing work scopes with historically higher volumes/severity of incidents on SCE property if behaviors/work practices deviate from established safety protocols and best practices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Thank you
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