Pacific Gas and Electric Company

Annual Public Safety Briefing

August 28, 2024

Topics for Discussion

1. Safety Governance
2. Safety Management System and Progress
3. Safety Performance
4. Safety Culture Assessment
5. Wildfire Safety
6. Gas Safety Performance
7. Lessons Learned

PG&E Participants

Cheryl F. Campbell
Chair of the Board of Pacific Gas and Electric Company and Chair, Safety and Nuclear Oversight Committee

Sumeet Singh
Executive Vice President, Operations and Chief Operating Officer

Matt Hayes
Vice President, Enterprise Health and Safety and Chief Safety Officer

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

Safety Governance

Safety Governance

Safety governance is embedded at the highest levels of the company, with direct involvement from the Board of Directors and the Safety and Nuclear Oversight (SNO) Committee. Safety performance informs our decision-making and recommendations.

Board of Directors

15 members

- Supports and approves oversight of safety metrics tied to executive compensation
- Reviews annual performance

We have not altered our governance structure since successfully standing it up in 2021

SNO Committee

6 members

- Committee members share more than 100 years of Safety Governance experience
- Reviews safety, risk and operational performance and results of cause evaluations
- Provides feedback to our management for action
- Independent, with deep expertise in wildfire safety, prevention, mitigation, emergency response and management, workforce and public safety, natural gas systems, risk management, cyber security and nuclear and non-nuclear generation safety

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PG&E's Board of Directors

The knowledge and experience of our Board of Directors improves and informs safety outcomes.

Key areas of experience include:

- Financial planning, performance and literacy
- Public policy
- Customer experience and community leadership
- Workforce and public safety
- Audit
- Technology and cybersecurity
- Leadership in energy and utility industry
- Engineering, procurement and construction
- Clean energy innovation and technology
- Climate change mitigation and resilience
- Natural gas transmission, distribution, operation and safety
- Utility operation and engineering
- Wildfire safety, preparedness, prevention, mitigation, response and recovery
- Nuclear and non-nuclear generation safety
- Federal and state-wide emergency management
- Risk management

How we're engaging:

- Conducting field visits to bolster engagement
- Encouraging safety learnings from other industries
- Promoting mentorship between Board of Directors and executives to foster growth and continuous improvement
- Engaging in cyber exercises to mitigate evolving risk landscape

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Safety Management System and Progress

Enterprise-Wide Safety Management System

Our Safety Management System provides the strategic framework to create “fail safe capacity” and builds our safety standards and capabilities for coworkers, with safety culture as its foundation.

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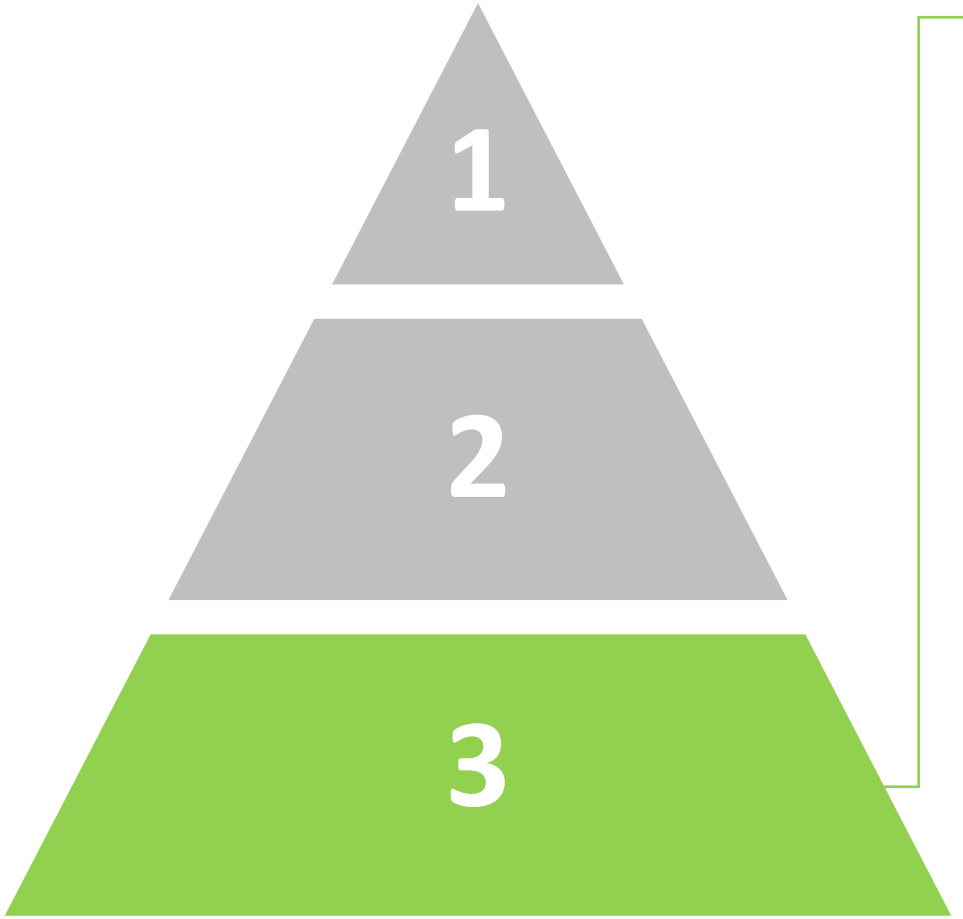
Organizational Culture and Safety Mindset (OCSM)

We focus on 10 key traits of a healthy safety culture that promote our organizational culture and the behaviors and attitudes expected from our coworkers and contract partners.



OCSM

10 Traits of a Healthy Safety Culture

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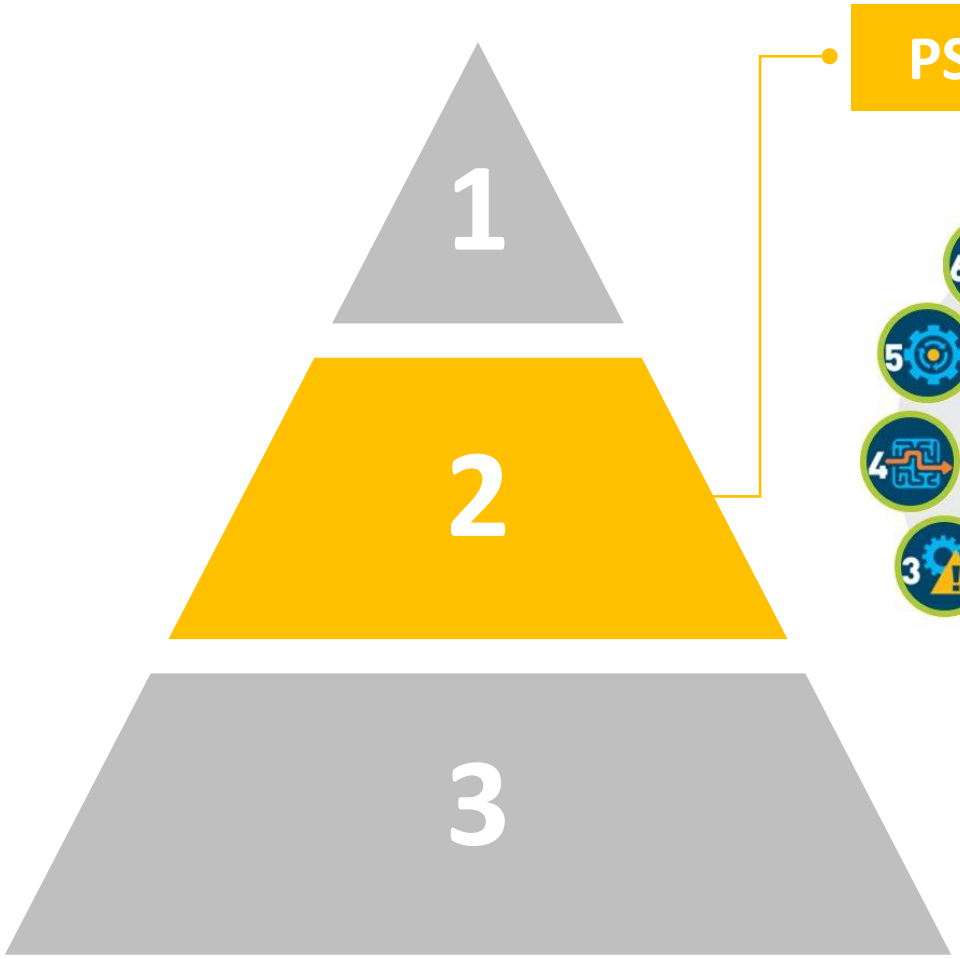
PG&E Safety Excellence Management System (PSEMS)

PSEMS is a structured management system that follows an annual cycle of “Plan, Do, Check, Act” to achieve continuous improvement and ensure “opportunities to fail safely” for our people, assets and the public.



PSEMS

1. Leadership Commitment and Engagement
2. Communication and Stakeholder Engagement
3. Risk Management
4. Strategy, Objectives, and Planning
5. Operational Control
6. Training and Competence
7. Emergency Preparedness and Response
8. Incident Reporting, Investigation, and Corrective Action
9. Contractor Management and Third-party Services
10. Management of Change (MOC)
11. Information, Documentation, and Records Management
12. Performance Evaluation and Improvement
13. Assurance

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Working to Mature PSEMS

By implementing PSEMS, we are establishing a baseline for continuous improvement. Our annual management reviews provide an opportunity to assess the maturity of each element to meet PSEMS expectations and mitigate safety risks.

Our Most Mature Functional Areas

- Nuclear Generation
- Transportation
- Gas Operations

Key Focus Areas for Continued Maturation

- Land use
- Supply Chain
- Power Generation

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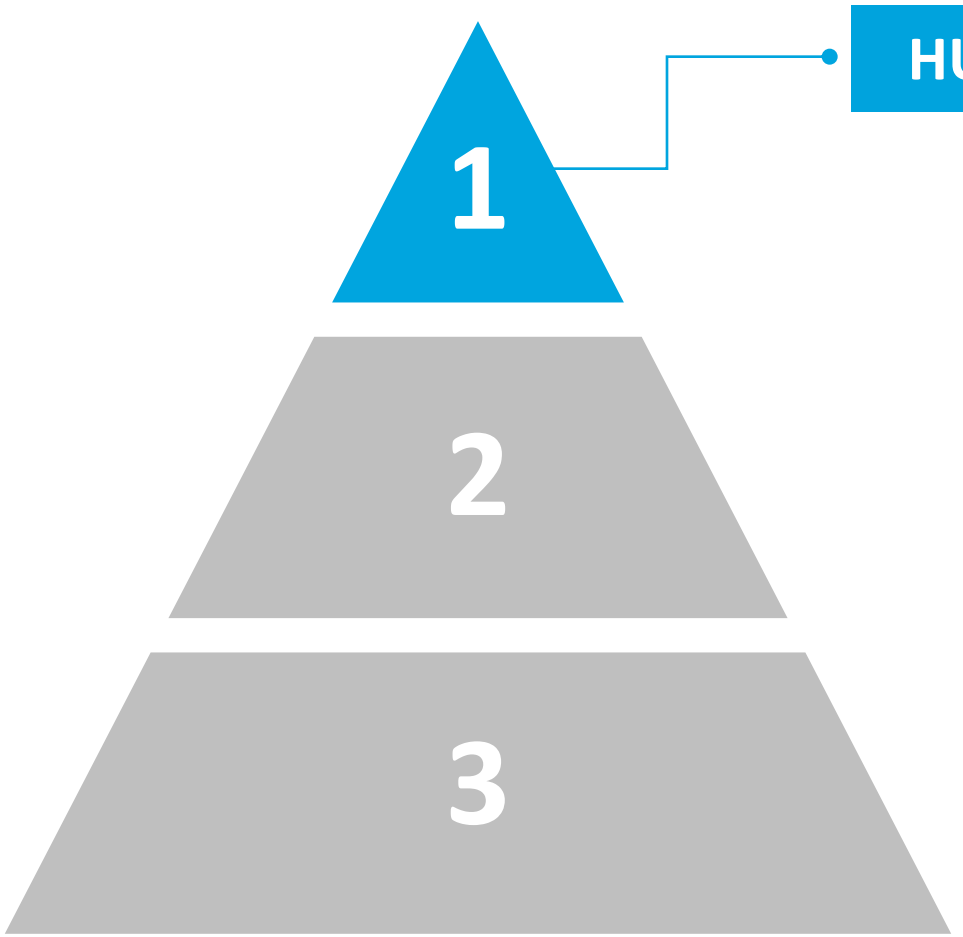
Human Performance (HU) Tools

Our HU Tools reduce coworker and contract partner mistakes by identifying and helping us mitigate the causes of human errors.



1. Place Keeping
2. Two-Minute Rule
3. Stop Think Act Review (STAR)
4. 3-way Communication
5. Phonetic Alphabet
6. Situational Awareness
7. Procedural Use and Adherence
8. Questioning Attitude
9. Pre-Job Safety Briefing
10. Stop When Unsure

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Reviewing and Learning from the Boeing Report

We took immediate action to proactively review the Boeing report and identify similar areas for improvement.

In the first quarter of 2024, an expert panel reviewed safety performance at Boeing, resulting in 27 findings and 53 recommendations. They highlighted deficiencies in safety culture, safety management system, organizational structure and other safety-related issues.

Assessments (Plan-Do-Check-Act)

Dedicate and develop company resources to conduct ongoing, periodic and thorough safety assessments, including on safety culture and PSEMS.

SMS Roles and Responsibilities

Ensure all coworkers understand their role in PSEMS.

Change Management

Ensure all coworkers follow a consistent change management process for design, supplier, procedures, training, organizational and other changes.

Build Safety and Quality Into the Work

Design of new/revised systems must have engineering controls built into the design, followed closely by safety assurance and quality control to verify design effectiveness.

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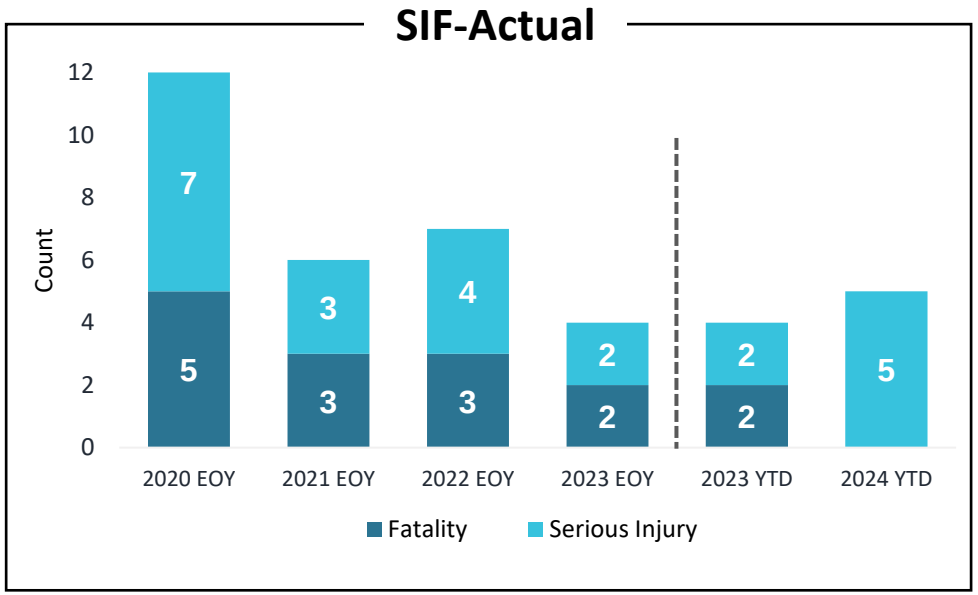
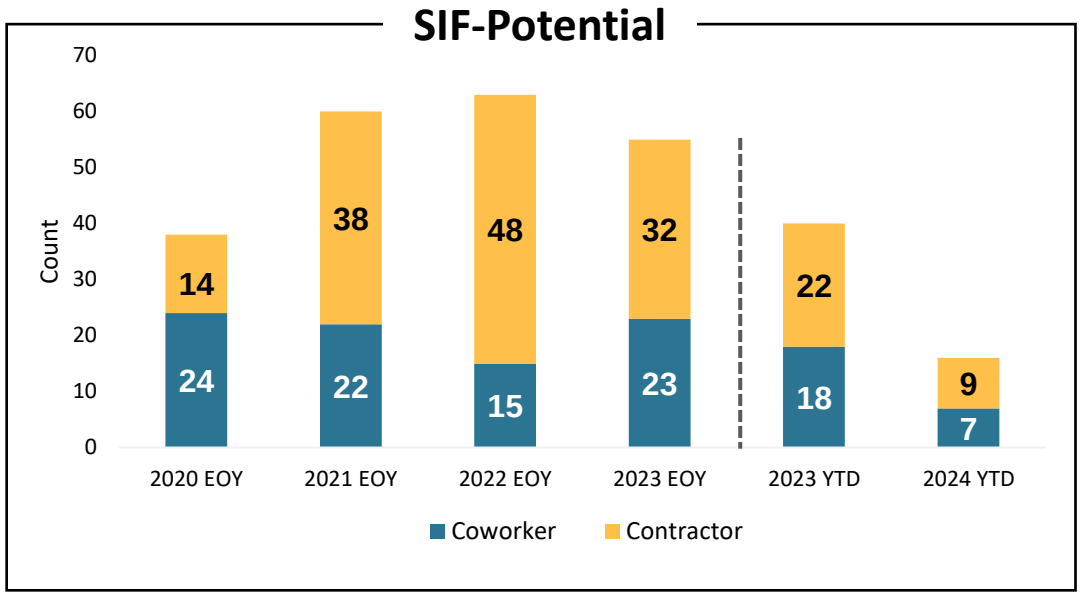
Safety Performance

Serious Incidents and Fatalities (SIF)

SIF metrics are key indicators used by our Board of Directors, SNO Committee and leadership to track safety. We continuously review performance to improve safety.





Data as of August 15, 2024

Performance:

- Five coworkers have been involved in serious, non-fatal SIF-Actual incidents YTD; two fatalities and two non-fatal serious injuries occurred in 2023
- Seven coworkers and nine contract partners have been involved in SIF-Potential incidents YTD; 18 coworkers and 22 contractors were involved in incidents in 2023
- Motion, gravity, electrical and mechanical incidents are the primary drivers for SIF actuals and potentials YTD

In mid-2020, Contractors were required to start reporting SIF-Potential events. SIF-Actual: A life-threatening or life-altering injury, or a fatality. SIF-Potential: An event that reasonably could have resulted in a SIF-Actual. Lower is better.
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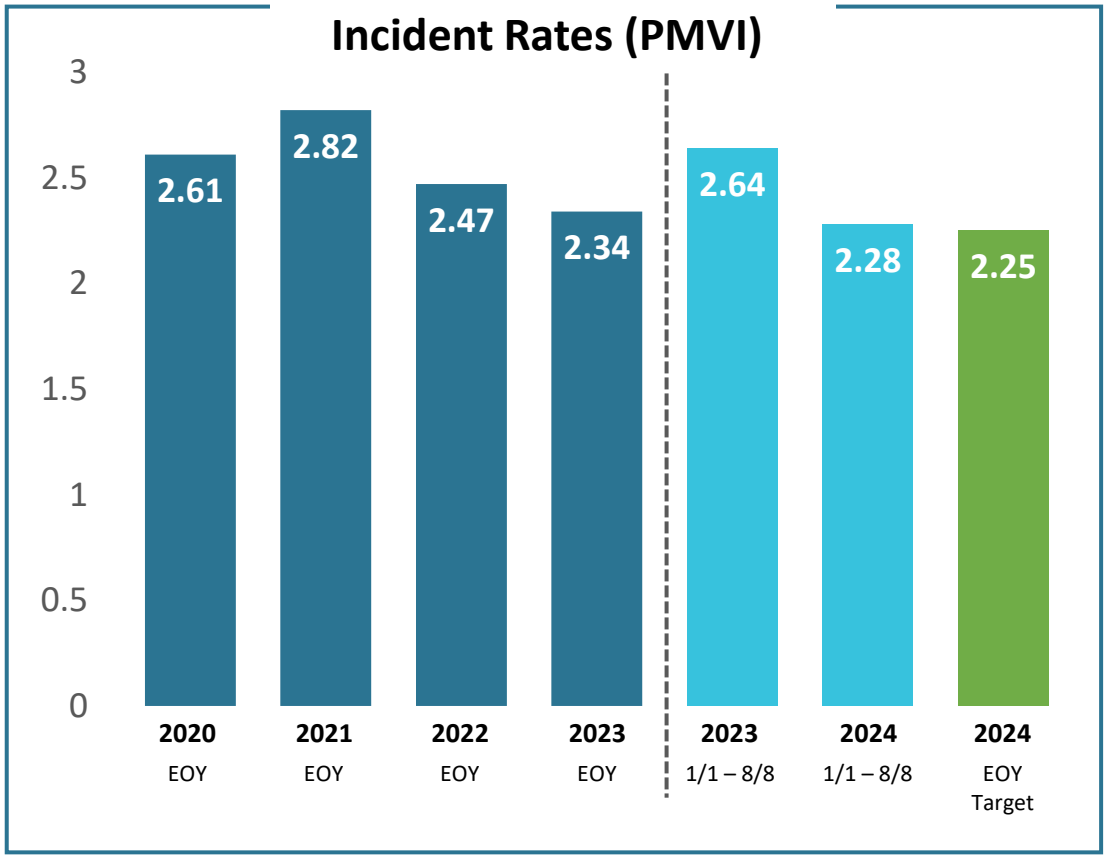
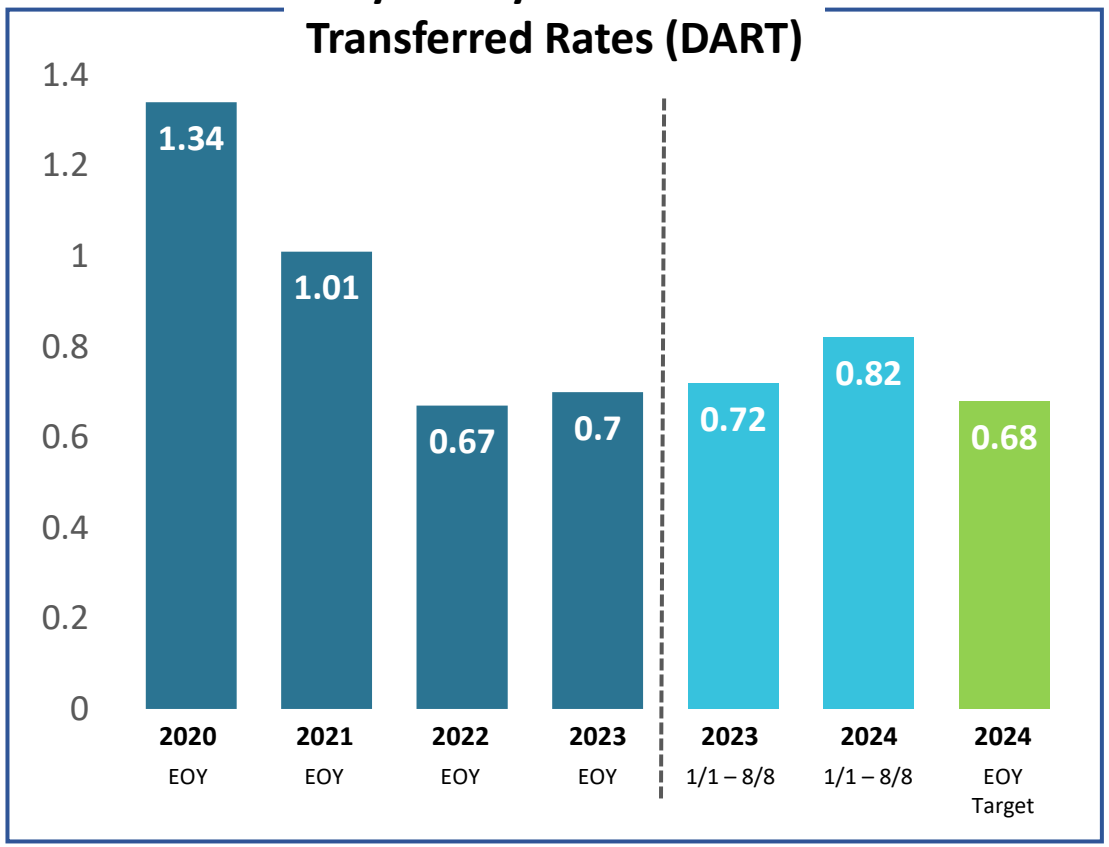
Preventable Motor Vehicle Incident (PMVI) and Days Away, Restricted, or Transferred (DART)

PMVI and DART are key safety performance indicators that inform leadership decision-making and recommendations.

Preventable Motor Vehicle Incident Rates (PMVI)



Days Away Restricted or Transferred Rates (DART)



PMVI: Number of incidents where a PG&E coworker could have but failed to take reasonable steps to prevent incident; rate based on 1,000,000 miles driven.
DART: PG&E coworker injury that results in days away, restricted, or transferred duty; rate based on 200,000 hours worked.

Data as of August 8, 2024

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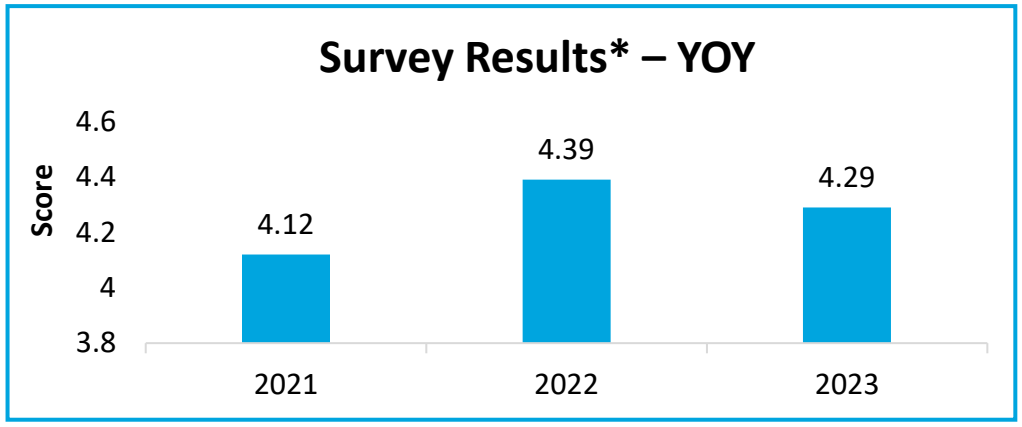
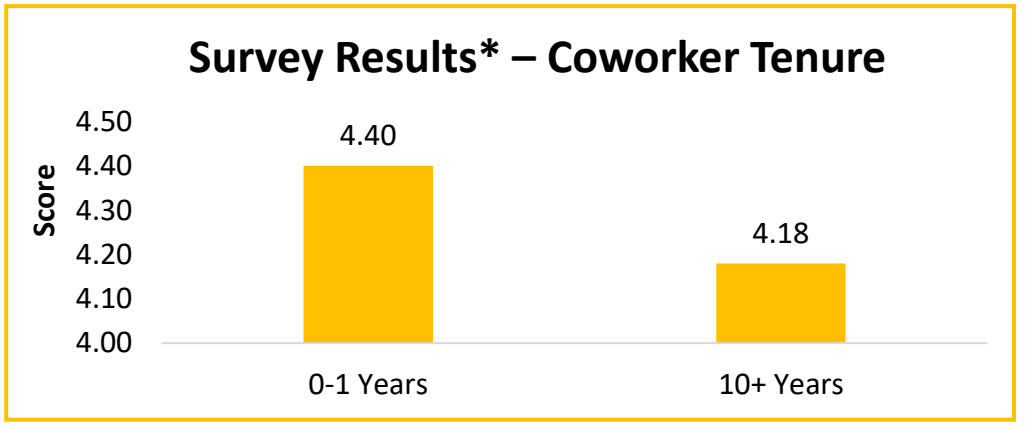
Safety Culture Assessment

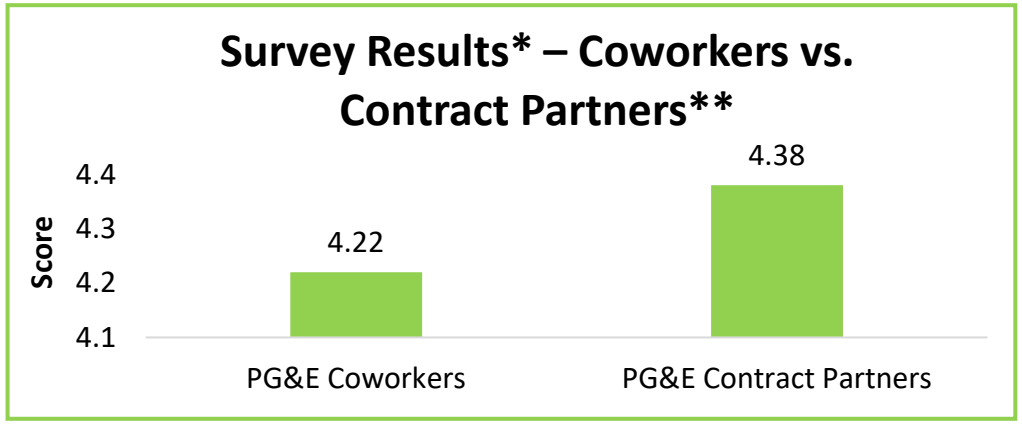
Continuing to Mature our Safety Culture

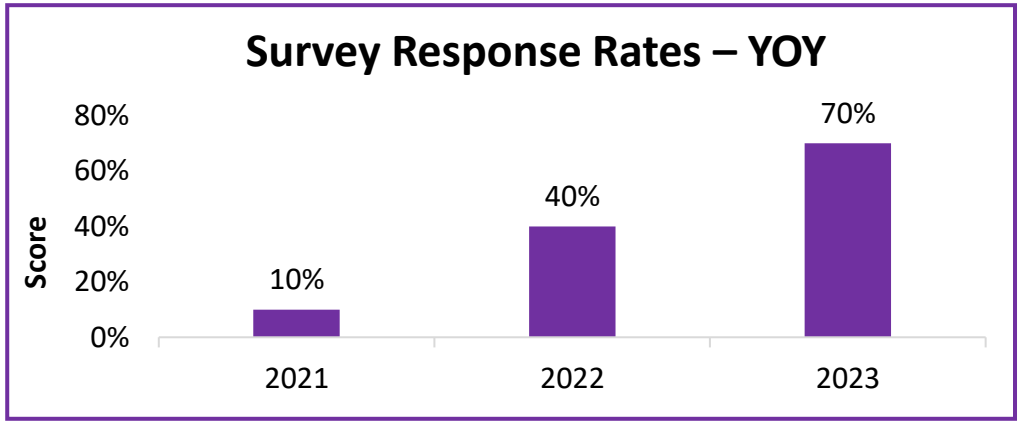
We continue to grow and mature our safety culture following the 2023 Wildfire Safety Culture Assessment. Year-over-year, our survey responses ensure we capture accurate representations of coworker perceptions.

Coworker safety assessment, by year, tenure and worker status:









**Scores were based on a 5-point scale. **Average response score was 4.29*

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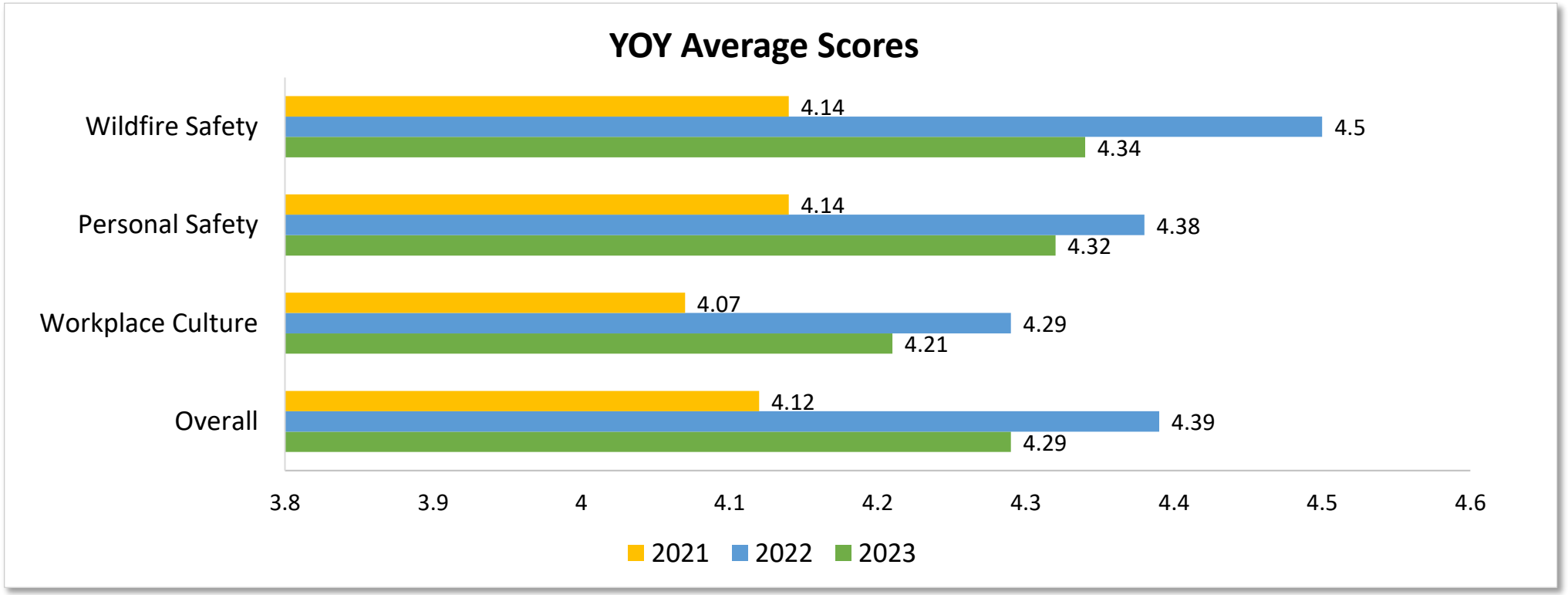
Benefitting From Our Speak-Up Culture

As we enhance our speak-up culture, we are identifying best practices and opportunities for improvement, including capturing feedback from coworkers.



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Making Progress on Recommendations

Out of the 30 survey statements, we saw improving scores for 24 statements. We received four recommendations from the remaining six statements and feedback from the focus group. We continue to make progress on these recommendations.

Recommendations	Progress
Strengthen Safety Communications	▪ Implemented a Daily Safety Message shared across our 1,200+ Daily operating Reviews (DORs) ▪ Enhanced our Enterprise Health and Safety weekly newsletter to focus on critical and topical safety and health information ▪ Held a leadership listening session in advance of Enterprise Safety Week with additional sessions planned throughout the year
Improve Safety Enabling Systems	▪ Established an Operations Safety Collaboration Center to focus on SIF prevention through hazard identification and improving safety culture ▪ Enabled Grassroots Safety Teams
Build on Current Training Plan	▪ Expanded modalities and increasing hands-on training opportunities ▪ Developed additional training courses to improve preparedness
Mitigate Public Interaction Risk Exposure	▪ Expanded use of Corporate Security Department resources and hostile customer de-escalation training for frontline coworkers

Utilizing Lean

Daily Operating Reviews (DOR) provide opportunities for safety escalations to make their way from the field to executives every morning.

We utilize Tactical Implementation Plans (TIP) to track action completion and ensure effectiveness of recommendations.

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Wildfire Safety

Our Wildfire Mitigation Plan Goals

Our 2023-2025 Wildfire Mitigation Plan (WMP) goals will help us make our stand that "Catastrophic Wildfires Shall Stop" a reality through our Layers of Protection.

Construct, maintain and operate our electrical lines and equipment in a manner that will **minimize the risk of catastrophic wildfires**.

Implement programs to **limit customer disruption from our wildfire mitigation efforts**.

Continue to **enhance our situational awareness and intelligence** capabilities.

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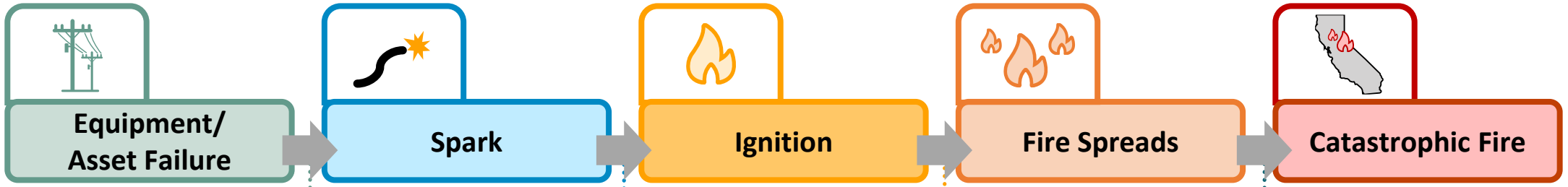
Interrupting the Wildfire Sequence

Utility-attributable fires follow a common sequence. At any given location, our approach provide insight as to which mitigation strategy will be most effective.



These mitigation strategies interrupt the sequence and prevent catastrophic wildfires.

Equipment/ Asset Failure	Spark	Ignition	Fire Spreads	Catastrophic Fire
PSPS	EPSS	EPSS	A.I. Wildfire Cameras	
Pole Clearing	Pole Clearing	A.I. Wildfire Cameras	Hazard Awareness and Warning Center	
Undergrounding and System Hardening	Transmission Towers Utility Defensible Space	Safety and Infrastructure Protection Teams	Safety and Infrastructure Protection Teams	
Asset Maintenance and/or Replacement		Rapid Response Capability	Rapid Response Capability	
Vegetation Management				
Targeted Continuous Monitoring (Gridscope)				
Transmission Towers Utility Defensible Space				

Different mitigation approaches may prevent catastrophic wildfire with similar effectiveness because they target different steps in the sequence.

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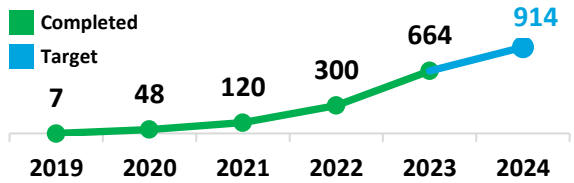
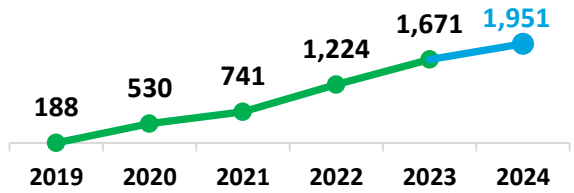
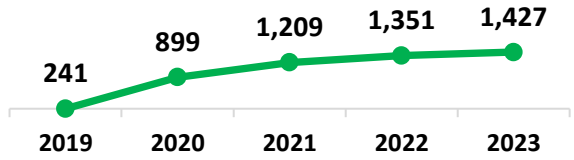
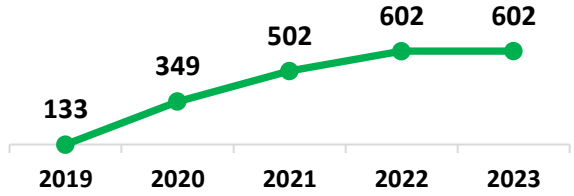
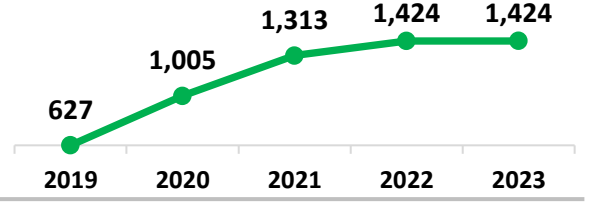
Wildfire Mitigation Plan Progress

	2019-2023 PROGRESS	2019-2023 INVESTMENTS***	TARGET	YEAR-OVER-YEAR PROGRESS
Undergrounding Our Lines Undergrounding powerlines to reduce wildfires caused by equipment	**664*** MILES COMPLETED	**$2,105,278** TOTAL (in 1,000s)	**250** MILES	
System Hardening Strengthening our grid by installing stronger poles, covered powerlines and undergrounding	**1,671**** LINE MILES HARDENED	**$1,295,162** TOTAL (in 1,000s)	**280** LINE MILES	
Sectionalizing Devices and Transmission Switches Separating the grid into smaller sections and narrowing the scope of Public Safety Power Shutoffs	**1,427** DEVICES INSTALLED	**$333,525** TOTAL (in 1,000s)	CONTINUED IMPLEMENTATION	
High-Definition Cameras** Monitoring and responding to wildfires using artificial intelligence to increase visibility and improve wildfire suppression	**602** CAMERAS INSTALLED	**$41,289** TOTAL (in 1,000s)	CONTINUED OPTIMIZATION	
Weather Stations** Better predicting and responding to severe weather threats	**1,424** STATIONS INSTALLED	**$35,709** TOTAL (in 1,000s)	CONTINUED OPTIMIZATION	

*Undergrounding represents projects completed as part of the 10,000-Mile Undergrounding Program, which began in 2021. Prior to the program's inception, an additional 47 miles of undergrounding were completed between 2019-2021. **Includes 16 System Hardening miles completed in 2018. ***2024 financial data is under validation. ****We are leveraging AI to improve capabilities and further optimization.

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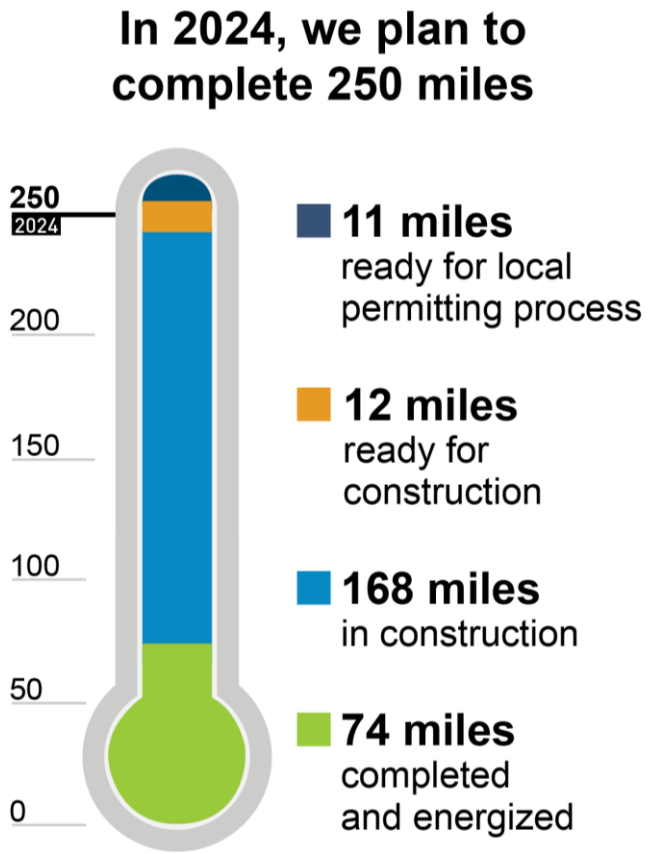
2024 Undergrounding Progress



Data as of 7/31/2024.

We have already made significant progress toward our annual goal of undergrounding **250 miles** in 2024.

The 2024 thermometer is updated monthly at **pge.com/undergrounding**.

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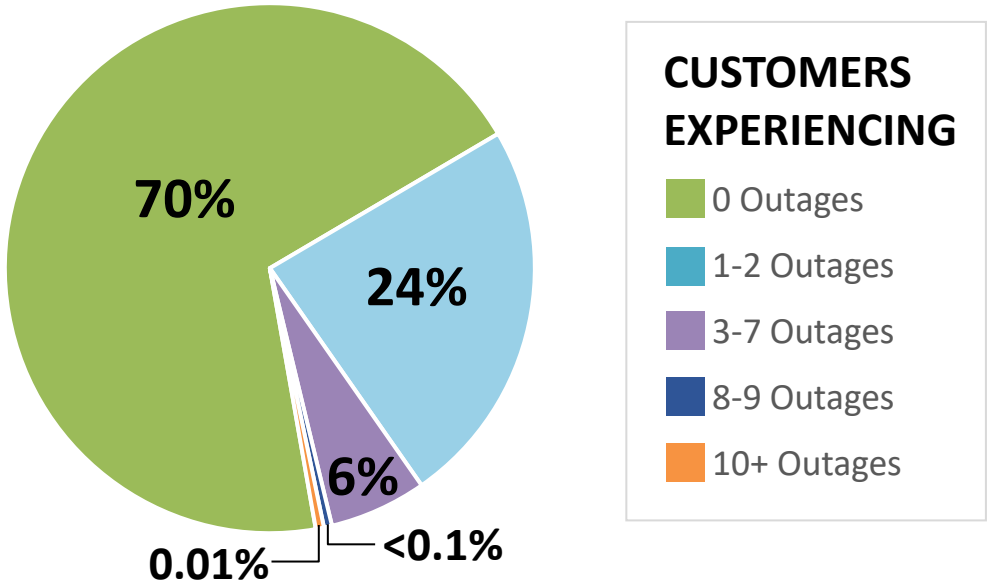
EPSS Performance: Protecting Customers

2024 EPSS Performance

Through real-time and continuous improvements, we are working to mitigate customer impacts without compromising the wildfire prevention benefits of EPSS.

1.82M Customers Protected



Data as of 8/6/2024

We are continuously working to improve reliability and minimize customer impacts.

	2023 YTD	2024 YTD	Comparison
Circuit Miles Enabled*	~2.4M	~2.9M	21% increase
Number of Outages	841	1,229	46% increase
Avg. Outage Length	3.4 hours	2.5 hours	26% decrease
Avg. Customers Impacted per Outage	889 customers	835 customers	6% decrease

*Circuit mileage is approximate and leverages current device and circuit-level configuration.
Data is approximate and as of 8/8/2024.

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Improving EPSS to Minimize Customer Impacts

We are continuing to improve reliability for all customers protected by EPSS and taking additional actions for the most impacted customers.

We are targeting mitigation efforts on the most impacted devices. These include:

- Proactive animal mitigation consisting of bird retrofitting and critter abatement
- Proactive expanded vegetation management work
- Comprehensive reliability work focused on targeted circuit protection zones
- Installing innovative technology to quickly pinpoint outages to restore power faster

We have also expanded access to customer resiliency programs.

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Year-Over-Year PSPS Comparison

PSPS impacts have declined significantly through new, advanced technologies and improvements to the electric system infrastructure without impacting wildfire safety.

Event Details	2019	2020	2021	2022	2023	2024 YTD
PSPS Events	8	6	5	0	2	**2**
Customers Impacted	**2,014,000**	**653,000**	**80,400**	**-**	**5,099**	**2,055**
Average Number of Counties Impacted	17	17	10	-	5	**6**
Average Number of Tribes Impacted	12	6	2	-	1	**1**
Average Outage Duration (hours)	43	35	31	-	17	**27**
Average Outage Restoration Time (hours)	17	10	12	-	5	**4**
Damage and Hazards	722	257	442	-	2	**1**
Peak Wind Gusts (MPH)	102	89	102	-	49	**58**

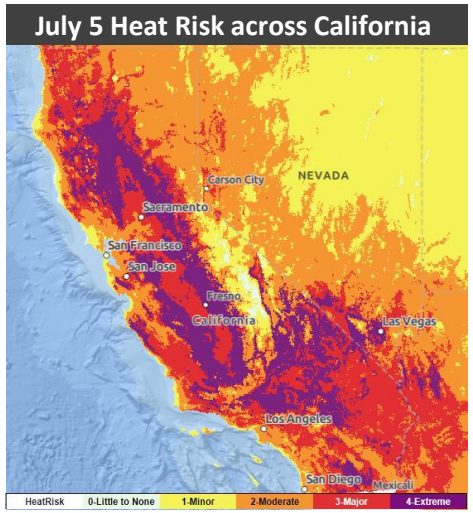
**Data is approximate and as of 08/02/24*

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

Adapting in Real-Time to Evolving Wildfire Risk

We are taking immediate action to address increased wildfire risk. This includes continuing to identify data-driven mitigations to meet this evolving risk.

Our state is experiencing a significant increase in wildfire risk this year



The National Weather Service HeatRisk map shows "major" and "extreme" heat risk – shaded in red and purple, respectively – across most of California on Friday, July 5, 2024. (Map: National Weather Service)

This increase is due to:

- Historic heat
- 2023 rainfall leading to increased dry fuel
- High winds

	ACRES BURNED	FIRE INCIDENTS
	↑ **244%** increase	↑ **3%** increase
AS OF AUGUST 13, 2024	**812,738**	**5,087**
PRIOR FIVE-YEAR AVERAGE FOR THE SAME PERIOD	**236,000**	**4,932**

**As of 8/13/2024, compared to the prior five-year average for the same period*

We are taking immediate action to address this risk

We are continuing to proactively identify and implement solutions to mitigate this risk in addition to our existing layers of wildfire protection.

That work includes:

- Clearing vegetation at the base of **~50k additional poles, above compliance requirements**
- **Augmenting the existing A.I. camera network with 24 additional cameras** to enhance situational awareness and aid suppression efforts
- **Installing ~6,000 new Gridscope devices** by August 31, bringing targeted monitoring to 10,000 locations

We are continuing to evaluate and determine additional mitigations to address elevated wildfire risk.

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Gas Safety Performance

Key Gas Improvements

We have demonstrated progress and continued focus on gas system safety since 2010, achieving industry-leading gains and process safety, asset management and technology capabilities.

Industry Recognitions and Certifications

PAS 55/ ISO 55001	Best-in-Class Asset Management
API RP 1173	Pipeline Safety Management Systems
API RP 754	Process Safety Performance Indicators

Opened State-of-the-Art Facilities

- Gas Safety Academy Winters
- Gas Control Center San Ramon
- Gas Safety and Innovation Dublin

GAS ODOR RESPONSE TIMES	2010	2023	2024 YTD
Average response time in minutes	33.3	**19.8**	**19.5**
Percent response within 60 minutes	94.4%	**99.7%**	**99.8%**
SCADA VISIBILITY AND CONTROL POINTS			
Transmission pressures and flows	1,300	2,645	**2,709**
Transmission control points	870	976	**976**
Distribution pressures and flows	290	5,029	**5,101**
LEAK BACKLOG			
Grade 2 open leak average duration (Target: 150 days)	–	113 days	**91 days**
DIG-IN REDUCTION			
Third party gas dig-ins/1,000 USA tickets	3.5	**0.98**	**0.83**
GAS TRANSMISSION	**2010**	**2011-2023**	**2011-24 YTD**
Miles of pipeline replaced	9	>285	**>285**
Miles of pipeline strength tested	0	>1,614	**>1,618**
Miles of pipeline made piggable	130	>2,237	**>2,273**
Automated valves installed	0	405	**408**
GAS DISTRIBUTION	**2010**	**2011-2023**	**2011-24 YTD**
Miles of main replaced	27	>1,498	**>1,578**

2024 YTD data is approximate and through 7/31/2024

= Categories that are tracked against industry standards, and in which PG&E performed in the first quartile.

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Lessons Learned

2023-2024 Electric Lessons Learned

We continue to improve our electric operations based on lessons learned and benchmarking.

Technical Training

Refresher Trainings

Delivering refresher trainings, including those for rubber glove usage and grounding, to ensure coworkers are following safe procedures.

Risk Models

Utilizing Technologies

Benchmarking wildfires and respective fuel types to advance our Fire Potential Index (FPI) model.

Measuring Targets

Improved Key Performance Indicators (KPIs)

Utilizing KPIs to ensure that our targets provide actionable insight.

Preparedness and Response

Threat Identification

Enhancing threat and hazard assessments to inform an improved preparedness and response posture.

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2020-2024 Gas Lessons Learned

We have made improvements to our gas operations based on lessons learned over the past five years.

CNG/LNG

- **Developing A First Fill Policy:** Following a third-party CNG-fueled tractor truck failure during its first fill, injuring the driver and damaging the tractor and station, we began reviewing customer vehicle information to ensure they have been fueled prior to filling at a PG&E station as a safety measure.

Gas Distribution

- **Distribution Integrity Management Program (DIMP):** Reviewing data sources to identify new threats for inclusion in our DIMP risk assessment process.
- **Causal Evaluations:** Reviewing five year's worth of low-probability, high-consequence gas incidents to inform proactive, preventative work. These evaluations have led us to new pipe replacement intervals, inspection protocols and monitoring practices.

Gas Storage

- **Risk-Based Reinspection Interval:** Leveraging industry data and our integrity assessment to form the basis of our risk-based reinspection interval.

Gas Transmission

- **Threat Identification:** Enhancing threat identification through improved algorithms, assessments and risk models.
- **Threat Assessments:** Evaluating additional risk factors and enabling leak or rupture failure mode to focus on our highest consequence pipeline segments.
- **Utilizing Technologies:** Preventing loss through in-line inspection tools, determining hard spot susceptibility and achieving significant long-term saving opportunities by supporting ILI vendors' development of tools for small diameter pipelines.

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

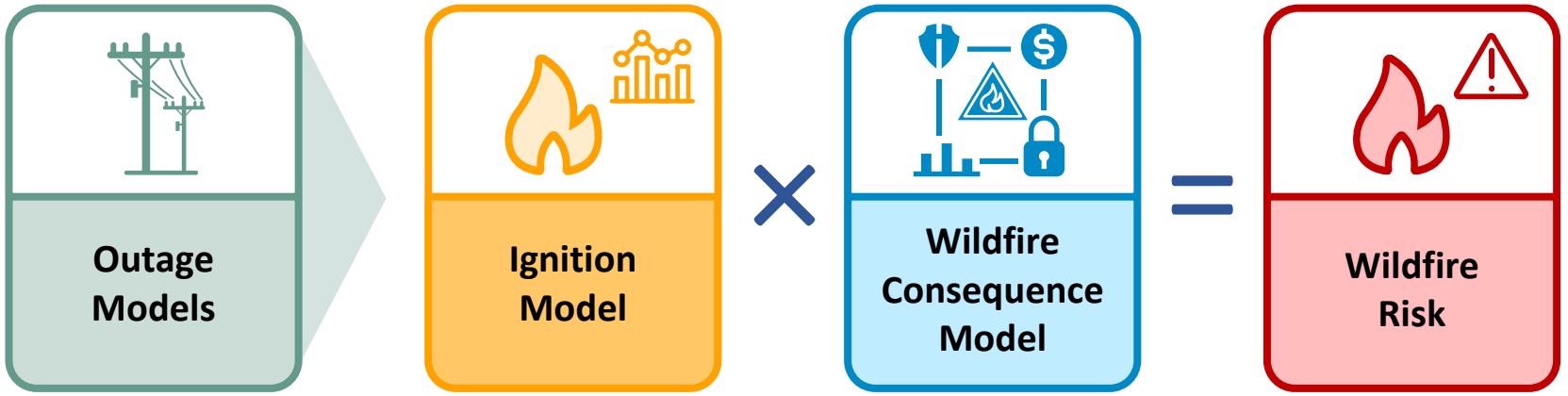
Thank You

Appendix

Modeling Risk to Prioritize Safety Work

Risk modeling involves assessing the likelihood and impacts of potential wildfires to help us prevent them in the future.

How Our Risk Model Works



By assessing the causes of outages and ignitions and the consequences of a wildfire starting, we're able to pinpoint risk across our assets and equipment.

Risk Modeling Objectives

- Provide situational awareness of risk
- Improve risk-informed decision making
- Evaluate and quantify risk reduction from wildfire mitigation initiatives

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How We Prioritize Our Wildfire Safety Efforts

Programs	Prioritization Approach	Estimated Cost (Per Year)	Reliability	Public Safety	Effectiveness*	2025 Cost Benefit Ratio (CBR)
EPSS**	• Capability implemented across all circuits in HFRA and adjacent buffer areas • Used when wildfire risk is elevated	• $192M	• Lower reliability • Improvements made year-over-year to improve reliability	• Impact to Wildfire Risk: High • Impact to Reliability AFN, customers	**~73%****	• 41.8
PSPS	• Capability across all circuits in HFRA • Used when wildfire risk is elevated during high-wind days	• $59M	• Lower reliability • Improvements made year-over-year to improve reliability	• Impact to Wildfire Risk: High • Impact to Reliability, AFN customers	**~79%**	• 104
Undergrounding	• Targets riskiest 10,000 miles of 25,000 total HFRA miles • Wildfire risk models with a feasibility overlay provide prioritization approach	• $1,168M	• Highest reliability	• Best benefits for system resiliency, public safety and reliability overall	**98%**	• 4.4
Overhead Covered Conductor	• Targets the remaining 15,000 riskiest HFRA miles • Wildfire risk models guide prioritization approach	• $241M	• Medium reliability	• Medium benefits for public safety and reliability overall	**64%**	• 7.9
Vegetation Programs***	• Compliance-driven • Wildfire risk models guide prioritization approach for hazard tree work	• $1,190M • Ongoing cost that will increase over time	• Limited reliability benefit	• Limited public safety benefit	**<0.1% - 15%**	• 0.7 – 6.8, depending upon VM program

**Based on the most accurate and current empirical data. **Includes benefits from Downed Conductor Detection and Partial Voltage Force Out.*

****Includes VM Distribution Focused Tree Inspections, VM Distribution Operational Improvements, VM Tree Removal, Routine VM and Second Patrols.*

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