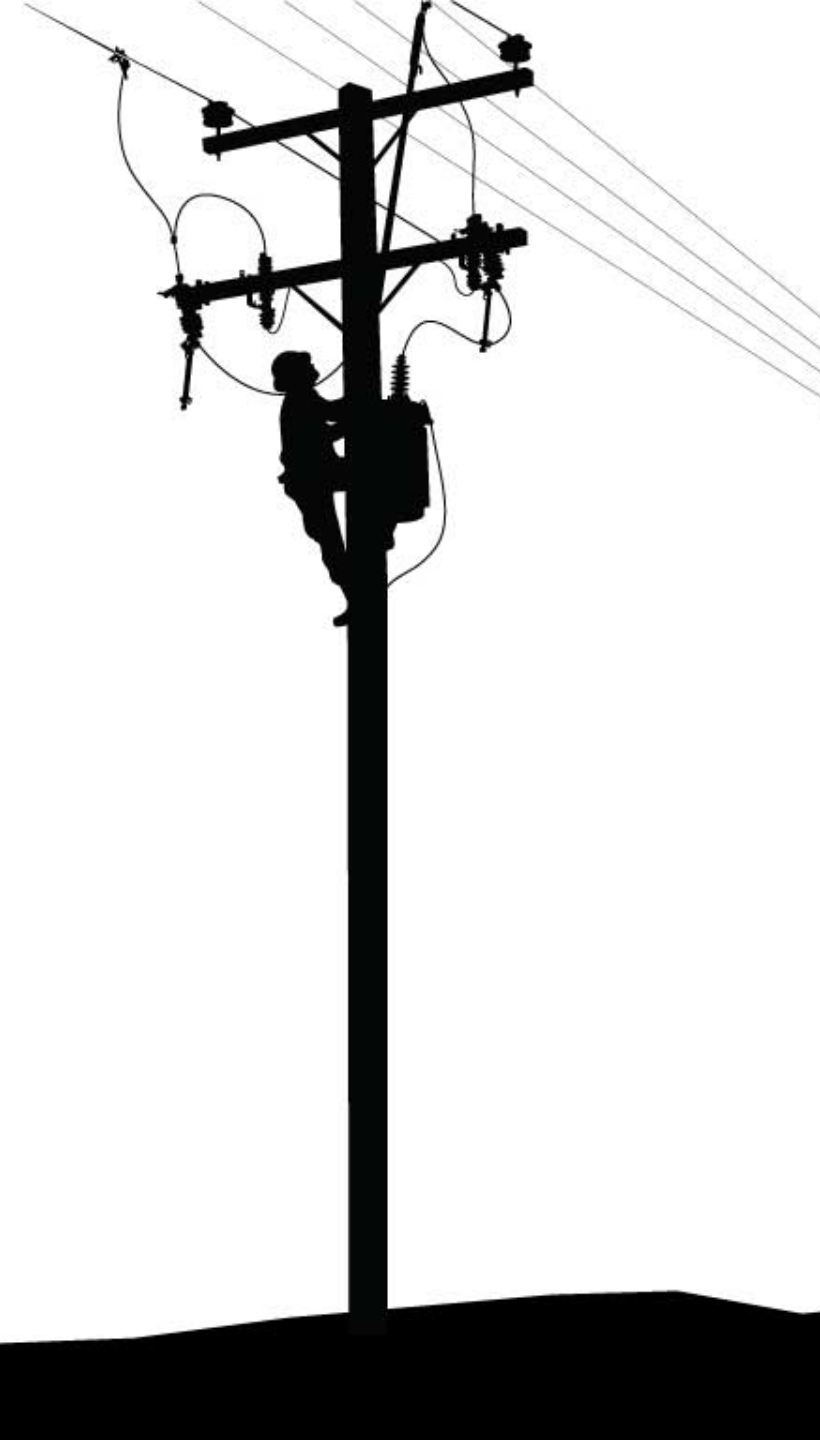




**& WILDFIRE
SAFETY**

San Diego Gas & Electric®
CPUC & OEIS Safety Briefing

September 22, 2022



Agenda



- **Erbin Keith** – Deputy General Counsel, Sempra; Board Safety Committee Chair
- **Kevin Geraghty** – Chief Operating Officer & Chief Safety Officer
- **Jonathan Woldemariam** – Director, Wildfire Mitigation
- **Dana Golan** – Vice President, Customer Services
- **Brian D'Agostino** – Vice President, Wildfire & Climate Science

SDG&E Board Safety Committee



Advises & assists SDG&E's board of directors in their oversight of safety matters that affect the company, including employees, contractors, customers and communities

Duties

- Reviews SDG&E safety culture, goals and risks
- Reviews incidents, measures and strategies taken by management to prevent, mitigate, or respond to safety-related incidents involving employees, contractors, customers or community members
- Reviews Company incentive compensation metrics related to safety and monitors performance with respect to such metrics

Committee Members

- Erbin Keith (Chair), Deputy General Counsel, Sempra
- Rob Borthwick, Deputy General Counsel, Sempra
- Caroline Winn, Chief Executive Officer, SDG&E

SDG&E Board Safety Committee



Key Oversight Areas

- Wildfire Prevention & Mitigation, Grid Hardening Efforts
- Safety Incidents, Leading/Lagging Indicators & Lessons Learned
- Stakeholder & Community Input (Wildfire Safety Community Advisory Council)
- Safety of the Workforce & Public
- PSPS Safety & Customer Resilience
- Cybersecurity & Grid Security
- Gas Safety
- Safety Aspects of Executive Compensation

Receives an update on the Company's safety performance at each meeting, including safety performance metrics

SDG&E Board Safety Committee



Safety Committee's Recent Recommendations:

- Retain a **compensation consultant** to advise the Safety Committee on executive compensation and safety metrics
- Review findings of CPUC consultant in SoCalGas/Sempra Safety Culture OII and present **lessons learned, and steps taken** in response
- Review and respond to **California State Auditor report** addressing electrical system safety
- Present on SDG&E's use of **Sensitive Relay Profiles** and their effectiveness at mitigating wildfire risk
- Present on SDG&E's **implementation of the 2021 Wildfire Safety Culture Assessment**, including efforts to mitigate the risks posed by discontented customer interactions

SDG&E Board Safety Committee



Safety remains a top priority for SDG&E's executive compensation structure

- Increased use and weighting of safety metrics over time
 - Measurable and enforceable performance metrics
- Annual reassessment of metrics to target priorities
 - Balance between leading and lagging indicators
- Promoting ambitious safety goals
 - Strong safety performance = key input for strong financial performance

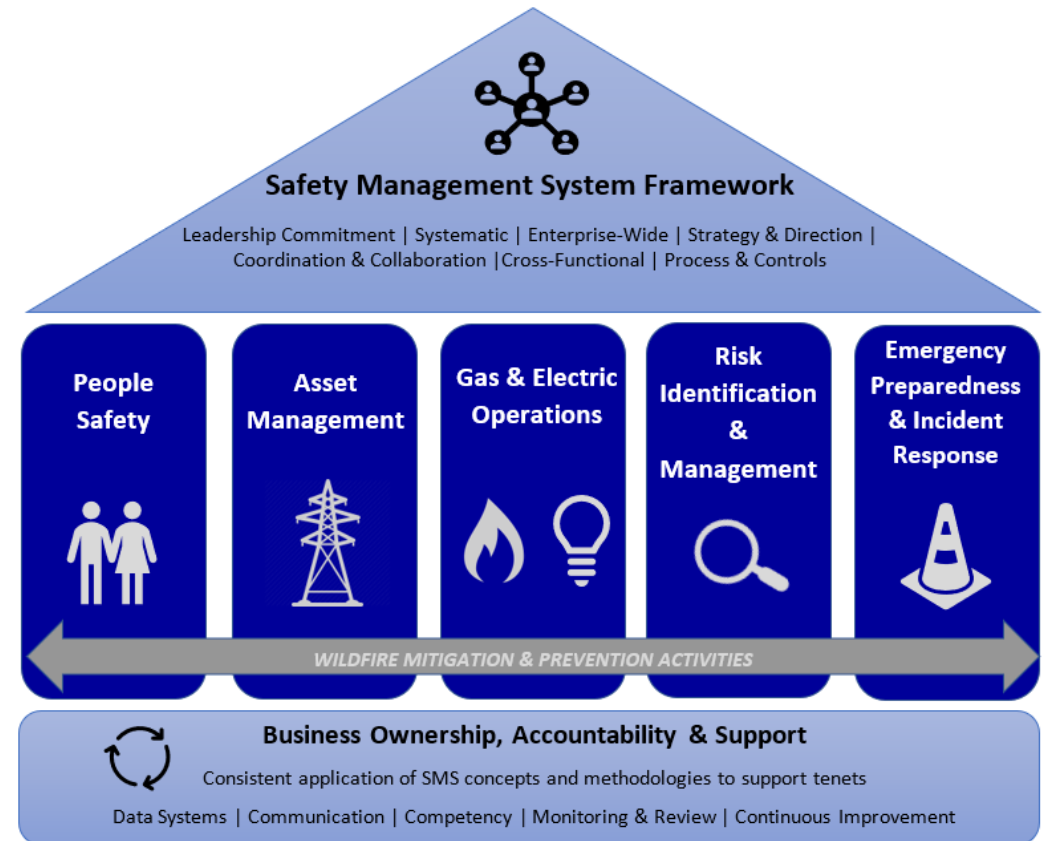
SDG&E's focus on psychological safety

- Diversity, Equity & Inclusion
- Community relations
- Field observations and near-miss reporting

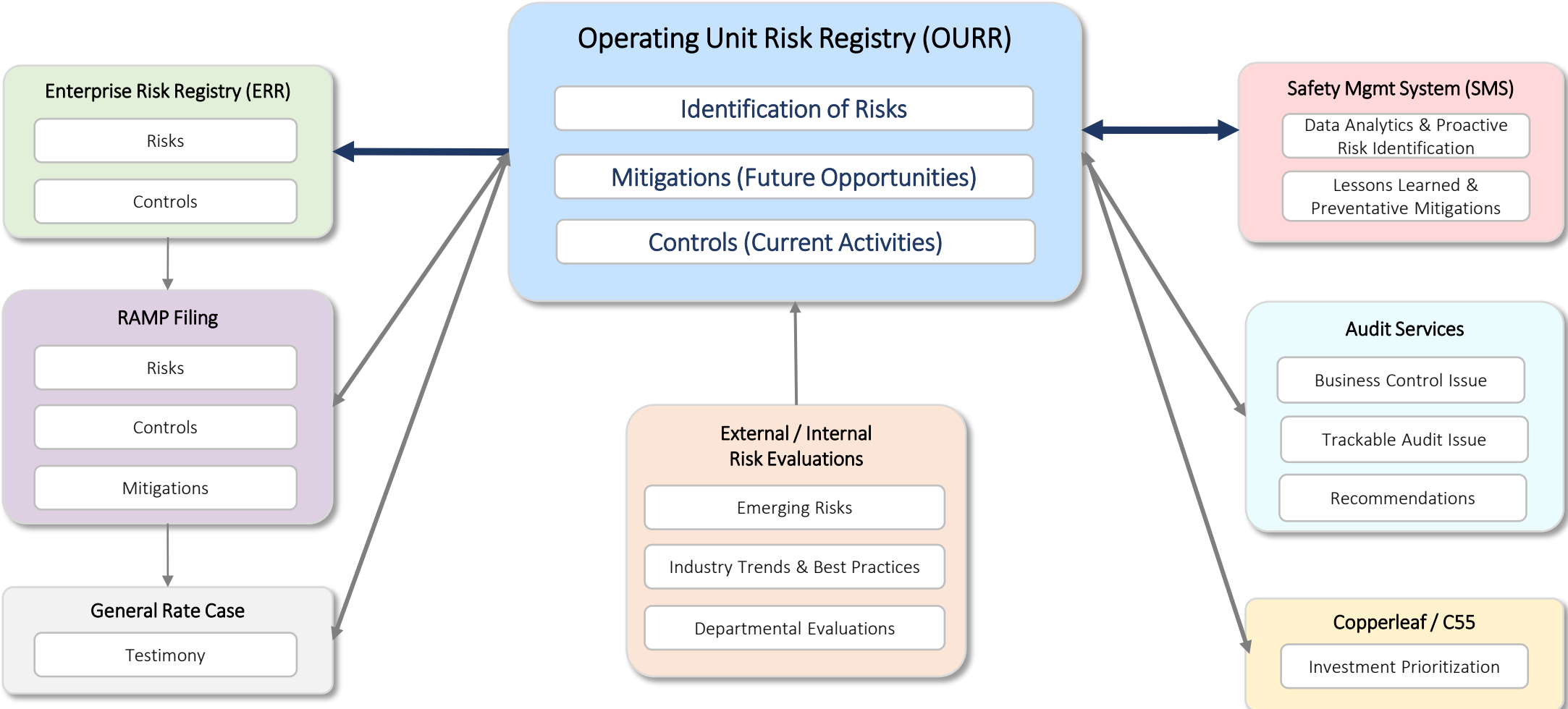
Safety Management System



- Company-wide system expands beyond “traditional” occupational (employee & contractor) safety to include:
 - Public Safety
 - Asset and System Safety
 - Cyber Safety
 - Psychological Safety
- Better aligns and integrates our business; increases collaboration and sharing of best practices and lessons learned
- Process-based approach that integrates risk and builds safety into everything we do
- Increases use of data analytics to deploy proactive and preventative measures; increases access to data
- Incorporates technology enhancements for effective and sustainable progress



Integrated Approach to Risk Management: OURR Development



Supportive of other filings such as SMAP, WMP, etc.

SDG&E 2022 Incentive Compensation Plan (ICP): Operational & Safety Metrics



- 2022 ICP goals developed with a core focus on safety, operational excellence and customer experience
- Safety continues to be a core focus of SDG&E's 2022 ICP as we increase our efforts towards various safety goals, including, but not limited to: gas response time, lost time incident rate, controllable motor vehicle incidents, field observations, and near misses.
- New safety goals in 2022 related to
 - Cybersecurity phishing metrics and electric overhead faults
 - Diversity, equity and inclusion and community relations.

2022 ICP Operational & Safety Metrics:

- **Electric safety & reliability:** Wildfire & PSPS System Hardening, Vegetation Contacts in High Fire Threat District (HFTD), PSPS Average Circuit Restoration Time, System Average Interruption Duration Index (SAIDI), and new goals related to Electric Overhead Fault Rate During Elevated Fire Potential and Annual Average Phishing Report Rate
- **Gas safety:** Distribution Integrity Management Program, Damage Prevention, and improved Priority 1 (P1) gas response time
- **Employee safety:** Measurements of Lost Time Incident (LTI) Rate, Controllable Motor Vehicle Incidents (CMVI), field observations and near misses reported
- **Other operational/sustainability:** SDG&E Listens Survey goals (Voice of the Customers), Diversity, Equity, and Inclusion action plan progress, and Community Relations and Supplier Diversity efforts

Advancing Cyber Safety



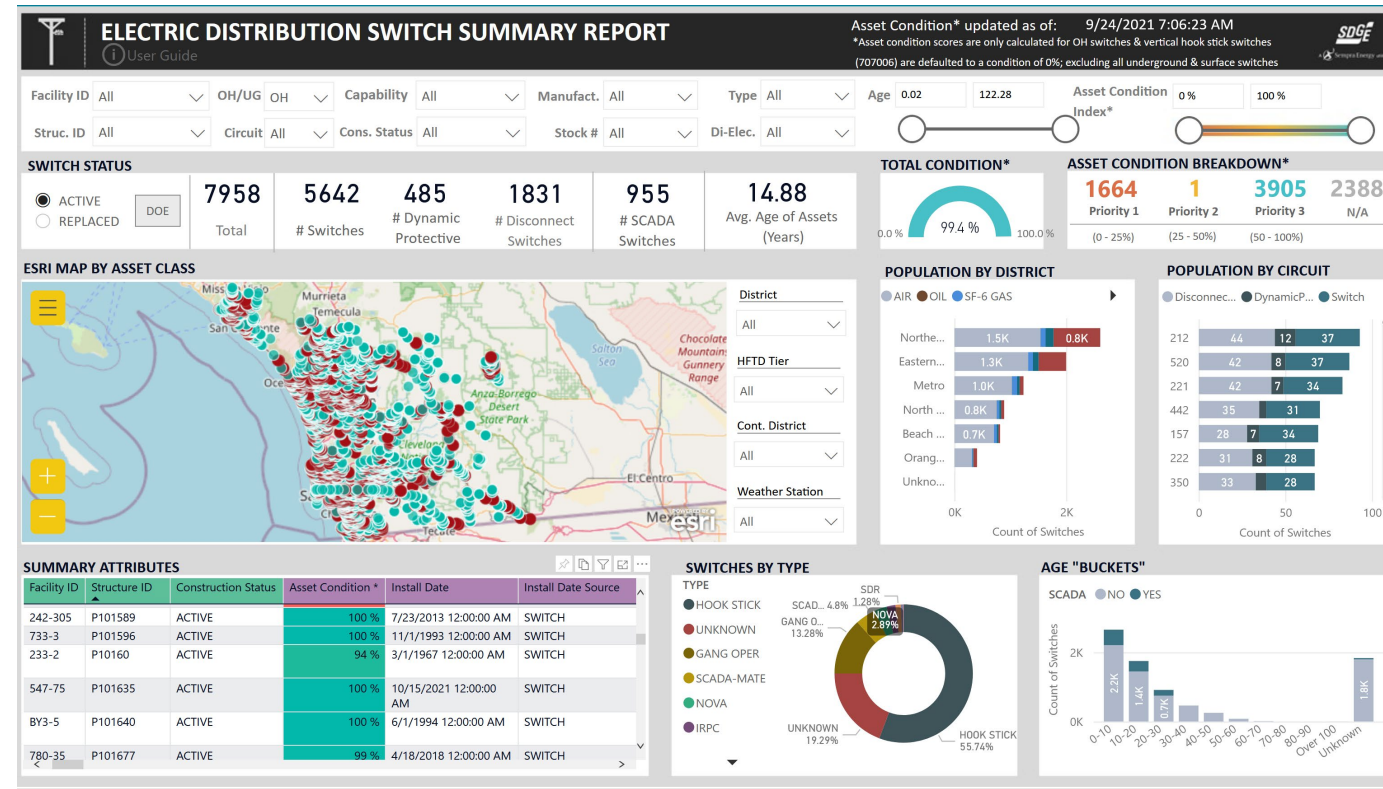
- Systems guarded by **advanced tools** that detect and deter suspicious activity and privacy breaches
- **Monthly simulated phishing emails** to all employees to help them learn to STOP, ASSESS, and VERIFY before responding and identify potential phishing attempts
 - Goal to maintain a simulated phishing report rate of at least 75%
 - Results are assessed regularly to identify areas for improvement
- Additional steps taken to **strengthen our first line of defense** against anyone trying to gain unauthorized network access:
 - Additional blocking of unsafe internet sites from Company devices and/or network
 - New password requirements (e.g., increased minimum character length)
 - Multifactor authentication expanded to require increased identity verification by phone call or with Microsoft Authenticator after entering a password

Asset & Public Safety: Asset360 Program



Utilizes advanced analytics and machine learning to improve and normalize data quality, and partners with engineering and operations to provide data and analytics that support risk-informed decision making

- Supports **Electric Engineering's strategy** to replace aging 4kV infrastructure in urban/dense areas, prioritizing replacements to serve disadvantaged communities
- Supports **Enterprise Risk Management's** planning models for Wildfire Mitigation and PSPS planning
- Supports **Electric Operation's Overhead Switch Pilot Maintenance Program** to prioritize OH switches to inspect and maintain



Electric Distribution dashboard for illustrative purposes only

Enhanced XR Training Modules: Public Safety Power Shutoff Observer Training Pilot



- Prioritized subject modules based on Company risk (Enterprise Risk Registry)
- Provides training visuals for high consequence/low frequency events
- Enhanced data collection and analytic capabilities
- Cross-coordination and training
- Solicits increased trainee feedback
- Identifies opportunities for continuous improvement

Capabilities



Scenario & Situational Training



3D Modeling



SSO, 2.5D & Reporting

Benefits



Increased Engagement & Learning



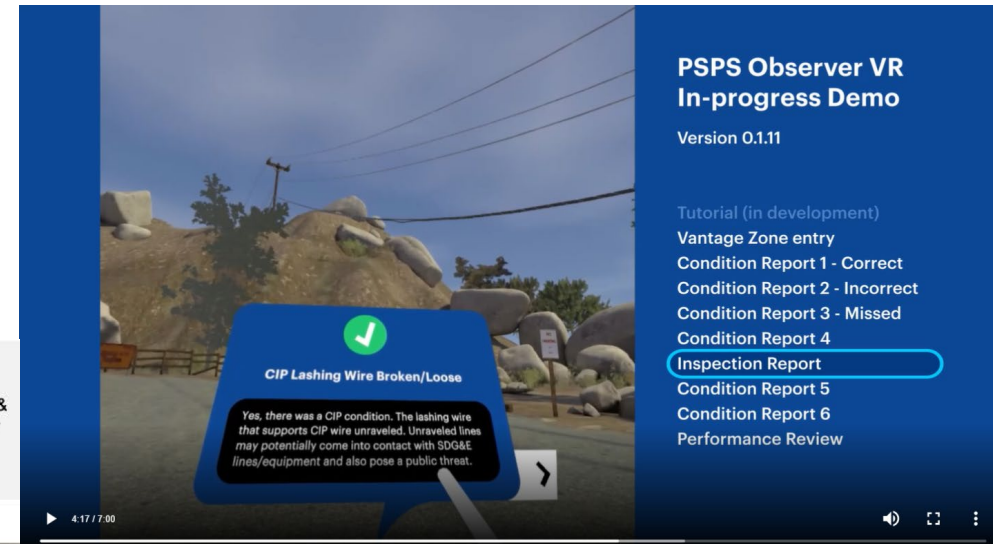
Skills Development & Collaboration



Improved, Scaled Training



Workforce & Community Safety



Example for demonstration purposes only

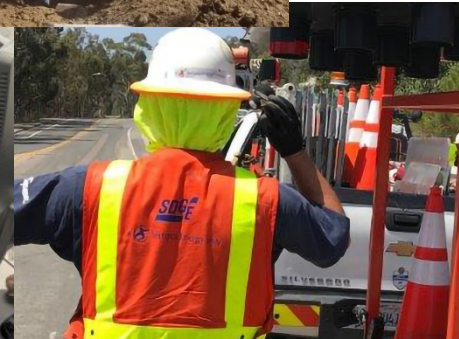
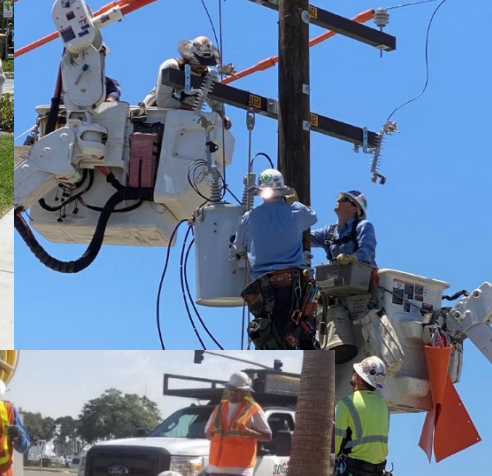


Building Trust: Creating a Safe Environment to Speak Up



Within its Safety Management System, SDG&E provides:





- Processes for employees and contractors **to voice concerns** with consistent follow-up and feedback
- An environment where employees **trust concerns can be raised without fear of retribution**
- A **learning environment** where safety incidents and Near Misses are viewed as opportunities for improvement
- **Transparent, open, two-way communication** with increased sharing of information, best practices and lessons learned
- **Increased accessibility to data** with company-wide safety dashboards
- **Enhanced collaboration** between business units (e.g., gas and electric coordination)
- **Leadership commitment** - teams lead by example and demonstrate the follow-up and improvements resulting from voiced concerns



Near-Term Safety Culture Goals (1 year)









Objective: Continuous improvement of the safety culture by focusing on management leadership, worker participation, and a proactive approach to identifying and mitigating risks and hazards

Action				
Metric	<p>Near Misses</p> 	<p>Environment & Safety Compliance Management Program (ESCMP) Findings Mediated</p> 	<p>Employee Safety Observations</p> 	<p>Contractor Safety Observations</p> 
Target	<p>350</p>	<p>100%</p>	<p>17,000</p>	<p>15,500</p>

Longer-Term Safety Culture Goals (2-3 Years)




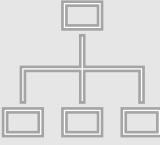
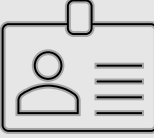


Objective: Continuously improve the safety culture by focusing on management leadership, worker participation, and a proactive approach to identifying and mitigating risks and hazards

Action	Metric	Target
<ul style="list-style-type: none"> Stopping the task that is perceived to be unsafe, indicates employees' comfort levels in: <ul style="list-style-type: none"> Speaking up, risk awareness, and trust 	Stop the Job / Stop the Task 	20/Year
<ul style="list-style-type: none"> Assessing Near Miss/safety incidents for the potential to have caused serious injury or fatality allows for: <ul style="list-style-type: none"> Identification of corrective and/or preventative actions to reduce risk and exposure Broad sharing of lessons learned 	SIF Potential Assessments Completed 	100%
<ul style="list-style-type: none"> Communicate and follow-up on reported hazards and incidents, including: <ul style="list-style-type: none"> Those that pose wildfire risk, proactively reduce exposure or prevent future incidents. Near miss reports also indicate: <ul style="list-style-type: none"> Employees' comfort level in raising risks Trusting management 	Near Misses 	300-400
<ul style="list-style-type: none"> Supervisors/leaders observing tasks and peer-to-peer observations to provide: <ul style="list-style-type: none"> Safety assurances Lead to positive engagement with employees Identify and communicate safe and at-risk behaviors. Increase trust and transparency Constant improvement of SDG&E's workplace safety culture Safety performance in all areas 	Safety Observations 	18,000 - 20,000
<ul style="list-style-type: none"> Safety observations of third-party contractors provide: <ul style="list-style-type: none"> Additional safety assurances that the work is being performed in a safe manner Identify and communicate safe and at-risk behaviors. Coaching regarding avoidance of at-risk behaviors and Recognition of safe behaviors help move the safety culture forward Ultimately improve safety performance of contractors performing work 	Contractor Safety Observations 	15,500 - 17,000
<ul style="list-style-type: none"> Document safety incidents Identify action plan, and Track action through completion in a timely manner 	ESCMP Findings Mediated 	100%

Key Lessons Learned Over Past 12 months

Objective: Apply lessons learned to identify opportunities for continuous safety improvement



Management Commitment 	Supervisor Engagement 	Employee Involvement 	Safety Support Activities 	Safety Support Climate 
<ul style="list-style-type: none"> • Examples of top management demonstrating their leadership and commitment to safety include: <ul style="list-style-type: none"> ○ Bi-monthly Executive Safety Council ○ Chief Safety Officer and management participation in various safety committees ○ Chief Safety Officer and management participation in monthly Behavior Based Safety meetings 	<ul style="list-style-type: none"> • Examples of improved Supervisor Engagement include: <ul style="list-style-type: none"> ○ Increased field safety visits ○ Training curriculum and testing program Employee Safety 	<ul style="list-style-type: none"> • Increased measures to promote safety awareness and an active role in incident investigations and in identifying and eliminating hazards, including: <ul style="list-style-type: none"> ○ Increased number of near miss events reported by contractors and employees ○ Implemented a specific skills audit team from the Skill Training Center 	<ul style="list-style-type: none"> • Improved the frequency of detailed and regularly scheduled inspections; focused on improving safety training for new employees, including: <ul style="list-style-type: none"> ○ Behavioral Accident Prevention Process (BAPP): ○ Provides a structured process for continuous safety improvements ○ Developed hazard and risk assessment checklists; focused on key areas of “critical risk.” ○ Conduct on the spot accountability conversations ○ Identify and further act on undiagnosed risk exposure ○ Drive hazard and risk removal and mitigation efforts 	<ul style="list-style-type: none"> • Improved the status and value of safety committees; increased supervisory level focus from on how they think about safety, including: <ul style="list-style-type: none"> ○ Near Miss Reporting program <ul style="list-style-type: none"> - tailgates - safety meetings - through an online process - using a newly developed smart device application
<p>Employee Safety Barometer Survey results: Improved 2018: 91.7 2020: 98.3</p>	<p>Employee Safety Barometer Survey results: Improved 2018: 90.8 2020: 99.0</p>	<p>Employee Safety Barometer Survey results: Improved 2018: 85.3 2020: 95.8</p>	<p>Employee Safety Barometer Survey results: Improved 2018: 89.0 2020: 96.9</p>	<p>Employee Safety Barometer Survey results: Improved 2018: 89.8 2020: 98.6</p>

2021 Wildfire Safety Culture Assessment Report



Recommendations

Integrate safe behaviors associated with mitigating hazards into the Behavior-Based Safety (BBS) observation program



Actions

- **Communication & Awareness**
 - Operational and manager training & focused meetings hosted by safety advisors
 - Company-wide psychological safety town halls & District safety all-hands meetings
- **Engagement**
 - On-site safety visits by Chief Safety Officer and District leadership
 - Feedback collected by Executive Safety Council (ESC) from front-line operational employees and supervision
- **Process & Technology**
 - New BBS process for electric distribution system operators to identify safe and at-risk behaviors associated with mitigating hazards from wildfires; expanding BBS checklist accordingly
 - Enhanced Near Miss reporting application

Clarify, coach, and track the behaviors field leadership needs to adopt to advance the safety culture



- **Company-wide manager training workshops** to promote a culture of safety and trust
- Increased leadership **safety observations and visits**
- Safety all-hands meetings held by District leadership to **clarify safety expectations**
- Launched company-wide Supervisor Training Academy for frontline leaders, which covers safety, supervisor effectiveness, diversity and inclusion, compliance, employee engagement and culture

Recognize and take action to mitigate the serious exposure posed by interactions with certain discontented members of the public



- **Delivered social media communications** reminding members of the public that SDG&E employees may be on their property performing work to maintain safety and reliability
- **Heightened company-wide focus and attention around hostile interactions** with discontented members of the public resulting from bill increases and media attention
- Company and operational leadership provided all employees with **talking points and safety tips for customer interactions** and communications around safely interacting with members of the public

Key Safety Performance Metrics



Safety Metric	2017	2018	2019	2020	2021
Employee SIF Rate	0.00	0.00	0.02	0.00	0.02
Employee DART Rate	1.07	1.23	1.01	0.89	1.25
Employee OSHA Rate	2.01	1.79	1.73	1.43	1.72
Employee LTI Rate	0.53	0.71	0.46	0.36	0.44
Contractor SIF Rate	-	0.03	0.07	0.08	0.03
Contractor DART Rate	-	0.33	0.93	0.53	0.56
Public SIF (Fatalities)	1	1	0	0	0
Public SIF (Serious Injuries)	4	2	2	3	2
Average Electric Emergency Response Time (minutes)	77.83	70.11	65.75	46.57	49.71
Average Gas Emergency Response Time (minutes)	145.78	52.77	43.04	30.36	29.06

- **SIF** - Serious Injury or Fatality
- **DART** - Days Away, Restricted or Transferred
- **OSHA** - Occupational Safety and Health Administration
- **LTI** - Lost Time Injury

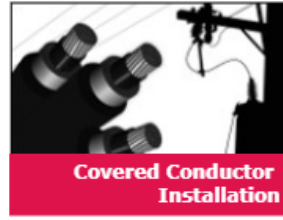
Wildfire Mitigation Plan Implementation



Completed / Target	2022	Completed since 2020
21.7/65	33%	77.5
Miles Installed	Complete	Miles Installed



2022 Completed / Target	Completed since 2020	2022 Completed / Target	Completed since 2020
12/27	33	5/20	291
Cameras Installed		Weather Stations Upgraded	



Completed / Target	2022	Completed since 2020
19.5/60	33%	42.0
Miles Installed	Complete	Miles Installed



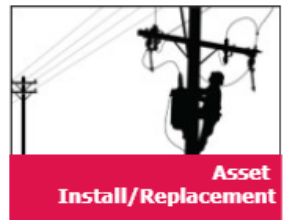
2022	Total
464K	2.05M
Gallons Dropped YTD	Gallons Dropped since 2020



Completed / Target	2022	Completed since 2020
32.8/ 31	105%	354.2
Miles Installed	Complete	Miles Installed



Completed / Target	2022	Completed since 2020
140K/ 151K	92%	490K
Inspections	Complete	Inspections



Completed / Target	2022	Completed since 2020
4,145/3765	110%	17,958
Asset Installed/Replaced	Complete	Installed/Replaced



Completed / Target	2022	Completed since 2020
14,988/16842	89%	34,439
Inspections	Complete	Inspections



Completed / Target	2022	Completed since 2020
8,505/12500	68%	38.2K
Trees Removed/ Trimmed	Complete	Trees Removed/ Trimmed



Targeted Risk Mitigation through Grid Hardening Investments



Driven by situational awareness, operational and system enhancements are imperative to reduce system risk exposure and increase reliability



Vegetation Management

450,000+ trees managed • 7,886 trees trimmed to enhanced clearance (25ft) • 7,539 trees planted YTD • ~250,000 high-risk trees inspected twice annually



Grid Hardening

Strategic undergrounding with ~50 miles expected in 2022 (~1,000 miles planned through 2031) • 16% cost reduction for undergrounding



Advanced Protection Systems

Falling conductor protection • replacing remaining 227 fuses of over 7000 • expanding new private LTE Network



System Inspections

Enhanced inspection capabilities using drones • 21,521 drone inspections completed in the HFTD • 85%+ accuracy in AI to analyze photos for infractions

Increasing Customer Preparedness through Stakeholder & Community Outreach

Augmented & diverse communications tools used to inform customers before & during a PSPS



Accessible Notifications & Emergency Communications

PSPS notifications in 22 prevalent languages and ASL video



Dedicated Support for Individuals with Access and Functional Needs

Medical baseline customers who have previously experienced a PSPS have received or are being offered a portable renewable generator (~3,500 customers total)



HFTD Community Partners

Dedicated PSPS CBO partners focused on HFTD + additional training/resources



Community Safety Fairs

Wildfire safety fairs & customized fairs for targeted communities



Robust PSPS Public Education Campaign

Leverage 40+ diverse communications platforms & year-long public education campaign

Climate Change Continues to Demand Proactive Measures



Low Precipitation

Year-to-Date rainfall totals are 50-70% of normal across SDG&E's service territory, extending the drought and contributing to the likelihood of periods of extreme fire potential this fall



Wildfire Prevalence

2021 was the **second worst wildfire season on record** and included four of top 20 largest fires ever (2020 was the worst)



Drought Conditions

Extreme dryness across the American West now ranks as the **driest 22-year period** in at least 1,200 years. Drought remains persistent across all of California



Red Flag Forecasts

In 2022, there is an increased potential for above normal Red Flag Events²

1. Data Source: <https://www.latimes.com/environment/story/2022-02-14/western-megadrought-driest-in-1200-years>

2. A Red Flag Event occurs when warm temperatures, very low humidity, and strong winds combine to produce an increased risk of fire danger

Informing Decisions & Actions through Enhanced Situational Awareness



Significant advancements in wildfire risk modeling, enhancing situational awareness

SDG&E data scientists are continuously evolving risk modeling that is being used to inform system hardening and operational decisions during Public Safety Power Shutoff (PSPS)

SDG&E Weather and Camera Networks



Weather network (221 stations) is being expanded to include Air Quality Sensors and cameras include AI to detect wildfires

Advancing Science through Academic partnerships



Close partnerships are focusing on the advancement of weather technology, fire science and data science

Satellite Imagery



Enable image capture in frequent intervals to identify hot spots, support vegetation management and measure fuel moisture

Advanced Weather Forecasting



Over 1 billion historical weather observations are leveraged to create an AI based forecasting system to support PSPS

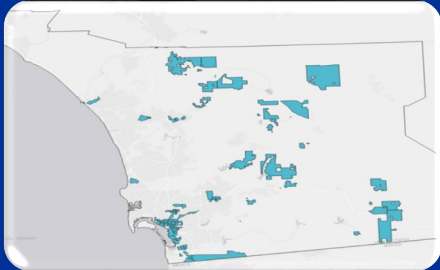
Climate Change Adaptation

Leading change through collaboration, advanced science, and innovation, for a better tomorrow



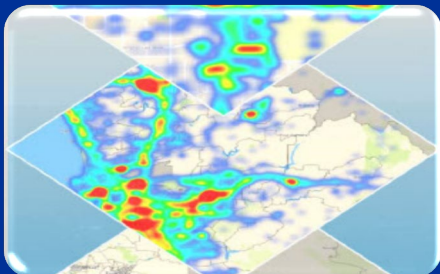
Wildfire & Climate Resilience Center

- A hub for safety leadership and operations
- A place to educate the community and stakeholders



Vulnerability Assessment & Community Engagement Plan

- Provides the foresight to mitigate climate risk
- Community engagement encourages climate equity



Community Impact Platform & Digital Twin

- Advanced analytics will drive climate related decision making, providing insights into safety, equity, investments, and sustainability

Thank You!

