



August 19, 2022

To: 2022 Safety Culture Assessments (SCAs) (#2022-SCAs)

**Subject: Pacific Gas & Electric Company's 2022 Management Self-Assessment Supporting Documentation**

Dear Safety Culture Assessment Stakeholders:

Attached please find the supporting documentation submitted by Pacific Gas & Electric Company (PG&E) as part of its 2022 Management Self-Assessment, a component of its 2022 Safety Culture Assessment (SCA). This documentation was submitted in multiple formats: it was put into PDF format and combined into one PDF document by Energy Safety.

The assessment is being posted to the 2022-SCAs service list separately.

The Office of Energy Infrastructure Safety (Energy Safety) will hold a public workshop on August 30, 2022, to discuss PG&E's assessment and the assessments of San Diego Gas & Electric and Southern California Edison. More information on that workshop can be found on the Energy Safety Upcoming Events webpage.<sup>1</sup>

The 2022 Management Self-Assessments will inform the final 2022 SCA reports, which Energy Safety expects to publish at the end of the year.

Sincerely,

A handwritten signature in black ink that reads 'Melissa Semcer'. The signature is written in a cursive, flowing style.

Melissa Semcer  
Deputy Director | Electrical Infrastructure Directorate  
Office of Energy Infrastructure Safety

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<sup>1</sup> Event web page for the Aug. 30, 2022, SCA Public Workshop: <https://energysafety.ca.gov/events-and-meetings/events/2022-safety-culture-assessment-public-workshop/> (accessed Aug. 19, 2022).



## A Message from Adam Wright and Sumeet Singh

Team,

We're excited to share with you some [organizational changes](#) designed to help us live up to our stands that catastrophic wildfires shall stop, and that everyone and everything is always safe.

As you'll recall, we made [the decision last summer](#) for Sumeet to lead the Wildfire Risk team in his role as Chief Risk Officer to maintain continuity of our wildfire programs as we entered the 2021 wildfire season.

As we move into 2022, the Wildfire Risk Team will move to the Enterprise Risk and Operations organizations, consistent with our organizational structure. Under this structure, the risk, engineering and planning aspects of our work are managed upstream and delivered to Operations for execution.

In parallel, as [Patti recently shared](#), we are combining our Enterprise Health & Safety and our Risk functions, with Sumeet leading both teams. Sumeet will continue to play an integral role in how we manage wildfire risk, along with all the operational and non-operational risks we face as a company. That means Wildfire Risk Management, Wildfire Mitigation Plan, and Meteorology and Fire Science, including PSPS risk modeling and decision-making, will remain within the Risk organization and will be led by **Andy Abranches**.

As we transition the execution of our wildfire-related work to Operations, we're pleased to announce some leadership appointments:

- **Peter Kenny** has been promoted to Senior Vice President, Vegetation Management & System Inspections, reporting directly to Adam. Peter has been with PG&E since 2012 and has held a number of leadership positions in Gas and Electric.
- **Jason Regan** is promoted to Vice President, System Inspections, reporting to Peter. Jason has spent 25 years with PG&E in various leadership roles across Emergency Management, Electric T&D Grid Operations, including maintenance and construction, PSPS Mitigation Program Management, and most recently leading our effort to complete our critical system inspections work.
- **Angie Gibson** has been promoted to Vice President, Emergency Preparedness and Response, reporting to Adam, to lead that function for all enterprise emergencies. Angie started her PG&E journey in 1988, and in addition to serving in many roles across Electric, she spent seven years as a volunteer firefighter for her hometown of Hopland.

- **Mark Quinlan** will become Vice President, Transmission and Distribution System Operations, reporting to Wade Smith. Mark will be responsible for the safe and event-free operation of the PG&E Electric Transmission and Distribution Systems. In addition, the newly created Enhanced Powerline Safety Settings (EPSS) organization and existing Public Safety Power Shutoff and Safety Infrastructure Protection (SIPT) teams will report into T&D System Operations. Mark will also continue to be integral to our Incident Command System during emergencies.

It's also important to note that we began the process for filling these positions before the hiring pause. Join us in congratulating Peter, Jason, Angie and Mark on their new roles, which will be effective January 24.

These changes help us deliver for our hometowns and each other. They continue a process we began last year, when we announced a new organizational structure with our customers at the core of everything we do. If you haven't had a chance, I encourage you again to watch this [video](#) from Patti that describes how we're thinking about these changes and how they position us for success.

Always be safe. You matter.

Adam and Sumeet



# Interview Guide

**Job Posting title and Requisition Number:** Wildfire Safety Operations Center Supervisor REQ#73841

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**Candidate Names:** [REDACTED]

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**Interview Panel Members:** [REDACTED]

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## Before the interview

1. Review resume(s) of applicants interviewing for the position
2. Review the job description and consider what it takes to be successful in this role
3. Document specific behavioral and technical questions to ask each candidate in the appropriate sections
4. The Hiring Leader may assign interviewer(s) to cover a specific interview guide section(s)
5. **Return** this form back to your Recruiter, noting questions that were asked

## During the interview

1. Start with Safety: to start each interview, review safety protocols and procedures with candidates and panel
2. Have candidate discuss role motivation – why did they apply? / why are they a good fit for this position?
3. Identify unconscious biases – we all have them
  - ▶ **Unconscious biases** are immediate emotional reactions based on opinions, culture or social stereotypes
  - ▶ Focus your attention on thoughtful judgement that is based on performance, skills, and abilities observed during the interview session
4. If one of the “sample” questions is asked during the interview, please indicate clearly on this guide which question(s) was asked

## After the interview

1. Complete all assigned **candidate ratings** in iConnect Recruiting > Interview Central
  - ▶ Rate 1 – 5 for each competency
  - ▶ Select thumbs up or thumbs down (Both thumbs up/thumbs down can be used for more than one candidate.)
2. Once all completed forms are submitted, the Recruiter can then take next steps in initiating an offer

**NOTE:** If a consolidated scorecard will be entered by one person, please notify the recruiter prior to interviewing to prevent unnecessary email reminders from being sent to you.

## 1. Team and Individual Accomplishments

Interviewer name(s): Jim, John

- Applicable to e-Scorecard section(s):
  - ▶ Takes Actions to Better Service Customers
  - ▶ Takes Accountability for Results
  - ▶ Puts Safety First
  - ▶ Role Motivation
  - ▶ Success Pattern
- Ask for specific examples on accomplishments to connect their past work to the current role
- Consider the candidate's ability to work well with others and value diversity and inclusion

### SAMPLE QUESTIONS:

- ▶ Tell me about an individual accomplishment where you leveraged your personal skills?
- ▶ Tell me about a team accomplishment and how the goals were met, or how you helped others in your team?
- ▶ Have you led any safety initiatives?

### PREPARED QUESTION(S) FOR THIS SECTION:

1. The WSOC is moving into its fourth year and is developing into an 'all hazards' response center. Can you provide an example when you had to work with other LOBs/departments cross functionally to accomplish a goal or resolve an issue?
2. Can you provide an example of a challenge you faced leading a team and what you did in an effort to resolve the challenge? What was the outcome? What did you learn about yourself and the team?

## 2. Problem Solving and Agility

Interviewer name(s): Neal, John

- Applicable to e-Scorecard section(s):
  - ▶ Problem Solving/Innovative Thinking
  - ▶ Develops Functional Expertise
  - ▶ Furthers Development and Inclusion
- Present the candidate with a real life challenge this role could face
- Consider PG&E/LOB's current challenges and how this role will be of impact its needs
- Consider the candidate's ability to hold self and others accountable for performing the work and ability to act to improve and simplify processes

### SAMPLE QUESTIONS:

- ▶ What is your strategy to solve this issue (priority level, resources needed, business case)?
- ▶ Tell me about an internal/external customer issue that required cross-functional collaboration to resolve.
- ▶ Based on the current role, tell me about similar challenges that you have faced and how you gauged success in those roles?

### PREPARED QUESTION(S) FOR THIS SECTION:

1. The WSOC is a 24/7/365 operation that is rapidly evolving and adding capabilities while maintaining the shift work. Share your thoughts regarding sharing joint responsibility for a supervising team, especially where consensus and mutual support is required.
2. Provide an example of a challenge you have faced as a leader and how you moved through it, what was the outcome, and what did you learn from the experience?

### 3. Technical Competencies

Interviewer name(s): Jean, Jim

- Applicable to e-Scorecard section(s):
  - ▶ Candidates Level of Fit for this Role
  - ▶ Develops Functional Expertise
  - ▶ Job Fit
  - ▶ Experience Depth
- Write questions based on the technical competencies needed for this job
- Probe for job-specific technical knowledge and skills needed to successfully fulfil the role

**SAMPLE QUESTIONS:**

- ▶ Can you tell me about specific projects and accomplishments where you leveraged your technical skills?
- ▶ How do you build industry, company and subject-matter expertise for yourself and within the team?

**PREPARED QUESTION(S) FOR THIS SECTION:**

1. The WSOC Analysts have significant fire/emergency management experience. They utilize tools and knowledge built over years to provide awareness of the incidents being monitored. How do you proposed to fill any knowledge gaps you may have should you be the successful candidate?
2. The WSOC team is currently in a 100% remote posture. How do you propose to lead a team in this posture? What challenges do you see and how might you work to overcome them?

### 4. Candidate's Interest and Value Proposition

Interviewer name(s): Jim, any

- Applicable to e-Scorecard section(s):
  - ▶ PG&E Cultural Fit / Job Fit
  - ▶ Furthers Diversity and Inclusion
  - ▶ Communicates for Understanding
  - ▶ Acts with Integrity
- Explore key strengths and other soft skills needed to be successful in this position
- Convey aspects of our culture that you would like to explore with the candidate.

**SAMPLE QUESTIONS:**

- ▶ Can you provide examples where you best demonstrated \_\_\_\_\_ (i.e. safety / customer service / continuous improvement)?
- ▶ What are your thoughts about how to be successful in this job?
- ▶ Based on what we've discussed so far, do you have any questions about the role or the team?

**PREPARED QUESTION(S) FOR THIS SECTION:**

1. The WSOC is 24/7/365 – during fire season especially, there are periods requiring overtime over multiple days. Will this pose any issues for you?
2. How do you view the mission of the WSOC?



# 100 DAYS OF KEYS TO LIFE

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**Building an organization where everyone and everything is always safe**



**Week 11: August 15-19, 2022**

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## Tips for Successful Facilitation

As part of our extended leadership team (ELT), you are asked to lead discussions with your team on PG&E's refreshed [Keys to Life](#) for 14 weeks. Please read through this facilitation guide to help you prepare for these discussions.

[Read general FAQs about the Keys to Life here](#), or [view past toolkits here](#). If you have questions, email [SafetyandHealthCommunications@pge.com](mailto:SafetyandHealthCommunications@pge.com).

### PARTICIPATE IN WEEKLY BRIEFINGS

Each week, PG&E leadership will invite you to a Teams meeting to walk through the week's featured Key to Life, facilitation guide and anticipated questions from coworkers. You will want to read through the facilitation guide in advance of this meeting.

### PLAN FOR SUCCESS

Carve time out of your DORs or daily tailboards to focus on discussing that week's Key to Life using the facilitation guide. If your team can participate from one location, that is ideal, but remote teams can use a Teams call. Earlier in the day is usually preferable.

### SET EXPECTATIONS

Use the provided DOR talking points to get your team ready for this series. Explain why the Keys to Life are important and ask for your team's thoughtful and undivided attention during these discussions.

### LEAD WITH LOVE

Each facilitation guide contains a remembrance of a lost PG&E coworker or an example of a serious safety incident within our workforce. These stories can be upsetting, and some of your workers may know the impacted workers. Take an empathetic tone as you share and make sure your coworkers feel safe to discuss their experiences. PG&E's Employee Assistance Program (EAP) is available as a resource if any coworkers need more time to process their feelings about the loss or serious injury of a coworker.



## Talking Points for DORs

PG&E is asking leaders to facilitate discussions about the refreshed Keys to Life for the next 14 weeks during their tailboards or DORs. It's important to lead by example and make time for these activities. Use these talking points in a DOR prior to beginning the weekly series.



Hi everyone. As you may know, PG&E recently refreshed our Keys to Life. These are the principles we must follow at all times to make sure that “everyone and everything is always safe.”

- This summer, we are going to spend time daily discussing the Keys to Life, to help us fully understand, own and follow these lifesaving guideposts.
- Each week will feature one Key to Life.
- You will learn about real safety incidents that happened to our workforce, and we will discuss our learnings together.
- Recalling and discussing serious incident and fatalities can be upsetting, and some of you may know the impacted workers.
- As always, PG&E's Employee Assistance Program (EAP) is available if you need more time to process feelings about the loss or serious injury of a coworker or contractor.

All PG&E coworkers will participate in the same 100 Days of Keys to Life exercises. This is a powerful opportunity for us to strengthen our safety culture if we give these discussions the attention they deserve.

If you have any questions about the refreshed Keys to Life or our planned activities, please email

[SafetyandHealthCommunications@pge.com](mailto:SafetyandHealthCommunications@pge.com).





# 100 DAYS OF KEYS TO LIFE



THIS WEEK'S KEY TO LIFE 

**Follow safe driving principles and equipment operating procedures.**

Reference: Motor Vehicle Safety Standard—[SAFE-1002S](#)

## FACILITATOR PREP

*Each day of this week, spend part of your DOR or tailboard meeting on the featured Key to Life. Use the guide below to help you lead. Please review the guide beforehand.*

## DAY 1: REFRESHER ON THIS IMPORTANT KEY TO LIFE

For the last month of 100 Days of Keys to Life, we will be returning to four of our Keys to Life which relate to some of the most common injuries and on the job mistakes, with an eye towards prevention. Let's review together the practices and procedures we must follow to meet this Key to Life.

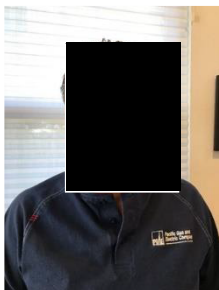
### Principles for Safe Driving, On or Off the Clock:


- Inspect the vehicle prior to driving and conduct a 360° walkaround
- Ensure a clear view of path before backing
- Properly execute lane changes and turns, especially when traveling with loads
- Scan for others while driving and keep eyes on path
- Maintain a safe following distance behind other vehicles
- Control speed to avoid collisions
- Pass other vehicles in a safe manner
- Do not allow distractions while the vehicle is in operation
- Use a spotter and do not rely on mirrors and back-up alarms

### Equipment Operating Procedures:

- Complete the necessary, required and certified training
- Complete training about the use of hand signals and have a plan
- Inspect the equipment and controls before and during each job
- Know the limited access zone or swing radius of equipment
- Use a spotter and do not rely on mirrors and back-up alarms
- Be vigilant and do not work in the Line of Fire

## DAY 2: PROACTIVELY PROTECTING EACH OTHER



2021, Gas Pipeline Operations and Maintenance Supervisor  noticed that while traffic control was a regular part of in-progress work, it was not being consistently used for job walks prior to construction. This could lead to serious injury or death for a coworker or contractor, particularly around precarious or high-traffic roadways. Jason promptly submitted a CAP. Now, Gas workers have a procedure to enact traffic control measures before conducting job walks.

In



## DAY 3: COMMITTING TO SAFETY

As a team, discuss the top three motor vehicle risks when on the road or behind the wheel of a vehicle.

- What steps can you take to protect yourself and others from these risks?
- What commitments are you going to make to reduce motor vehicle risks?

If PG&E could take additional steps to protect drivers, submit a CAP or reach out to your local Field Safety Specialist.

## DAYS 4 AND 5: LIVING OUT THIS KEY TO LIFE

Review these pictures and see if your team can identify what is missing, or what a coworker should do in a similar situation to stay safe. Answers are at the top of the next page.

Day 4

**Situation:** You see your coworker Maria's work vehicle parked close to your worksite. What's wrong with this picture?





Day 5

**Situation:** Andy has just finished a job and is completing a site report on his phone. What steps does he need to take before driving?



Day 4

**Answer:** Maria's wheels are straight on and not chocked. California law and PG&E best practices require that wheels be turned when parking on a hill, so that if your vehicle's brakes fail, your vehicle will not roll into traffic. PG&E also requires certain vehicles to be chocked\* on hills. When parking on a two-way road, turn your steering wheel to the right when facing downhill always, or when facing uphill on a road without a curb. Turn your steering wheel to the left when facing uphill only when parking on a road with a curb.

\* PG&E wheel chock requirements: [Code of Safe Practices, Section 3, Rule 313\(d\)](#)

Day 5

**Answer:** Before driving, Andy needs to complete a 360-degree walkaround of his vehicle, ensure his phone is away or in driving mode to provide directions or emergency calls only, and make sure that loose objects in the cab of his vehicle are secured. Andy will need to back up to leave his parking spot, so if a colleague is nearby who can spot him for added safety, he should ask for their help.



Candidate Name (Nombre del candidato) \_\_\_\_\_ ISN# \_\_\_\_\_ Date (Fecha) \_\_\_\_\_

Company (Compañía) \_\_\_\_\_ Location (Ubicación) \_\_\_\_\_

Previous Certification(s) (Certificaciones previas):  Yes/Sí  No

Type(s) (Tipo[s]): \_\_\_\_\_

Assessing on Bolt (Evaluación en SafeTree) # \_\_\_\_\_ First Aid (Primeros auxilios)/CPR:  Yes  No

Expiration Date (Fecha de vencimiento) \_\_\_\_\_

Job Classification (Clasificación de trabajo) \_\_\_\_\_ Language (Idioma):  English (Inglés)  Spanish (Español)  Bilingual (Bilingüe)

Start Time (Hora de Inicio) \_\_\_\_\_ End Time (Hora de Finalización) \_\_\_\_\_ Years Experience (Años de experiencia) \_\_\_\_\_

**Pass (Exito)**

**Demonstrates Proficiency**  
Demuestra la habilidad

**Demonstrates Competency**  
Demuestra la competencia

**Fail (Fracaso)**

**Needs Experience**  
Necesita experiencia

**Needs Training**  
Necesita capacitación

Evaluator's Name: \_\_\_\_\_ Evaluator Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Standard-Based Grading Scale

- 4 - Demonstrates Proficiency; meets expectations of target with efficiency and advanced knowledge or skill
- 3 - Demonstrates Competency; meets expectations of target
- 2 - Needs Experience; partial understanding or can perform portions of target with evaluator assistance
- 1 - Needs Training; CANNOT perform portions of target, even with evaluator assistance

\*A safety violation not mentioned above, however, deemed grossly negligent by the evaluator can still result in a noted violation.

For scores 1 & 4 the evaluator **SHOULD** provide examples in the notes column supporting the circled score.

## Escala de evaluación basada en el estándar

- 4 - Demuestra la competencia; cumple con expectativas del objetivo con eficiencia y un conocimiento o habilidades avanzadas
- 3 - Demuestra la competencia; cumple con expectativas del objetivo
- 2 - Necesita experiencia; conocimiento parcial o puede realizar partes del objetivo con ayuda del evaluador
- 1 - Necesita la capacitación; NO PUEDE realizar partes del objetivo, aun con la ayuda del evaluador

\*Sin embargo, una violación de seguridad no que no se mencione arriba, y que el evaluador considera como extremadamente negligente todavía puede resultar en una violación.

Para puntuaciones de 1 y 4, el evaluador **DEBERÍA** proveer ejemplos en la columna de notas, respaldando la puntuación encerrada en un círculo.

## Safety Violations

During all portions of the evaluation that require demonstration testing, operators will be assessed for any safety violations. Any individual receiving 3 or more safety violations will be unsuccessful. Success will be based upon evaluator discretion. Examples:

- Performing an unsafe act / drop-start
- Failure to implement corrective actions when given opportunity
- Taking more than 2 steps while chain break is disengaged
- Comply/failure command-response communication techniques
- Missing/forgets to utilize PPE
- Taking hand off running saw while chain break is disengaged/chain break high five

## Violaciones de seguridad

Durante todas las partes de la evaluación que requieren pruebas para la demostración, los operadores serán evaluados por cualquier violación de seguridad. Cualquier persona que reciba 3 o más violaciones de seguridad se considerará sin éxito. El éxito se basará según la discreción del evaluador. Ejemplos:

- Realizar una acción que es peligrosa/drop-start la motosierra
- Fallar en implementar acciones correctivas cuando se le provee la oportunidad
- Tomar más de 2 pasos mientras que el freno de cadena está desconectado
- Cumple/falla en responder con técnicas de comunicación
- No tiene/se le olvida utilizar el EPP
- Remueve la mano de una sierra activa mientras que el freno de cadena se encuentra desactivado/high five el freno de cadena

## PPE and Tools (EPP y Herramientas)

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z87 Eye Pro w/ Side Protection<br>(ANSI Z87 Protección de ojos con protección lateral) | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chaps/Saw Pants UL Certified<br>(Chaparrera/pantalones para sierra – Certificados UL) |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Hearing Protection<br>(Protección de oídos)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | First Aid/Blood Stopper<br>(Primeros auxilios/tapón para sangre)                      |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Long Sleeve Shirt<br>(Camisa de manga larga)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Whistle/Radio/Cell Phone<br>(Silbato/radio/teléfono celular)                          |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Class 2 or 3 Hi-Vis Apparel<br>(ANSI Clase 2 o 3 Ropa de alta visibilidad)             | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Axe & Guard<br>(Hacha y protector)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Gloves<br>(Guantes)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw Tool / Srench<br>(Herramienta para motosierra/Srench)                        |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Round & Flat File<br>(Lima circular y plana)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw & Scabbard<br>(Motosierra y funda)   |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Wedges<br>(Cúñas)   |   |   |

### Task (Tarea)

### Score (Puntuación) (circle one)

### Notes (Notas)

#### Chainsaw Safety & Work Area Safety (Seguridad de la Motosierra y de la Zona de Trabajo)

- |   |                |              |
|---|----------------|--------------|
| <p>1. Describe the required PPE for chainsaw operations. Demonstrate the inspection, donning, and doffing of PPE. <i>(Describe el EPI requerido al operar la motosierra. Demuestra su inspección al ponerselo.)</i></p>   | <p>1 2 3 4</p> | <p>_____</p> |
| <p>2. Demonstrate three-way communication with other workers on worksite. <i>(Demuestra la comunicación de tres vías con los trabajadores en el lugar de trabajo.)</i><br/><i>Note: This score is based on consistent communication throughout the assessment. (Notas: Esta puntuación se basa en una comunicación constante a lo largo de la evaluación.)</i></p>  | <p>1 2 3 4</p> | <p>_____</p> |
| <p>3. Describe proper chainsaw for bucking and limbing. <i>(Describe la motosierra adecuada para trocear y desramar.)</i><br/><i>Note: Identify the difference between a rear handle saw and top handle saw. (Notas: Identificar la diferencia entre una motosierra con mango trasero y una motosierra con mango superior.)</i></p>   | <p>1 2 3 4</p> | <p>_____</p> |
| <p>4. Demonstrate inspection of chainsaw safety features. <i>(Inspecciona un mínimo de cuatro características de seguridad de la motosierra.)</i><br/><i>Note: Must identify and inspect a minimum of 4. (Notas: Debe identificar e inspeccionar un mínimo de cuatro.)</i></p>  | <p>1 2 3 4</p> | <p>_____</p> |
| <p>5. Demonstrate inspection of chainsaw for operational readiness. <i>(Demuestra su inspección de la motosierra para determinar si está lista para funcionar.)</i><br/><i>Note: To ensure chain is properly tensioned and all fasteners are attached, covers are secured and saw is in safe operating condition. (Notas: Asegura que la cadena esté correctamente tensada, que todos los sujetadores estén colocados, las cubiertas estén aseguradas y la motosierra esté en condiciones seguras de funcionamiento.)</i></p> | <p>1 2 3 4</p> | <p>_____</p> |
| <p>6. Describe the four reactive forces when operating a chainsaw. <i>(Identifica las cuatro fuerzas de reacción/puntos reactivas de la barra de la motosierra.)</i><br/><i>Note: Pull, push, attack/go, kickback/no. (Notas: El tirón(jalar), empuje, encaje, retroceso(kickback).)</i></p>  | <p>1 2 3 4</p> | <p>_____</p> |
| <p>7. Demonstrate manually activated chain brake operation and safe functioning. <i>(Demuestra el método de inspeccionar la función del freno de cadena.)</i></p>   | <p>1 2 3 4</p> | <p>_____</p> |
| <p>8. Describe safe distance workers shall keep from anyone operating a chainsaw. <i>(Describe la distancia segura que los trabajadores deberán mantener de los operadores de la motosierra.)</i></p>   | <p>1 2 3 4</p> | <p>_____</p> |

Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
<p>9. Demonstrate safe distance workers shall keep from fueling station when operating a chainsaw. (Demuestra la distancia segura que los trabajadores deben mantener de la estación de gasolina cuando operen una motosierra.)</p> <p><i>Note: The chainsaw shall be fueled at least 10 feet (3 m) from any open flame or source of open ignition. (OSHA CFR 1910.266(e)(2)(iv)). (Notas: La motosierra debe alimentarse al menos a diez pies de cualquier llama abierta o fuente de ignición abierta. (OSHA CFR 1910.266(e)(2)(iv)).)</i></p>	1 2 3 4	_____
<b>Cross Cutting Demonstration (Demostración Rodaja)</b>		
<p>10. Demonstrate proper hand positioning when operating a chainsaw. (Demuestra la posición adecuada de las manos al operar una motosierra.)</p> <p><i>Note: left hand on front handlebar with the thumbs and fingers wrapped and right hand on the rear handle with the thumbs and fingers wrapped must be maintained throughout entire assessment to receive a 4. (Notas: La mano izquierda en el manillar delantero con los pulgares y los dedos envueltos y la mano derecha en el mango trasero con los pulgares y los dedos envueltos, debe mantenerse durante toda la evaluación para recibir un cuatro.)</i></p>	1 2 3 4	_____
<p>11. Demonstrate safe chainsaw starting procedure. (Demuestra el procedimiento seguro de arranque de la motosierra.)</p> <p><i>Note: Chain brake must be engaged or automatic 1. (Notas: El freno de la cadena debe estar puesta o recibirá 1 automático.)</i></p>	1 2 3 4	_____
<p>12. Demonstrate crosscutting a 1" disk by using the pulling chain. (Demuestra cómo cortar un disco de 1 pulgada usando la cadena de tracción.)</p>	1 2 3 4	_____
<p>13. Demonstrate crosscutting a 1" disk by using the pushing chain. (Demuestra cómo cortar un disco de 1 pulgada usando la cadena de empuje.)</p>	1 2 3 4	_____
<p>14. Demonstrate borecutting a 1" uniform disk. (Demuestra un corte penetrante (también conocido como "corte de gatillo") para hacer un disco uniforme de 1 pulgada.)</p> <p><i>Note: Cutters shall start with attack/go zone when performing a bore cut. (Nota: los cortadores deben comenzar con la zona de ataque(go) al realizar un corte de perforación (gatillo).)</i></p>	1 2 3 4	_____
<b>Limbing and Spring Pole Cutting Demonstration (Demostración de desrame y corte de postes de resorte)</b>		
<p><i>Note: Limbs to be cut with pushing chain identified with [1]. Limbs to cut with the pulling chain identified with [2]. Limbs to be cut with snap cut identified with [3]. (Notas: Ramas a cortar con cadena de empuje identificada con [1]. Ramas a cortar con la cadena de tracción identificada con [2]. Ramas a cortar con corte a presión identificado con [3].)</i></p>		
<p>15. Demonstrate limb removal using the pushing chain reaction force. (Demuestra la extracción de la rama utilizando la cadena de empuje.)</p>	1 2 3 4	_____
<p>16. Demonstrate limb removal using pulling chain reaction force. (Demuestra la extracción de la rama utilizando la cadena del tirón.)</p>	1 2 3 4	_____
<p>17. Demonstrate optimized limbing sequence when performing limb removal on Safe Tree. (Demuestra la secuencia de desrame optimizada al realizar la extracción de ramas en el árbol (Safe Tree).)</p> <p><i>Note: Observe body positioning for optimal worker performance when performing limbing. (Notas: Observar la posición del cuerpo para un rendimiento óptimo del trabajador al realizar el desrame.)</i></p>	1 2 3 4	_____
<p>18. Identify the compression and tension on the spring pole prior to cut. Demonstrate safe release of spring pole by utilizing an accordion cut. (Identifique la compresión y la tensión en el poste del resorte antes del corte. Demuestra la liberación segura del poste de resorte utilizando un corte de acordeón.)</p>	1 2 3 4	_____



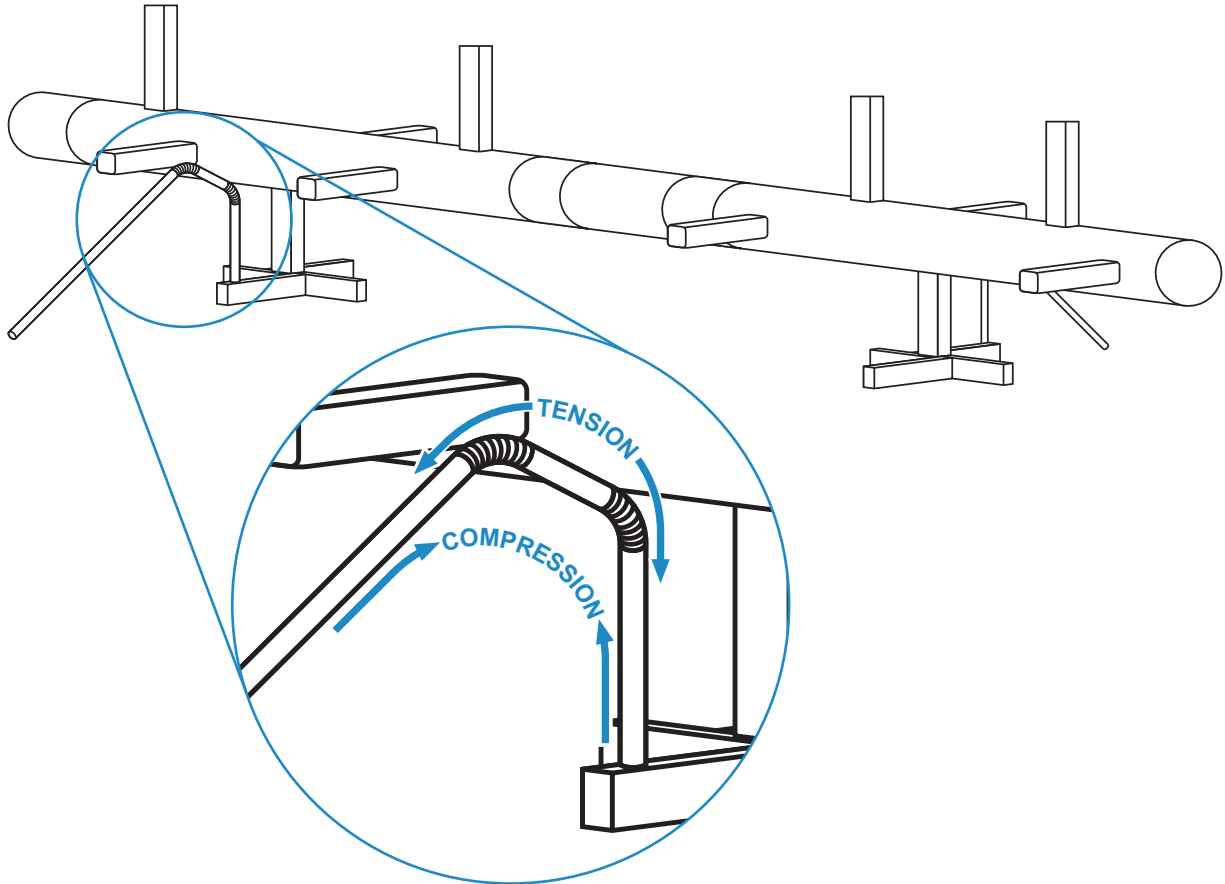
Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
19. Identify the compression and tension on the spring pole prior to cut. Demonstrate safe release of spring pole by utilizing a shave cut. (Identifique la compresión y la tensión en el poste del resorte antes del corte. Demuestra la liberación segura del poste de resorte utilizando un corte rasurado.)	1 2 3 4	_____
20. Demonstrate a snap cut on two downward-facing limbs prior to bucking log. (Demuestra un corte de cierre/a presión (corte quebradizo) en dos ramas que miran hacia abajo antes de trocear el tronco.)	1 2 3 4	_____
<i>Note: Chain brake must be engaged before placing saw on ground or removing hand from saw. (Notas: El freno de la cadena debe estar bien puesto antes de colocar la motosierra en el suelo o quitar la mano de la motosierra.)</i>		
<b>Log Bucking Cutting Demonstration (Demostración de corte de troncos)</b>		
21. Identify compression wood fiber zone and tension wood fiber zone on log before performing bucking cut. (Identifique la zona de fibra de madera de compresión y la zona de fibra de madera de tensión en el tronco antes de realizar el corte de tronzado.)	1 2 3 4	_____
<i>Note: Candidate shall describe where and how they will make their cut. (Notas: El candidato deberá describir dónde y cómo hará su corte.)</i>		
22. Demonstrate ergonomic body positioning for optimal worker performance when performing limbing. (Demuestra la posición ergonómica del cuerpo para un rendimiento óptimo del trabajador al realizar el desrame.)	1 2 3 4	_____
<i>Note: Worker must avoid limbing on downhill side of assessment to receive a 4. (Notas: El trabajador debe evitar desramar en el lado cuesta abajo de la evaluación para recibir un 4.)</i>		
23. Demonstrate securing the log to prevent unintended movement when performing bucking cut. (Demuestra cómo asegurar el tronco para evitar movimientos involuntarios al realizar un corte de tronzado.)	1 2 3 4	_____
<i>Note: Final bucking cut on log must be done on uphill side to ensure competency. (Notas: El corte de tronzado final en el tronco debe hacerse en el lado cuesta arriba para garantizar la competencia.)</i>		
24. Demonstrate safe cross cutting of log by performing proper bucking cut in designated section of wood without rolling log over and without pinching the chainsaw. (Demuestra el corte seguro de troncos realizando un corte tronzado adecuado en la sección designada de madera sin volcar el tronco y sin pellizcar la motosierra.)	1 2 3 4	_____
<i>Note: Chainsaw operators will be provided an ax and a wedge to assist bucking log. Cuts must sever all fibers in the designated zone and be less than 1/4" apart in order to receive a 4, 1/2" apart shall receive max score of 3 anything more than 1/2" apart shall be less than 3. (Notas: A los operadores de motosierra se les dará un hacha y una cuña para ayudar a cortar troncos. Los cortes deben cortar todas las fibras en la zona designada y tener una separación de menos de un cuarto de pulgada para recibir un 4. Una separación de media pulgada recibirá una puntuación máxima de 3 y cualquier separación de más de media pulgada será menos que un 3.)</i>		
25. Demonstrate chain brake use throughout assessment. (Demuestra el uso del freno de cadena a lo largo de la evaluación.)	1 2 3 4	_____

Evaluator should illustrate on the diagrams below the results of the cutting attempts and any additional information to provide clarity:



Sign will be placed at limbing and bucking station to simulate slope.

(Se colocará un letrero en la estación de desramar y tronzo para simular la cuesta.)



### Competency Determination (Determinación de la competencia)

- Add up all scores circled above to determine your final score. (Sume todas las puntuaciones encerradas en un círculo arriba para determinar su puntuación final.)
- A minimum final score of **63** is required to be determined competent. (Una puntuación mínima final de **63** se requiere para determinar al candidato como competente.)
- **88-100**: Demonstrates Proficiency (Demuestra la habilidad)
- **63-87**: Demonstrates Competency (Demuestra competencia)
- **38-62**: Needs Experience (Necesita experiencia)
- **25-37**: Needs Training (Necesita capacitación)

**Final Score**  
(Puntuación final):

\_\_\_\_\_

**Evaluator Name**  
(Nombre del evaluador):

\_\_\_\_\_

**Signature**  
(Firma):

\_\_\_\_\_

**Candidate Name**  
(Nombre del candidato):

\_\_\_\_\_

**Signature**  
(Firma):

\_\_\_\_\_



# Chainsaw Bolt Cutting Competency Verification Form

08102022-01

Candidate Name (Nombre del candidato) \_\_\_\_\_ ISN# \_\_\_\_\_ Date (Fecha) \_\_\_\_\_

Company (Compañía) \_\_\_\_\_ Location (Ubicación) \_\_\_\_\_

Previous Certification(s) (Certificaciones previas):  Yes/Sí  No

Type(s) (Tipo[s]): \_\_\_\_\_

Assessing on Bolt (Evaluación en SafeTree) # \_\_\_\_\_ First Aid (Primeros auxilios)/CPR:  Yes  No

Expiration Date (Fecha de vencimiento) \_\_\_\_\_

Job Classification (Clasificación de trabajo) \_\_\_\_\_ Language (Idioma):  English (Inglés)  Spanish (Español)  Bilingual (Bilingüe)

Start Time (Hora de Inicio) \_\_\_\_\_ End Time (Hora de Finalización) \_\_\_\_\_ Years Experience (Años de experiencia) \_\_\_\_\_

**Pass (Exito)**

**Demonstrates Proficiency**  
Demuestra más competencia

**Demonstrates Competency**  
Demuestra la competencia

**Fail (Fracaso)**

**Needs Experience**  
Necesita experiencia

**Needs Training**  
Necesita capacitación

Evaluator's Name: \_\_\_\_\_ Evaluator Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Standard-Based Grading Scale

- 4 - Demonstrates Proficiency; meets expectations of target with efficiency and advanced knowledge or skill
- 3 - Demonstrates Competency; meets expectations of target
- 2 - Needs Experience; partial understanding or can perform portions of target with evaluator assistance
- 1 - Needs Training; CANNOT perform portions of target, even with evaluator assistance

\*A safety violation not mentioned above, however, deemed grossly negligent by the evaluator can still result in a noted violation.

For scores 1 & 4 the evaluator **SHOULD** provide examples in the notes column supporting the circled score.

## Escala de evaluación basada en el estándar

- 4 - Demuestra la competencia; cumple con expectativas del objetivo con eficiencia y un conocimiento o habilidades avanzadas
- 3 - Demuestra la competencia; cumple con expectativas del objetivo
- 2 - Necesita experiencia; conocimiento parcial o puede realizar partes del objetivo con ayuda del evaluador
- 1 - Necesita la capacitación; NO PUEDE realizar partes del objetivo, aun con la ayuda del evaluador

\*Sin embargo, una violación de seguridad no que no se mencione arriba, y que el evaluador considera como extremadamente negligente todavía puede resultar en una violación.

Para puntuaciones de 1 y 4, el evaluador **DEBERÍA** proveer ejemplos en la columna de notas, respaldando la puntuación encerrada en un círculo.

## Safety Violations

During all portions of the evaluation that require demonstration testing, operators will be assessed for any safety violations. Any individual receiving 3 or more safety violations will be unsuccessful. Success will be based upon evaluator discretion. Examples:

- Performing an unsafe act / drop-start
- Failure to implement corrective actions when given opportunity
- Taking more than 2 steps while chain break is disengaged
- Comply/failure command-response communication techniques
- Missing/forgets to utilize PPE
- Taking hand off running saw while chain break is disengaged/chain break high five

## Violaciones de seguridad

Durante todas las partes de la evaluación que requieren pruebas para la demostración, los operadores serán evaluados por cualquier violación de seguridad. Cualquier persona que reciba 3 o más violaciones de seguridad se considerará sin éxito. El éxito se basará según la discreción del evaluador. Ejemplos:

- Realizar una acción que es peligrosa/drop-start la motosierra
- Fallar en implementar acciones correctivas cuando se le provee la oportunidad
- Tomar más de 2 pasos mientras que el freno de cadena está desconectado
- Cumple/falla en responder con técnicas de comunicación
- No tiene/se le olvida utilizar el EPP
- Remueve la mano de una sierra activa mientras que el freno de cadena se encuentra desactivado/high five el freno de cadena

**PPE and Tools (EPP y Herramientas)**

Yes/Sí  No

Did the contractor provide the employee with proper PPE?  
(¿El contratista equipo al empleado con el EPI adecuado?)

- Yes/Sí  No ANSI Z89 Helmet / Hardhat  
(ANSI Z89 Casco)
- Yes/Sí  No ANSI Z87 Eye Pro w/ Side Protection  
(ANSI Z87 Protección de ojos con protección lateral)
- Yes/Sí  No Hearing Protection  
(Protección de oídos)
- Yes/Sí  No Long Sleeve Shirt  
(Camisa de manga larga)
- Yes/Sí  No ANSI Class 2 or 3 Hi-Vis Apparel  
(ANSI Clase 2 o 3 Ropa de alta visibilidad)
- Yes/Sí  No Gloves  
(Guantes)
- Yes/Sí  No Round & Flat File  
(Lima circular y plana)
- Yes/Sí  No Wedges  
(Cuñas)

- Yes/Sí  No Work Boots  
(Botas de trabajo)
- Yes/Sí  No Chaps/Saw Pants UL Certified  
(Chaparrera/pantalones para sierra – Certificados UL)
- Yes/Sí  No First Aid/Blood Stopper  
(Primeros auxilios/tapón para sangre)
- Yes/Sí  No Whistle/Radio/Cell Phone  
(Silbato/radio/teléfono celular)
- Yes/Sí  No Axe & Guard  
(Hacha y protector)
- Yes/Sí  No Chainsaw Tool / Srench  
(Herramienta para motosierra/Srench)
- Yes/Sí  No Chainsaw & Scabbard  
(Motosierra y funda)

**Task (Tarea)**

**Score (Puntuación)**  
(circle one)

**Notes (Notas)**

**Chainsaw Safety & Work Area Safety (Seguridad de la motosierra y de la zona de trabajo)**

1. Describe PPE for chainsaw operation. Demonstrate proper inspection and use. (Describe el EPP para la operación de la motosierra. Demuestra la inspección adecuada y su uso.) 1 2 3 4 \_\_\_\_\_
2. Identify and Inspect safety features of a chainsaw. (Inspecciona como mínimo cuatro características de seguridad de una motosierra.) 1 2 3 4 \_\_\_\_\_  
*Note: A minimum of 4 Safety features must be identified. (Notas: Un mínimo de cuatro figuras de seguridad deberían ser identificadas.)*
3. Inspect chain brake function method(s). (Inspecciona método de función del freno de cadena.) 1 2 3 4 \_\_\_\_\_
4. Identify the four reaction forces when cutting with a chainsaw. (Identifica las cuatro fuerzas reactivas de la motosierra cuando se está usando.) 1 2 3 4 \_\_\_\_\_
5. Identify felling sights on chainsaw. (Identifica los vistas de tala al podar el árbol con la motosierra.) 1 2 3 4 \_\_\_\_\_
6. Describe safe distance workers shall keep from chainsaw operators. (Describe la distancia segura que los trabajadores deberán mantener de los operarios.) 1 2 3 4 \_\_\_\_\_
7. Demonstrate three-way communication. (Demuestra la comunicación de tres vías.) 1 2 3 4 \_\_\_\_\_

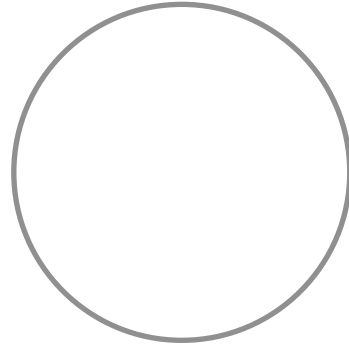
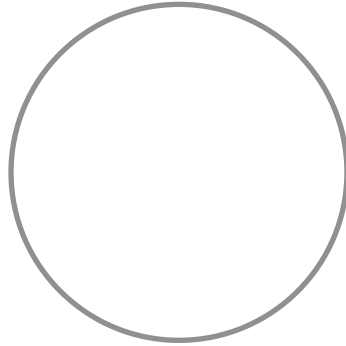
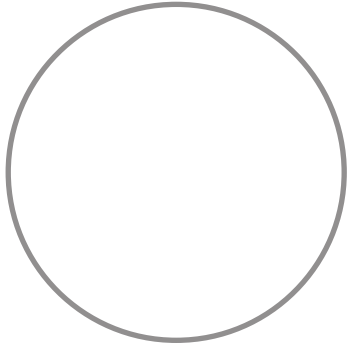
**Cutting Demonstration (Demostración para cortar)**

*Each cut must be treated as a separate tree felling simulation. To receive the highest score, 1 of the 3 back cut methods must be the bore cut and trigger method. (Cada corte debe tratarse como una simulación de talar árboles separados. Para recibir la más alta puntuación, 1 de los 3 métodos de cortes traseros debe ser el corte de perforación y de gatillo.)*

8. Demonstrate a safe chainsaw starting procedure. (Demuestra el procedimiento para arrancar con toda seguridad la motosierra.) 1 2 3 4 \_\_\_\_\_
9. Demonstrate cutting an open face notch. (Demuestra cortar un muesca abierta.) 1 2 3 4 \_\_\_\_\_  
*Note: Notch must be 70° or greater. (Nota: La muesca debe ser de 70° o mayor.)*
10. Demonstrate cutting a conventional notch. (Demuestra realizar la muesca convencional.) 1 2 3 4 \_\_\_\_\_  
*Note: 45° To 69° Is acceptable for this notch. Back cut shall be 1 to 2 inches above the apex. (Nota: 45° a 69° es aceptable para este tipo de corte. El corte trasero será de 1 a 2 pulgadas por encima del ápice.)*

Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
11. Demonstrate cutting a Humboldt notch. (Demuestra realizar la muesca Humboldt.) <i>Note: Notch must be 45° or greater. Back cut shall be 1 to 2 inches above the apex. (Nota: El corte debe ser de 45° o mayor. El corte trasero será de 1 a 2 pulgadas por encima del ápice.)</i>	1 2 3 4	_____
12. Demonstrate conventional and boring technique necessary to perform an adequate hinge. (Demostrar la técnica convencional y de perforación necesaria para realizar una bisagra adecuada.)	1 2 3 4	_____
13. Demonstrate proper escape route. (Demuestra la ruta adecuada para escapar.) <i>Note: Must be demonstrated on all three cuts. (Nota: Debe demostrarse en los tres cortes.)</i>	1 2 3 4	_____
14. Demonstrate proper use of chain brake throughout assessment. (Demuestra el uso adecuado del freno de cadena a través de la evaluación.)	1 2 3 4	_____
<b>Cutting/Stump Evaluation (Evaluación del tocón/corte)</b>		
15. Evaluate notch. (Evaluar el corte.) <i>Note: Face notch level in desired direction and adequate for tree size. (Nota: Nivel del corte de cara en la dirección adecuada y el correcto para el tamaño del árbol.)</i>	1 2 3 4	_____
16. Evaluate bypass. (Evaluar el desviación/sobre paso.) <i>Note: If bypass is present, was it corrected? More than 0.25" results in a reduction in score. (Nota: Si el bypass está presente, ¿lo hizo correctamente? Más de 0.25" resulta en una reducción de la puntuación.)</i>	1 2 3 4	_____
17. Evaluate back cuts. (Evaluar los cortes finales.) <i>Note: A conventional back cut is acceptable, but one of the three back cuts must be the bore/trigger method for maximum score. (Nota: Un corte trasero convencional es aceptable, pero uno de los tres cortes traseros deben ser el método de perforar(gatillo) para obtener la puntuación máxima.)</i>	1 2 3 4	_____
18. Evaluate hinge/holding wood. (Evaluar la bisagra/aguantar la madera.) <i>Note: Hinge even, no taper, 5-10% thickness of tree dia., hinge length 80% of tree dia. Three adequate hinges = score of 4, two adequate hinges and one minor error = score of 3, two adequate hinges = score of 2, one or less adequate hinges = score of 1. (Nota: La bisagra debe ser pareja, no estrechada, 5-10% en grosor del diámetro del árbol, bisagra 80% del diámetro del árbol. 3 bisagras adecuadas = puntuación de 4, 2 bisagras adecuadas y 1 error menor = puntuación de 3, 2 bisagras adecuadas = puntuación de 2, 1 bisagra adecuada o menos = puntuación de 1.)</i>	1 2 3 4	_____
19. Evaluate trigger/backstrap. (Evaluar gatillo/backstrap.) <i>Note: Trigger offset towards escape route, adequate size for tree. (Nota: La compensación del gatillo se debe hacer hacia la ruta de escape, adecuado para el tamaño del árbol.)</i>	1 2 3 4	_____
20. Demonstrates minimizing exposure to risk at the stump. (Demuestra minimizar la exposición al riesgo en el tocón.) <i>Note: Completing tasks with minimal safety issues or saw handling concerns with minimal time spent performing tasks safely. (Nota: Completa las tareas con problemas mínimos de seguridad o inquietudes con el manejo de la sierra con un tiempo mínimo, al realizar las tareas con toda seguridad.)</i>	1 2 3 4	_____

**Evaluator should illustrate on the diagrams below the results of the cutting attempts and any additional information to provide clarity (El evaluador debería ilustrar en los diagramas de abajo los resultados de los intentos al cortar y proveer cualquier información adicional para proveer claridad):**



Cut 1 (Corte 1)
Height (Altura): _____
DBH (diámetro a altura del pecho): _____
Notch (Muesca [nacha]): _____

Cut 2 (Corte 2)
Height (Altura): _____
DBH (diámetro a altura del pecho): _____
Notch (Muesca [nacha]): _____

Cut 3 (Corte 3)
Height (Altura): _____
DBH (diámetro a altura del pecho): _____
Notch (Muesca [nacha]): _____

### Competency Determination (Determinación de la competencia)

- Add up all scores circled above to determine your final score. (Sume todas las puntuaciones encerradas en un círculo arriba para determinar su puntuación final.)
- A minimum final score of **50** is required to be determined competent. (Una puntuación mínima final de **50** se requiere para determinar al candidato como competente.)
- **70-80**: Demonstrates Proficiency (Demuestra más competencia)
- **50-69**: Demonstrates Competency (Demuestra competencia)
- **30-49**: Demonstrates Partial Competency (Necesita experiencia)
- **20-29**: Demonstrates Little to No Competency (Necesita capacitación)

**Final Score (Puntuación final):** \_\_\_\_\_

**Evaluator Name (Nombre del evaluador):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Candidate Name (Nombre del candidato):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

Candidate Name (Nombre del candidato) \_\_\_\_\_ ISN# \_\_\_\_\_ Date (Fecha) \_\_\_\_\_

Company (Compañía) \_\_\_\_\_ Location (Ubicación) \_\_\_\_\_

Previous Certification(s) (Certificaciones previas):  Yes/Sí  No

Type(s) (Tipo[s]): \_\_\_\_\_

Assessing on Bolt (Evaluación en SafeTree) # \_\_\_\_\_ First Aid (Primeros auxilios)/CPR:  Yes  No

Expiration Date (Fecha de vencimiento) \_\_\_\_\_

Job Classification (Clasificación de trabajo) \_\_\_\_\_ Language (Idioma):  English (Inglés)  Spanish (Español)  Bilingual (Bilingüe)

Start Time (Hora de Inicio) \_\_\_\_\_ End Time (Hora de Finalización) \_\_\_\_\_ Years Experience (Años de experiencia) \_\_\_\_\_

**Pass (Exito)**

**Demonstrates Proficiency**  
Demuestra la habilidad

**Demonstrates Competency**  
Demuestra la competencia

**Fail (Fracaso)**

**Needs Experience**  
Necesita experiencia

**Needs Training**  
Necesita capacitación

Evaluator's Name: \_\_\_\_\_ Evaluator Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Standard-Based Grading Scale

- 4 - Demonstrates Proficiency; meets expectations of target with efficiency and advanced knowledge or skill
- 3 - Demonstrates Competency; meets expectations of target
- 2 - Needs Experience; partial understanding or can perform portions of target with evaluator assistance
- 1 - Needs Training; CANNOT perform portions of target, even with evaluator assistance

\*A safety violation not mentioned above, however, deemed grossly negligent by the evaluator can still result in a noted violation.

For scores 1 & 4 the evaluator **SHOULD** provide examples in the notes column supporting the circled score.

### Escala de evaluación basada en el estándar

- 4 - Demuestra la competencia; cumple con expectativas del objetivo con eficiencia y un conocimiento o habilidades avanzadas
- 3 - Demuestra la competencia; cumple con expectativas del objetivo
- 2 - Necesita experiencia; conocimiento parcial o puede realizar partes del objetivo con ayuda del evaluador
- 1 - Necesita la capacitación; NO PUEDE realizar partes del objetivo, aun con la ayuda del evaluador

\*Sin embargo, una violación de seguridad no que no se mencione arriba, y que el evaluador considera como extremadamente negligente todavía puede resultar en una violación.

Para puntuaciones de 1 y 4, el evaluador **DEBERÍA** proveer ejemplos en la columna de notas, respaldando la puntuación encerrada en un círculo.

### Safety Violations

During all portions of the evaluation that require demonstration testing, operators will be assessed for any safety violations. Any individual receiving 3 or more safety violations will be unsuccessful. Success will be based upon evaluator discretion. Examples:

- Performing an unsafe act / drop-start
- Failure to implement corrective actions when given opportunity
- Taking more than 2 steps while chain break is disengaged
- Comply/failure command-response communication techniques
- Missing/forgets to utilize PPE
- Taking hand off running saw while chain break is disengaged/chain break high five

### Violaciones de seguridad

Durante todas las partes de la evaluación que requieren pruebas para la demostración, los operadores serán evaluados por cualquier violación de seguridad. Cualquier persona que reciba 3 o más violaciones de seguridad se considerará sin éxito. El éxito se basará según la discreción del evaluador. Ejemplos:

- Realizar una acción que es peligrosa/drop-start la motosierra
- Fallar en implementar acciones correctivas cuando se le provee la oportunidad
- Tomar más de 2 pasos mientras que el freno de cadena está desconectado
- Cumple/falla en responder con técnicas de comunicación
- No tiene/se le olvida utilizar el EPP
- Remueve la mano de una sierra activa mientras que el freno de cadena se encuentra desactivado/high five el freno de cadena

**PPE and Tools (EPP y Herramientas)**

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z87 Eye Pro w/ Side Protection<br>(ANSI Z87 Protección de ojos con protección lateral) | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chaps/Saw Pants UL Certified<br>(Chaparrera/pantalones para sierra – Certificados UL) |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Hearing Protection<br>(Protección de oídos)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | First Aid/Blood Stopper<br>(Primeros auxilios/tapón para sangre)                      |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Fall Arrest Harness (Bucket/Dorsal)<br>(Arnés para evitar caídas (Canastilla/Dorsal))       | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Whistle/Radio/Cell Phone<br>(Silbato/radio/teléfono celular)                          |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Class 2 or 3 Hi-Vis Apparel<br>(ANSI Clase 2 o 3 Ropa de alta visibilidad)             | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Lowering Device & Sling<br>(Eslinga y dispositivo para bajar)                         |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Gloves<br>(Guantes)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Rigging Rope (Lowering)<br>(Cuerda de aparejo (para bajar))                           |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Long Sleeve Shirt<br>(Camisa manga larga)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Pole Clip<br>(Palo con clip)  |

Support Person Name (Nombre de la persona de apoyo) \_\_\_\_\_ ISN# \_\_\_\_\_ Date (Fecha) \_\_\_\_\_

Company (Compañía) \_\_\_\_\_ Location (Ubicación) \_\_\_\_\_

Previous Certification(s) (Certificaciones previas):  Yes/Sí  No \_\_\_\_\_

Type(s) (Tipo[s]): \_\_\_\_\_

Assessing on Bolt (Evaluación en SafeTree) # \_\_\_\_\_ First Aid (Primeros auxilios)/CPR:  Yes  No \_\_\_\_\_ Expiration Date (Fecha de vencimiento) \_\_\_\_\_

Language (Idioma):  English (Inglés)  Spanish (Español)  Bilingual (Bilingüe) \_\_\_\_\_

Job Classification (Clasificación de trabajo) \_\_\_\_\_

Start Time (Hora de Inicio) \_\_\_\_\_ End Time (Hora de Finalización) \_\_\_\_\_ Years Experience (Años de experiencia) \_\_\_\_\_

**PPE and Tools (EPP y Herramientas)**

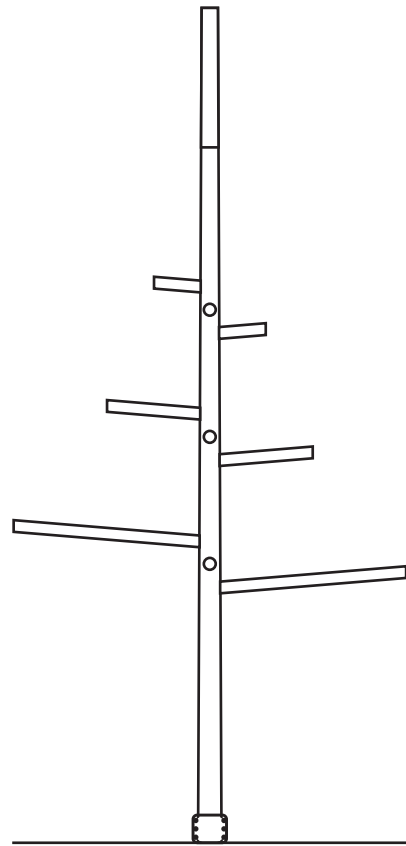
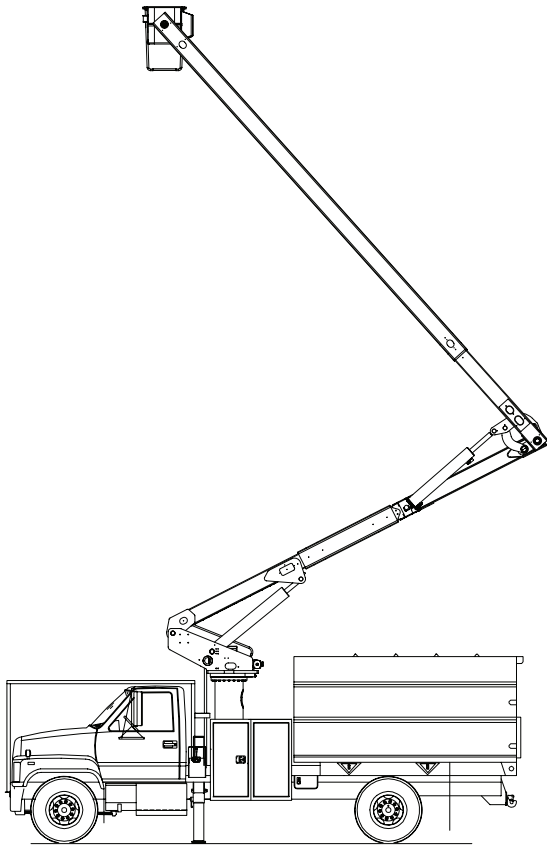
- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z87 Eye Pro w/ Side Protection<br>(ANSI Z87 Protección de ojos con protección lateral) | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chaps/Saw Pants UL Certified<br>(Chaparrera/pantalones para sierra – Certificados UL) |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Hearing Protection<br>(Protección de oídos)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | First Aid/Blood Stopper<br>(Primeros auxilios/tapón para sangre)                      |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Fall Arrest Harness (Bucket/Dorsal)<br>(Arnés para evitar caídas (Canastilla/Dorsal))       | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Whistle/Radio/Cell Phone<br>(Silbato/radio/teléfono celular)                          |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Class 2 or 3 Hi-Vis Apparel<br>(ANSI Clase 2 o 3 Ropa de alta visibilidad)             | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Lowering Device & Sling<br>(Eslinga y dispositivo para bajar)                         |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Gloves<br>(Guantes)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Rigging Rope (Lowering)<br>(Cuerda de aparejo (para bajar))                           |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Long Sleeve Shirt<br>(Camisa manga larga)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Pole Clip<br>(Palo con clip)  |

Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
<b>Aerial Lift Inspections and Work Zone Safety (Inspecciones del dispositivo aéreo y Seguridad de la zona de trabajo)</b>		
1. Demonstrate inspection of the chassis. (Demuestra la inspección del chasis.)	1 2 3 4	_____
2. Demonstrate inspection of the lift and setup. (Demuestra la inspección del elevador/dispositivo y preparación.)	1 2 3 4	_____
3. Demonstrate Inspection of the work site. (Demuestra la inspección del sitio de trabajo.)	1 2 3 4	_____
4. Demonstrate tree risk assessment. (Demuestra la evaluación del riesgo con el árbol.)	1 2 3 4	_____
5. Demonstrate establishing a drop zone. (Demuestra establecer la zona de desecho.)	1 2 3 4	_____
6. Describe MAD. (Describe las MAD.)	1 2 3 4	_____



Task (Tarea)	Score (Puntuación) (circle one)	Notes (Notas)
7. Demonstrate proper application of fall protection PPE. (Demuestra la aplicación adecuada del EPP para protegerse de caídas.)	1 2 3 4	_____
<b>Aerial Lift Operation (Operaciones del dispositivo aéreo)</b>		
8. Describe use of level indicators. (Describe el uso de indicadores de nivel.)	1 2 3 4	_____
9. Demonstrate installation of wheel chocks. (Demuestra la instalación de los bloques de ruedas.)	1 2 3 4	_____
10. Demonstrate use of outrigger pads. (Demuestra el uso de almohadillas estabilizadoras.)	1 2 3 4	_____
11. Demonstrate pre-operational test flight from lower controls. (Demuestra el vuelo preoperacional de prueba de los controles bajos.)	1 2 3 4	_____
12. Demonstrate three-way communication. (Demuestra la comunicación de tres maneras.)	1 2 3 4	_____
13. Demonstrate smooth operation and work positioning with the lift. (Demuestra la operación suave y posición del trabajo con el elevador.)	1 2 3 4	_____
<b>Pole Tool Use (Uso de la herramienta de vara)</b>		
14. Describe insulated tool inspection. (Describe la inspección de la herramienta aislada.)	1 2 3 4	_____
15. Demonstrate use of an insulated pole clip to prune (3/4-inch diameter dowel) vegetation in proximity of MAD. (Demuestra el uso de la presilla en palo aislado para podar (pitón de 3/4-pulg. de diámetro) la vegetación cerca de la MAD.)	1 2 3 4	_____
<b>Aerial Chainsaw Cutting (Corte aéreo con motosierra)</b>		
16. Demonstrate directional topping cut (2' top). (Demuestra el corte direccional de tope (2' tope).)	1 2 3 4	_____
17. Demonstrate mis-matched/snap cut (2' limb). (Demuestra corte desigual (rama de 2').)	1 2 3 4	_____
18. Demonstrate lowering cut with face notch (4' limb). (Demuestra el corte de caída con un corte de cara (rama de 4').)	1 2 3 4	_____
19. Demonstrate lifting cut (8' limb). (Demuestra el corte de elevación (rama de 8').)	1 2 3 4	_____
20. Demonstrate chainsaw safety and securement while working aloft. (Demuestra la seguridad con la motosierra y la seguridad mientras que trabaja en el aire.)	1 2 3 4	_____
<b>Aerial Rigging Operations (Operaciones de cableado aéreo)</b>		
21. Demonstrate installation of an arborist rigging block. (Demuestra instalación del bloque de arborista para el cableado.)	1 2 3 4	_____
22. Demonstrate installation of lowering device. (Demuestra la instalación del dispositivo para bajar.)	1 2 3 4	_____
23. Demonstrate butt tying using a Half Hitch or Marline (4' limb). (Demuestra cómo hacer el nudo tipo butt utilizando un enganche Marline o medio enganche (rama de 4').)	1 2 3 4	_____
24. Demonstrate knot for lifting cut (8' limb). (Demuestra el nudo para el corte de elevación (rama de 8').)	1 2 3 4	_____
25. Demonstrate appropriate exposure time while cutting. (Demuestra el tiempo de exposición adecuado mientras que poda.)	1 2 3 4	_____

El evaluador debería ilustrar abajo en el diagrama los resultados de la inspección del elevador, intentos de cortar, y cualquier información adicional para proveer claridad:



NATS SafeTree™ Patente pendiente

### Competency Determination (Determinación de la competencia)

- Add up all scores circled above to determine your final score. (Sume todas las puntuaciones encerradas en un círculo arriba para determinar su puntuación final.)
- A minimum final score of **63** is required to be determined competent. (Una puntuación mínima final de **63** se requiere para determinar al candidato como competente.)
- **88-100**: Demonstrates Proficiency (Demuestra la habilidad)
- **63-87**: Demonstrates Competency (Demuestra competencia)
- **38-62**: Needs Experience (Necesita experiencia)
- **25-37**: Needs Training (Necesita capacitación)

**Final Score (Puntuación final):** \_\_\_\_\_

**Evaluator Name (Nombre del evaluador):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Candidate Name (Nombre del candidato):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Support Name (Nombre del proveedor de apoyo):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

Candidate Name (Nombre del candidato) \_\_\_\_\_ ISN# \_\_\_\_\_ Date (Fecha) \_\_\_\_\_

Company (Compañía) \_\_\_\_\_ Location (Ubicación) \_\_\_\_\_

Previous Certification(s) (Certificaciones previas):  Yes/Sí  No

Type(s) (Tipo[s]): \_\_\_\_\_

Assessing on Bolt (Evaluación en SafeTree) # \_\_\_\_\_ First Aid (Primeros auxilios)/CPR:  Yes  No

Expiration Date (Fecha de vencimiento) \_\_\_\_\_

Job Classification (Clasificación de trabajo) \_\_\_\_\_ Language (Idioma):  English (Inglés)  Spanish (Español)  Bilingual (Bilingüe)

Start Time (Hora de Inicio) \_\_\_\_\_ End Time (Hora de Finalización) \_\_\_\_\_ Years Experience (Años de experiencia) \_\_\_\_\_

**Pass (Exito)**

**Demonstrates Proficiency**  
Demuestra la habilidad

**Demonstrates Competency**  
Demuestra la competencia

**Fail (Fracaso)**

**Needs Experience**  
Necesita experiencia

**Needs Training**  
Necesita capacitación

Evaluator's Name: \_\_\_\_\_ Evaluator Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Standard-Based Grading Scale

- 4 - Demonstrates Proficiency; meets expectations of target with efficiency and advanced knowledge or skill
- 3 - Demonstrates Competency; meets expectations of target
- 2 - Needs Experience; partial understanding or can perform portions of target with evaluator assistance
- 1 - Needs Training; CANNOT perform portions of target, even with evaluator assistance

\*A safety violation not mentioned above, however, deemed grossly negligent by the evaluator can still result in a noted violation.

For scores 1 & 4 the evaluator **SHOULD** provide examples in the notes column supporting the circled score.

### Escala de evaluación basada en el estándar

- 4 - Demuestra la competencia; cumple con expectativas del objetivo con eficiencia y un conocimiento o habilidades avanzadas
- 3 - Demuestra la competencia; cumple con expectativas del objetivo
- 2 - Necesita experiencia; conocimiento parcial o puede realizar partes del objetivo con ayuda del evaluador
- 1 - Necesita la capacitación; NO PUEDE realizar partes del objetivo, aun con la ayuda del evaluador

\*Sin embargo, una violación de seguridad no que no se mencione arriba, y que el evaluador considera como extremadamente negligente todavía puede resultar en una violación.

Para puntuaciones de 1 y 4, el evaluador **DEBERÍA** proveer ejemplos en la columna de notas, respaldando la puntuación encerrada en un círculo.

### Safety Violations

During all portions of the evaluation that require demonstration testing, operators will be assessed for any safety violations. Any individual receiving 3 or more safety violations will be unsuccessful. Success will be based upon evaluator discretion. Examples:

- Performing an unsafe act / drop-start
- Failure to implement corrective actions when given opportunity
- Taking more than 2 steps while chain break is disengaged
- Comply/failure command-response communication techniques
- Missing/forgets to utilize PPE
- Taking hand off running saw while chain break is disengaged/chain break high five

### Violaciones de seguridad

Durante todas las partes de la evaluación que requieren pruebas para la demostración, los operadores serán evaluados por cualquier violación de seguridad. Cualquier persona que reciba 3 o más violaciones de seguridad se considerará sin éxito. El éxito se basará según la discreción del evaluador. Ejemplos:

- Realizar una acción que es peligrosa/drop-start la motosierra
- Fallar en implementar acciones correctivas cuando se le provee la oportunidad
- Tomar más de 2 pasos mientras que el freno de cadena está desconectado
- Cumple/falla en responder con técnicas de comunicación
- No tiene/se le olvida utilizar el EPP
- Remueve la mano de una sierra activa mientras que el freno de cadena se encuentra desactivado/high five el freno de cadena

**PPE and Tools (EPP y Herramientas)**

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z87 Eye Pro w/ Side Protection<br>(ANSI Z87 Protección de ojos con protección lateral) | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chaps/Saw Pants UL Certified<br>(Chaparrera/pantalones para sierra – Certificados UL) |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Hearing Protection<br>(Protección de oídos)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | First Aid/Blood Stopper<br>(Primeros auxilios/tapón para sangre)                      |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Long Sleeve Shirt<br>(Camisa de manga larga)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Whistle/Radio/Cell Phone<br>(Silbato/radio/teléfono celular)                          |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Class 2 or 3 Hi-Vis Apparel<br>(ANSI Clase 2 o 3 Ropa de alta visibilidad)             | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z133 Rope/Climbing System<br>(ANSI Z133 Cuerda/Sistema para subir árboles)       |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Gloves<br>(Guantes)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Rigging Rope & Equipment<br>(Cuerda y equipo para cableado)                           |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Tree Climbing Harness<br>(Arnés para subir árboles)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw, Scabbard, & Handsaw<br>(Motosierra, funda y sierra de mano)                 |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Tree Climbing Positioning Lanyard<br>(Cinta de posición para subir árboles)                 |   |   |

Support Person Name (Nombre de la persona de apoyo)		ISN#	Date (Fecha)
Company (Compañía)		Location (Ubicación)	
Previous Certification(s) (Certificaciones previas): <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No		Type(s) (Tipo[s]):	
Assessing on Bolt (Evaluación en SafeTree) #		First Aid (Primeros auxilios)/CPR: <input type="checkbox"/> Yes <input type="checkbox"/> No	Expiration Date (Fecha de vencimiento)
Job Classification (Clasificación de trabajo)		Language (Idioma): <input type="checkbox"/> English (Inglés) <input type="checkbox"/> Spanish (Español) <input type="checkbox"/> Bilingual (Bilingüe)	
Start Time (Hora de Inicio)	End Time (Hora de Finalización)	Years Experience (Años de experiencia)	

**PPE and Tools (EPP y Herramientas)**

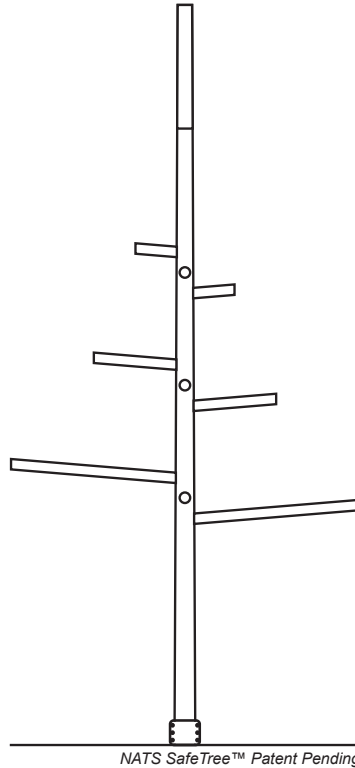
- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
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| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Tree Climbing Harness<br>(Arnés para subir árboles)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw, Scabbard, & Handsaw<br>(Motosierra, funda y sierra de mano)                 |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Tree Climbing Positioning Lanyard<br>(Cinta de posición para subir árboles)                 |   |   |

Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
<b>Pre-climb Inspections (Inspecciones antes de subir)</b>		
1. Demonstrate a pull test as a tree risk assessment method prior to climbing. (Demuestra una prueba de jalar como método para evaluar el riesgo del árbol antes de subirlo.)	1 2 3 4	_____
2. Demonstrate establishment of a drop zone. (Demuestra establecer la zona de caída al podar el árbol.)	1 2 3 4	_____
3. Demonstrate inspection and donning procedures of tree climbing harness, climbing spurs, and fall protection equipment. (Demuestra los procedimientos de inspección y preparación con el arnés para subir el árbol, espuelas para subir y el equipo para evitar caídas.)	1 2 3 4	_____

Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
4. Demonstrate inspection and use of connecting links/carabiners for life support. (Demuestra la inspección y uso de los eslabones y mosquetones para salvar la vida.)	1 2 3 4	_____
5. Demonstrate proper function of primary suspension point for being "tied-in" and side D's for being "secure". (Demuestra la función adecuada del punto primario de suspensión al estar "atado" y el lado D por estar "seguro".)	1 2 3 4	_____
6. Demonstrate inspection and use of a cinching false crotch device or technique. (Demuestra la inspección y el uso del dispositivo o técnica adecuada para asegurar la entepierna.)	1 2 3 4	_____
<b>Tree Climbing Operations (Operaciones para subir árboles)</b>		
7. Demonstrate ascending on climbing spurs. (Demuestra subir usando las espuelas.)	1 2 3 4	_____
8. Demonstrate climbing over an obstruction and staying secured. (Demuestra subir sobre una obstrucción y permanecer seguro.)	1 2 3 4	_____
9. Demonstrate establishing overhead anchor point for positioning on a tree. (Demuestra establecer el punto de anclaje por encima de su cabeza para colocarlo en el árbol.)	1 2 3 4	_____
10. Demonstrate slack management of lifeline. (Demuestra el manejo de la línea de vida sin tensión.)	1 2 3 4	_____
11. Demonstrate limb walk on 8' limb. (Demuestra caminar en una rama de 8'.)	1 2 3 4	_____
12. Demonstrate safe work positioning for performing tasks. (Demuestra ubicarse seguro en el árbol para hacer el trabajo.)	1 2 3 4	_____
13. Demonstrate controlled descending and retrieval of climbing system (end of tree climbing operations). (Demuestra descender y remover el sistema para subir de manera controlada (culminación de operaciones para subir el árbol).)	1 2 3 4	_____
<b>Pole Tool Use (Uso de la vara)</b>		
14. Describe insulated tool inspection. (Describe la inspección de la herramienta aislada.)	1 2 3 4	_____
15. Demonstrate use of an insulated pole clip to prune (3/4-inch diameter dowel) vegetation in proximity of MAD. (Demuestra el uso de la presilla en palo aislado para podar (pitón de 3/4-pulg. de diámetro) la vegetación cerca de la MAD.)	1 2 3 4	_____
<b>Aerial Chainsaw Cutting (Corte aéreo con motosierra)</b>		
16. Demonstrate directional topping cut (2' top). (Demuestra el corte direccional de tope (2' tope).)	1 2 3 4	_____
17. Demonstrate mis-matched/snap cut (2' limb). (Demuestra corte desigual (rama de 2').)	1 2 3 4	_____
18. Demonstrate lowering cut with face notch (4' limb). (Demuestra el corte de caída con un corte de cara (rama de 4').)	1 2 3 4	_____
19. Demonstrate lifting cut (8' limb). (Demuestra el corte de elevación (rama de 8').)	1 2 3 4	_____
20. Demonstrate chainsaw safety and securement while working aloft. (Demuestra la seguridad con la motosierra y la seguridad mientras que trabaja en el aire.)	1 2 3 4	_____
<b>Aerial Rigging Operations (Operaciones de cableado aéreo)</b>		
21. Demonstrate installation of an arborist rigging block. (Demuestra instalación del bloque de arborista para el cableado.)	1 2 3 4	_____
22. Demonstrate installation of lowering device. (Demuestra la instalación del dispositivo para bajar.)	1 2 3 4	_____
23. Demonstrate butt tying using a Half Hitch or Marline (4' limb). (Demuestra cómo hacer el nudo tipo butt utilizando un enganche Marline o medio enganche (rama de 4').)	1 2 3 4	_____

Task (Tarea)	Score (Puntuación)	Notes (Notas)
24. Demonstrate knot for lifting cut (8' limb). (Demuestra el nudo para el corte de elevación (rama de 8').)	1 2 3 4	_____
25. Demonstrate appropriate exposure time while cutting while climbing and cutting. (Demuestra el tiempo de exposición adecuado mientras que sube el árbol o poda.)	1 2 3 4	_____

**Evaluator should illustrate on the diagrams below the results of the cutting attempts and any additional information to provide clarity:**



### Competency Determination (Determinación de la competencia)

- Add up all scores circled above to determine your final score. (Sume todas las puntuaciones encerradas en un círculo arriba para determinar su puntuación final.)
- A minimum final score of **63** is required to be determined competent. (Una puntuación mínima final de **63** se requiere para determinar al candidato como competente.)
- **88-100**: Demonstrates Proficiency (Demuestra la habilidad)
- **63-87**: Demonstrates Competency (Demuestra competencia)
- **38-62**: Needs Experience (Necesita experiencia)
- **25-37**: Needs Training (Necesita capacitación)

**Final Score (Puntuación final):** \_\_\_\_\_

**Evaluator Name (Nombre del evaluador):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Candidate Name (Nombre del candidato):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Support Name (Nombre del proveedor de apoyo):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_



# Safety Leadership Playbook

[Overview](#)

[Safety Foundation](#)

[Safety Connection](#)

[Job Safety Briefing](#)

[Physical Hazard  
Inspection](#)

[Sustaining Safety  
Leadership](#)

[Glossary](#)

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Pacific Gas and Electric Company  
PG&E Academy  
3301 Crow Canyon Road  
San Ramon, CA 94583

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Overview

Safety Foundation

Safety Connection

Job Safety Briefing

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Inspection

Sustaining Safety  
Leadership

Glossary



## Our Mission

To safely and reliably deliver affordable and clean energy to our customers and communities every single day, while building the energy network of tomorrow.

## Our Vision

With a sustainable energy future as our North Star, we will meet the challenge of climate change while providing affordable energy for all customers.

## Our Culture

We put safety first.

We are accountable. We act with integrity, transparency and humility.

We are here to serve our customers.

We embrace change, innovation and continuous improvement.

We value diversity and inclusion. We speak up, listen up and follow up.

We succeed through collaboration and partnership. We are one team.

While everyone at PG&E is accountable for safety excellence, leaders like you play a particularly important role. Now is the time to do the hard work of defining who we are as safety leaders. The skills in this playbook are critical tools to help challenge ourselves.

Every time you use the tools in this playbook, you bring our Mission, Vision and Culture statements to life. Our employees, contractors and the public expect us to be safe every single day. We can only live up to that expectation if each of you practice the words in this book. Now is your chance to own safety in a new way.

The skills outlined in this book help us model the behaviors of an effective safety leader, and when demonstrated well will create an environment where employees feel safe to speak up and address at-risk conditions. Speak up when safety issues need to be addressed. Listen up to those who see exposures that can cause harm. Follow up when someone comes to you to resolve existing and potential safety risks. This is the essential message of the content within this playbook.

Every level of leadership is expected to use this playbook as an ongoing reference as you lead our continuous improvement in safety. Thank you for your leadership and for your personal commitment to the safety of our people. This is how we will change the safety performance of our company...one conversation at a time.



Together, Building  
a Better California

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# How to Use This Playbook

## 1. Common Language

This playbook contains the Safety Culture tools and language you can use to improve how you interact with your peers, your employees, and your leaders about safety.

## 2. Quick Search

This book is interactive. You can tap the menu at the bottom of the page to jump to any section in this book. Some sections have their own interactive menus too.

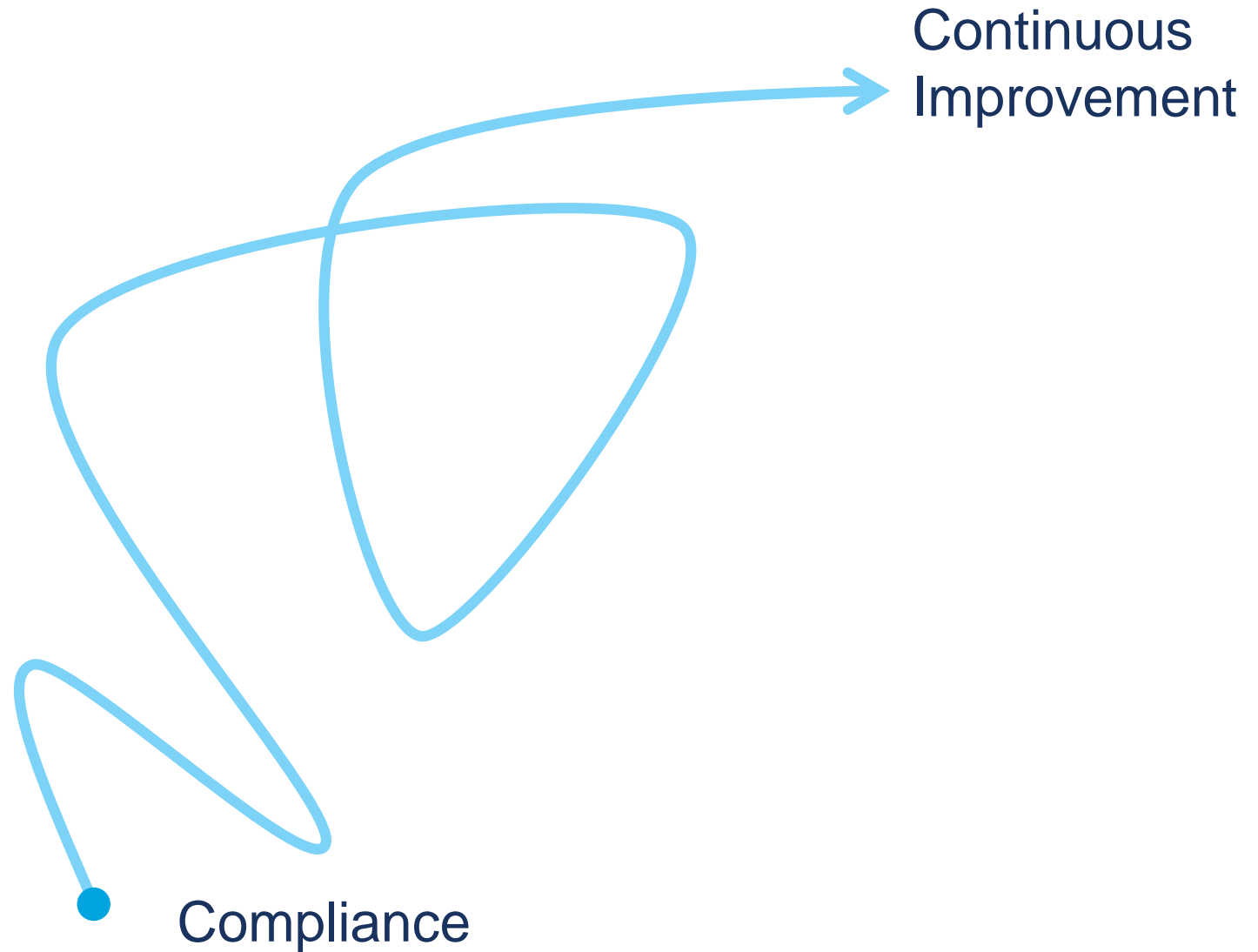
## 3. Reference Guide

Refer to this book to refresh your memory or find new skills you had previously glossed over.



# Our safety culture is about **continuous improvement.**

Safety is a journey of continuous and deliberate improvement. We want to learn from our successes and failures to make sure things go right every time.



# Leaders drive safety culture.

Leaders are expected to drive safety culture within their organization. All leaders with employees in high-hazard operations are expected to know the safety leadership skills and tools in this book to help continuously improve our organization.

# Safety Foundation

*Leaders Shape The Culture*



Tap a puzzle piece to learn about each concept.

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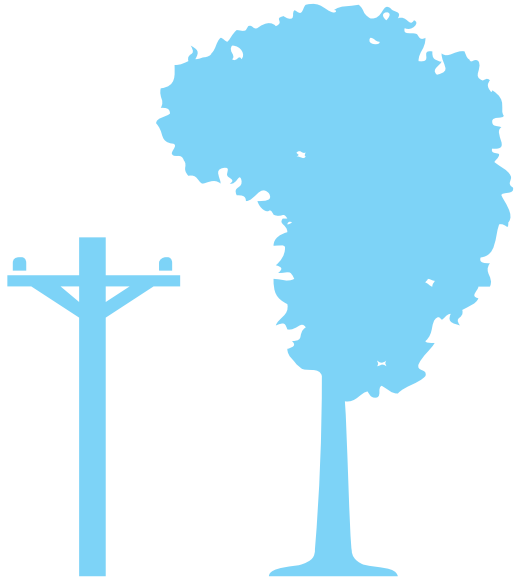


**Safety** is identifying and controlling exposures for self and others.

An organization's safety performance is determined by how effectively it controls exposures in the workplace.

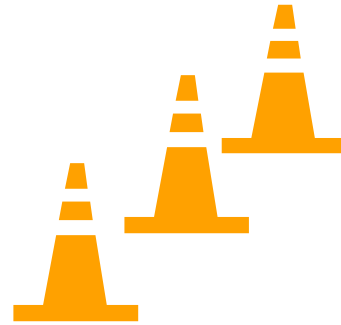
Creating a safe environment means taking a continuous learning approach. The ability to effectively control exposures is the truest measure of safety.

# Safety Definitions



## Hazard

Any potential source of harm, injury, or fatality.



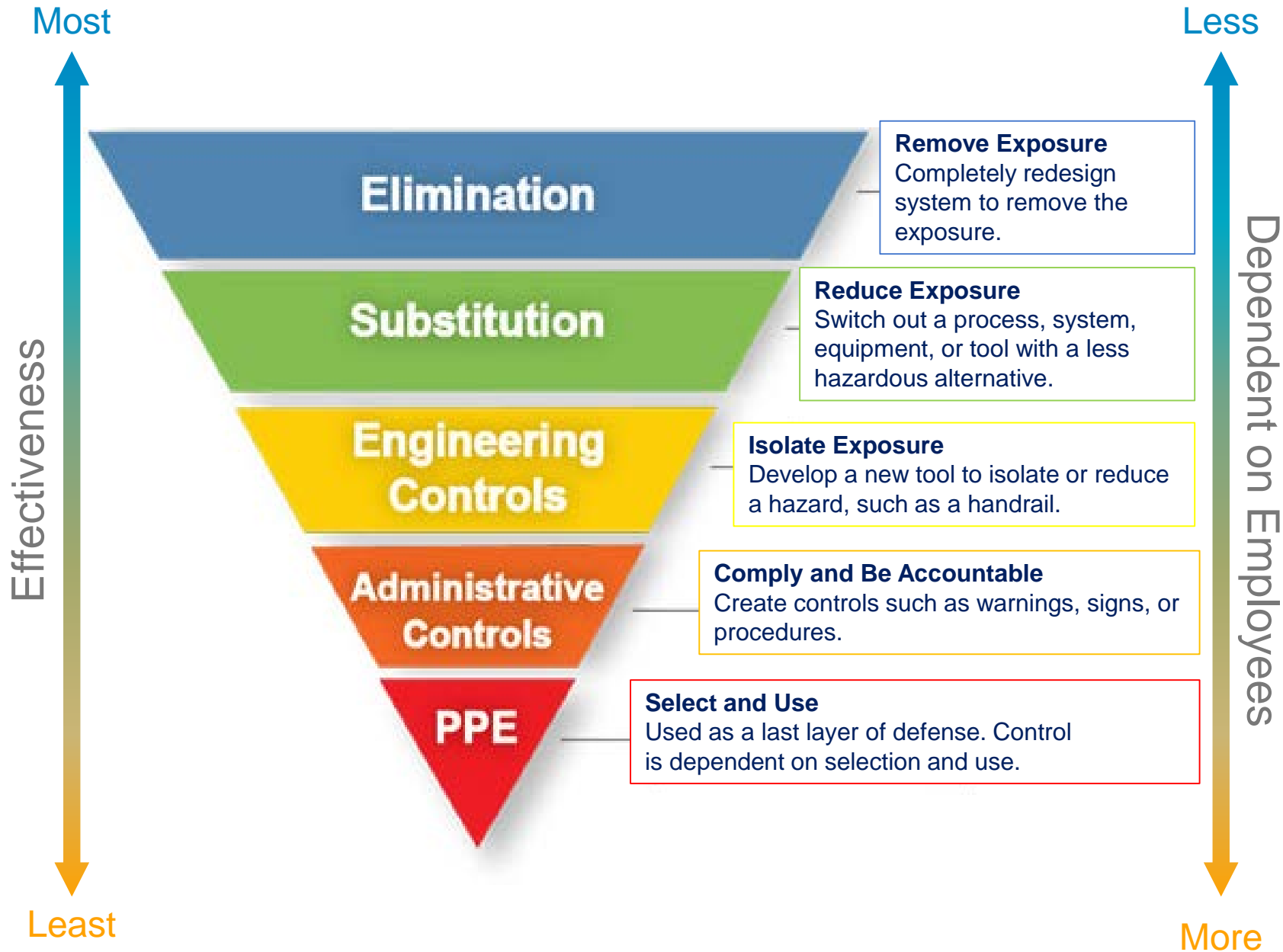
## Control

Any tools, barriers, and procedures we use to manage exposures.



## Exposure

Vulnerability to a hazard.



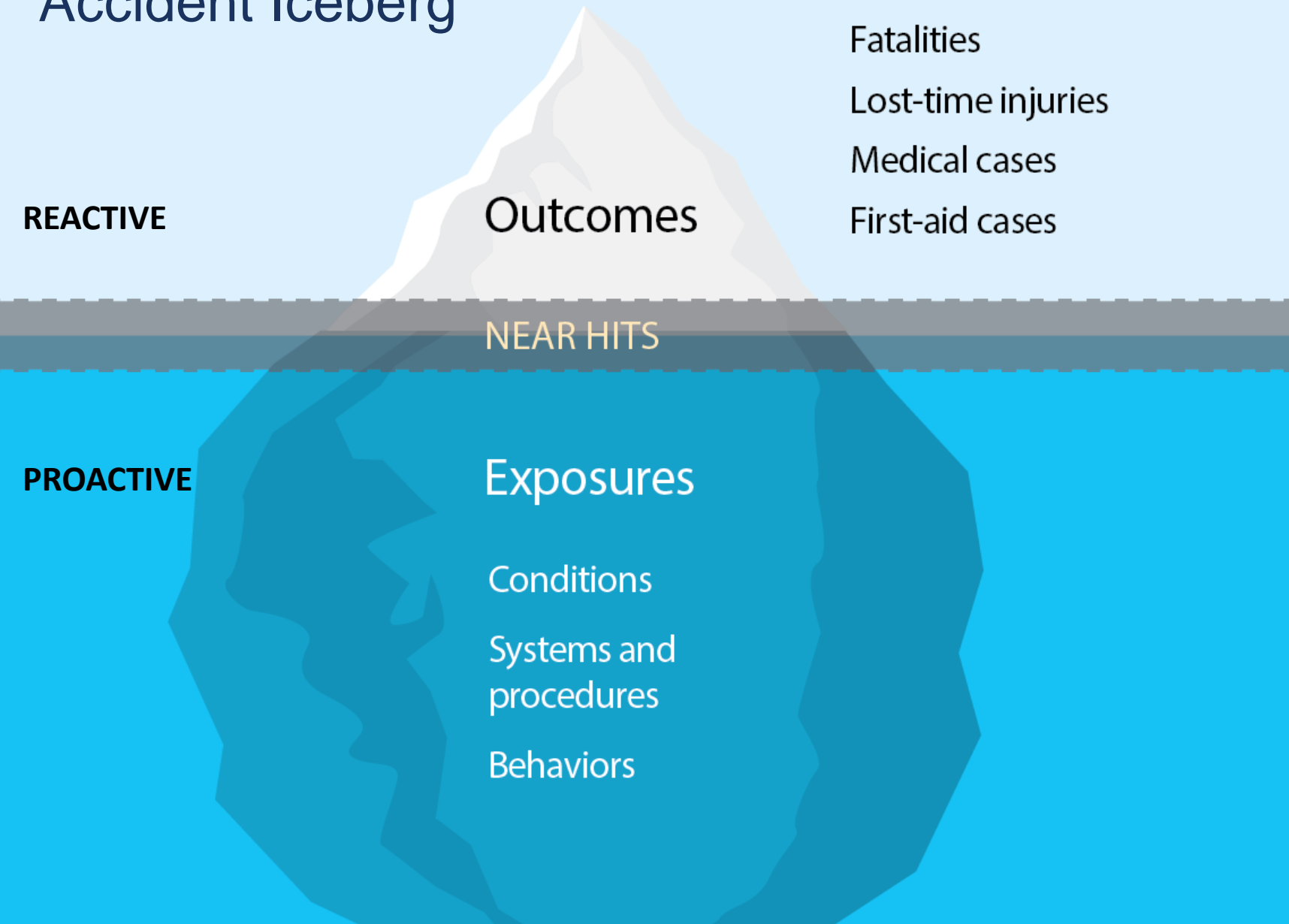
# Hierarchy of Controls

Not all controls are equally effective. This chart shows how the effectiveness of each type of control depends on an employee's performance.

Be on the lookout to identify and speak up about higher levels of control.



# Accident Iceberg



## Shift of Focus

What failed?  
Not, who failed?

Traditionally, our safety focus has been reactive, based on "outcomes" or events which have already occurred, and blaming employee performance.

Now, our safety focus is on controlling exposures and seeking to understand WHAT failed instead of WHO failed.

# Notes:



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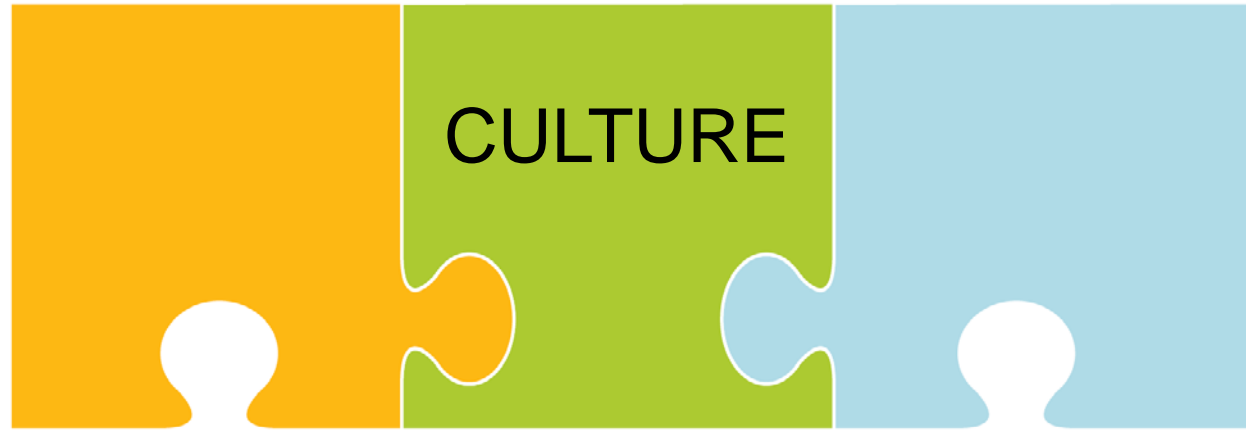
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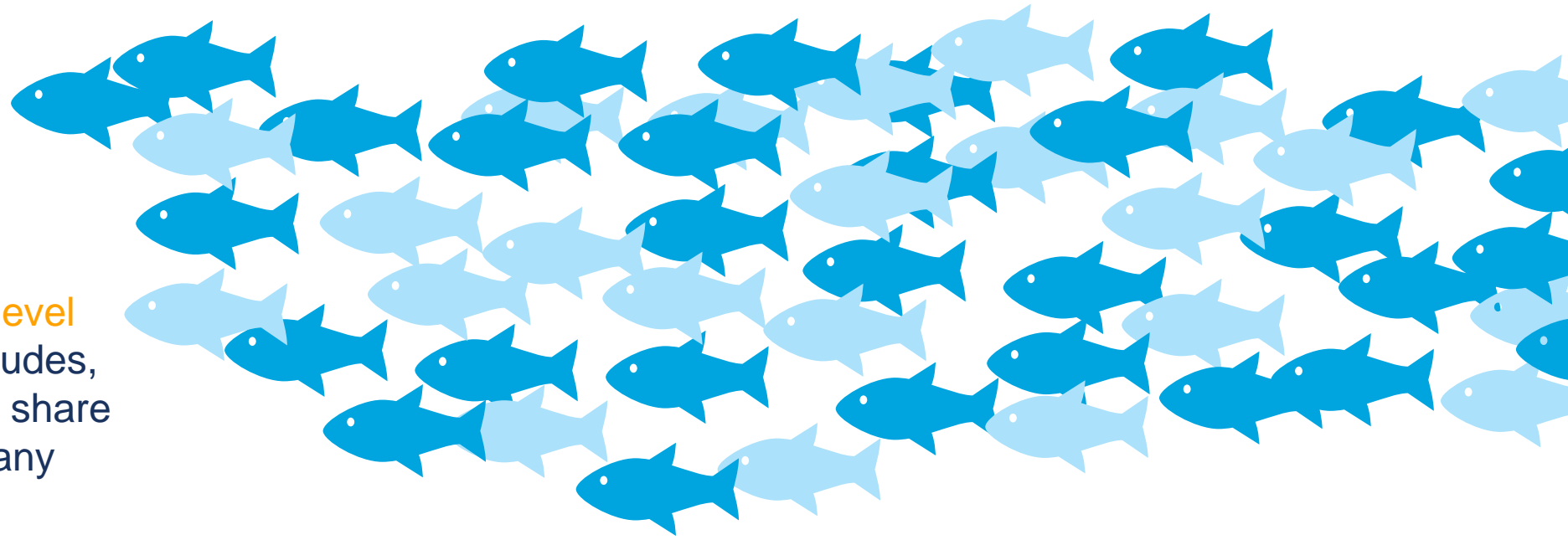
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**Safety Culture** is a system of core values and behaviors that result from a collective commitment to protecting people, property, and the environment.

# Safety Culture

**Safety Culture** influences the level of exposure. It consists of attitudes, behaviors, and beliefs that we share as employees and as a company that impact safety.



A positive Safety Culture is built upon **trust**.

Compliance

Goal Oriented

Continuous Learning

Safety is reactive

Safety is a priority

Safety is a journey

# Stages of Safety Culture

At an immature stage, an organization’s safety culture is compliance based. Safety is “reactionary” after something bad happens. A mature safety culture seeks to learn from successes and failures to improve safety pro-actively.

As leaders, your role is to support the organization and your teams through the Stages of Safety Culture progression.

# Compliance

Safety is based on rules and regulations.

- Communication across lines of business is poor
- Collaboration is limited
- People are blamed for mistakes
- Management is viewed as enforcing the rules
- People are rewarded for obedience

# Goal Oriented

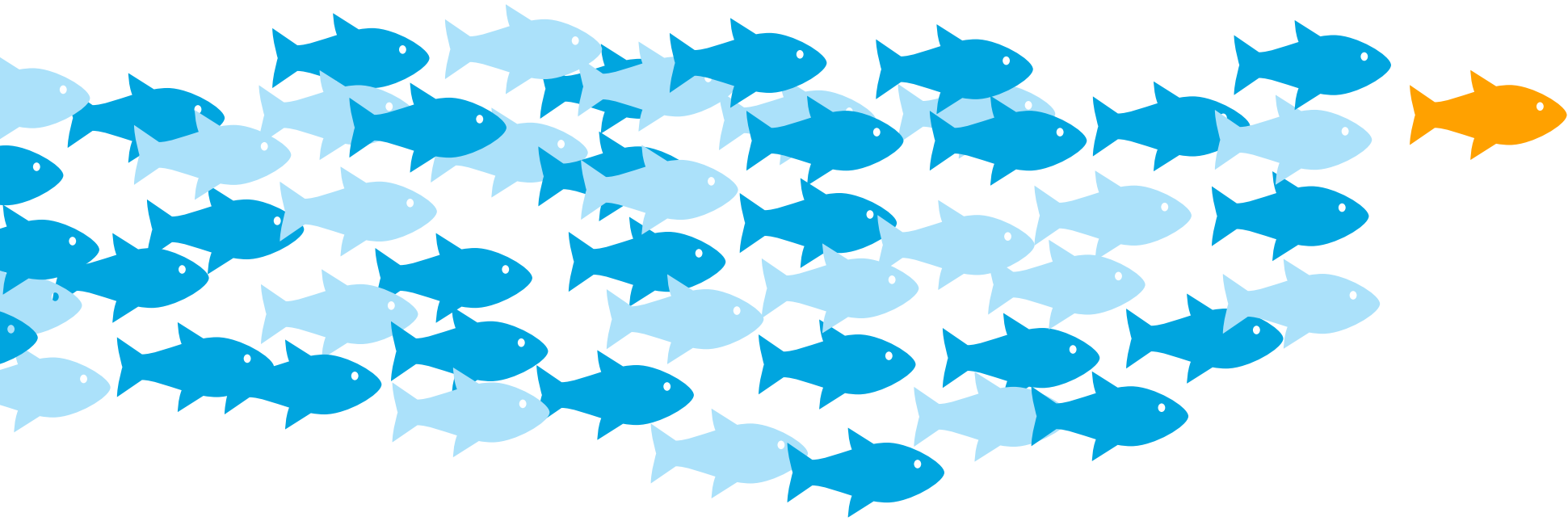
Safety becomes an organization's goal.

- Awareness of the impact of culture issues in the workplace, but not understood
- Management encourages cross-functional communication
- Management's response to mistakes is to implement more controls and procedures
- Management makes sure goals are achieved and objectives are clear
- People are rewarded for exceeding goals regardless of consequence

# Continuous Learning

Safety can always be improved.

- Problems are anticipated and dealt with before they occur
- Collaboration is good
- There is no goal conflict between safety and production
- Mistakes are viewed in the process variability and understanding what happened
- Management's role is coaching people to improve performance
- People are rewarded for improving processes and results



Leaders' behaviors shape  
Safety Culture.

# Notes:



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A **Safety Leader** is a person who builds trust and supports employees when they speak up about exposures.

# 10 ways to be an effective Safety Leader

- 01 Ask and Listen
- 02 Lead by example
- 03 Build trust
- 04 Communicate openly
- 05 Be proactive
- 06 Provide feedback
- 07 Collaborate with crew
- 08 Seek continuous improvement
- 09 Support team when they speak up
- 10 Follow up



Speaking up is part of Safety Culture. It is the best way to learn from mistakes. Changing the safety conversation starts with you.

To promote and support Speak Up for Safety, leaders must:

- Build a trusting environment
- Create speak up opportunities

# Notes:



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A leadership technique to create  
speak up opportunities and  
have discussions about safety.

# Safety Connection

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# A Safety Connection is when a leader:



Observes an exposure  
or “at-risk-behavior”



Provides feedback



Creates a learning opportunity  
through discussion

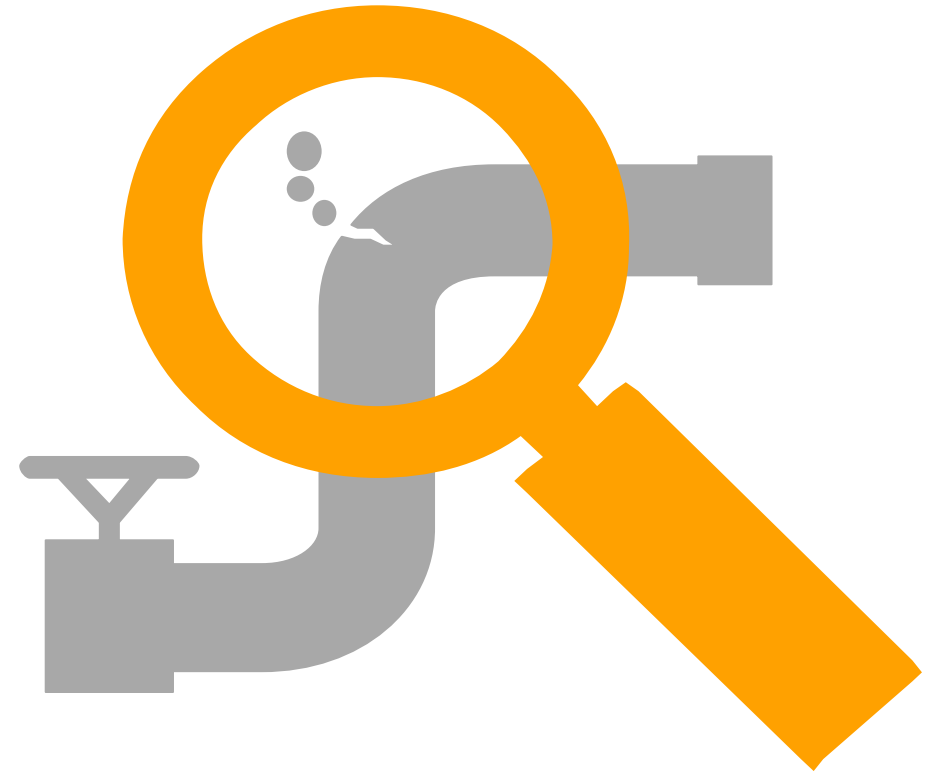
*The immediate value of a Safety Connection is in the engagement.  
Documenting your Safety Connections in SafetyNet helps the organization identify trends.*

# Observing Exposures

Exposure recognition is a fundamental part of a leader's role. As a safety leader, remember the importance of continuously evaluating exposures and behaviors. Encourage your crew members to do the same.

When making observations, ask:

- What are the exposures?
- What are the controls?
- What is working?
- What is not working?



# Observing Behaviors

A behavior is an **observable** act.

**Safe Behavior:**

A behavior that promotes safety.

**At-Risk Behavior:**

A behavior that increases exposure, makes oneself or others unsafe, or makes a situation unsafe.



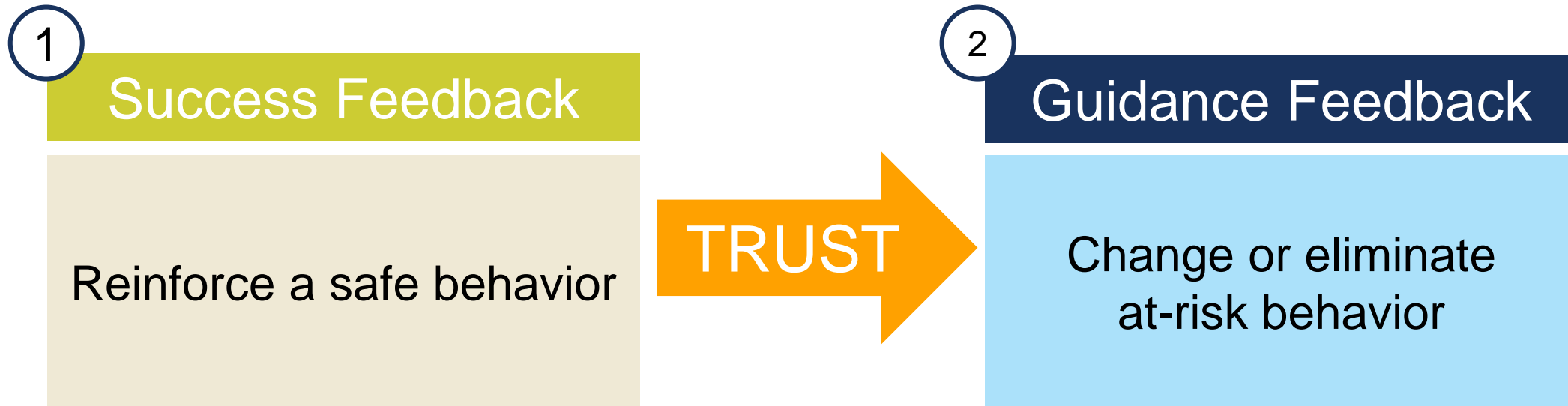
# Providing Feedback



Effective Feedback is:

- Specific
- Timely
- Sincere

# Types of Feedback to Practice



Recognizing safe behaviors using Success Feedback helps employees accept and trust Guidance feedback when you observe at-risk behaviors. **Trust must be established before Guidance Feedback can be effective.**

# Success Feedback: CAR Model

Use the **CAR Model** to give success feedback.

## Context

State the situation when the behavior occurred.

## Action

Address the specific behavior that was effective.

## Result

Explain the impact or result the behavior might have on the individual, on the crew, or on the organization.

# C

ontext

# A

ction

# R

esult

# Guidance Feedback: CAR-AR Model

Use the **CAR-AR model** to change and eliminate an at-risk behavior. Guidance feedback requires asking questions that may lead to a broader discussion about safety.

## Open-Ended Questions

Pause the job; ask open-ended questions to listen and learn.

## Alternative Action

Discuss alternative actions that might be more effective.

## Alternative Results

Discuss possible results of alternative actions.

**C**ontext

**A**ction

**R**esult

**A**lternative

**A**ction

**A**lternative

**R**esult

# Open-Ended Questions

Feedback

Discussion



Transitions to  
safety discussion

Provides more  
information

Reflects on:

- Exposure
- Systems/processes
- Continuous Improvement



Open-Ended Questions commonly start with:

- “What do you...”
- “How do we...”
- “Why did...”



Closed Questions commonly start with:

- “Do you...”
- “Is there...”
- “Are you...”



## Ask and Listen

Asking open-ended questions and listening to your team, without interruption, is critical.

## Take Notes

Consider why this is important and what this communicates to the other person.

## Pay Attention to Non-Verbal Actions

Look the person in the eye, maintain a respectful tone, control your emotions, and always act respectfully.

## Consider

Think about Serious Injury and Fatality (SIF) exposures you have not discussed.

## Follow Up

# BUILD TRUST

# Follow Up



Follow up is the real game-changing element of a Safety Connection. When you ask for input and follow up, you strengthen the trust between you and your crew.

## Success Tips When Following Up:

- Address the issue yourself if possible.
- Monitor the progress of the issue resolution.
- Keep the crew updated on the progress of issues they have identified.
- Always enter the issue into CAP if it is a safety or compliance issue (even if it is a local issue you were able to address).





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# Job Safety Briefings

*Controlling exposures throughout the day*



Pre-Job Brief

Tailboard

Touch Points

Post-Job Debrief

Tap a Job Safety Briefing step to learn more.

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# Job Safety Briefings



Job Safety Briefings are a series of interactions throughout the day that focus on the requirements, procedures, exposures, and controls associated with a work task.

This includes:

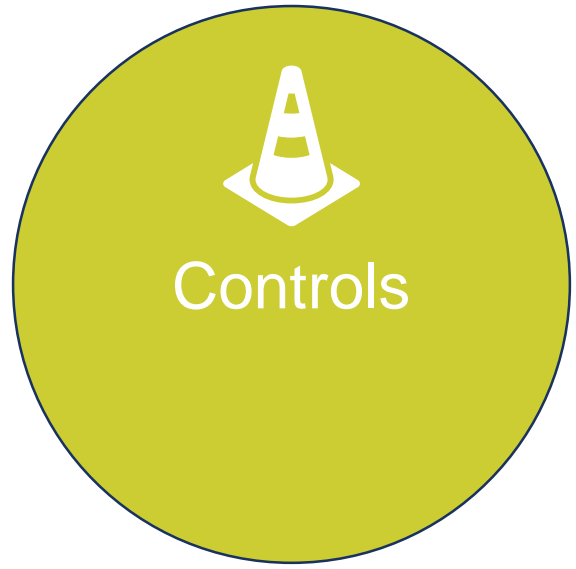
- Identifying and controlling existing and new exposures throughout the day.
- Sharing lessons learned.



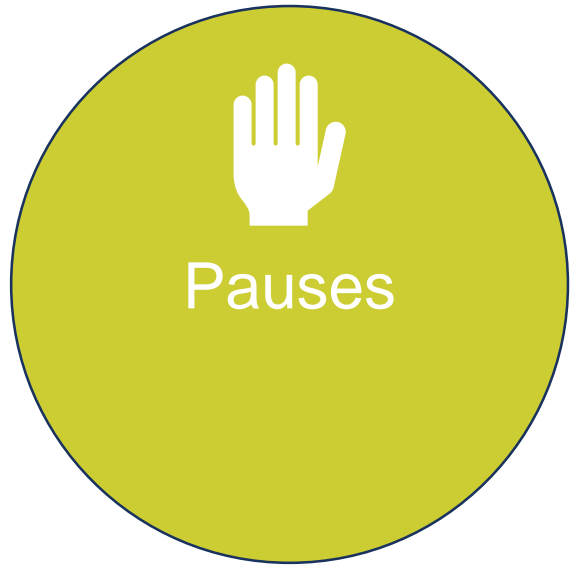
# Identify and Plan



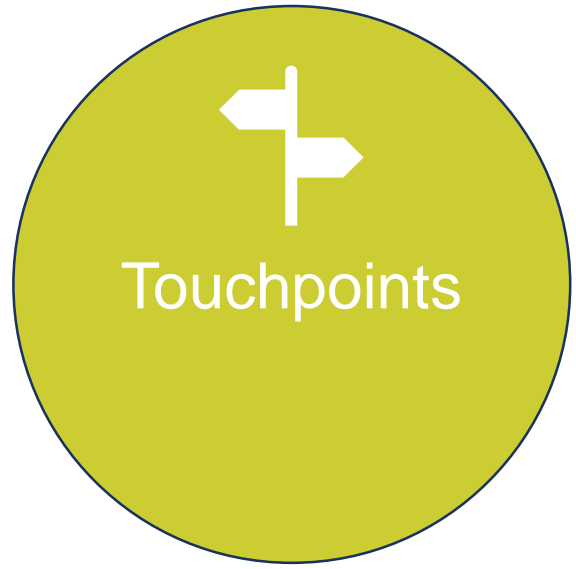
Exposures



Controls



Pauses



Touchpoints

Select job analysis (JHA or JSSA), procedures, and equipment.

Conduct a Physical Hazard Inspection.

Prioritize exposures and anticipate what might go wrong.



## Effective Tailboards

- Ask open-ended questions
- Utilize two-way communication
- Be inclusive
- Acknowledge value

On-site Tailboards need to be planned. Break down the elements of the task(s) to be performed to identify exposures, appropriate controls, and job pause prompts.

Ask:  
Is the Job Hazard Analysis (JHA)/Job Site Safety Analysis (JSSA) current and accurate to effectively control SIF exposures?



## Pause The Job

Pausing a job is a time (planned or unplanned) for you and your crew to take a few moments to step back and reassess your work if you detect changes in exposure or adequacy of existing controls.

Everyone on the crew must understand their authority and accountability to pause the job.



Touch Points are planned check-ins during the job to engage with your crew.

### Why:

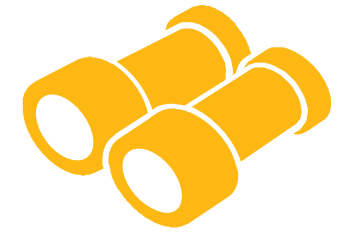
- Recognize success
- Provide feedback
- Verify exposures are effectively controlled
- Demonstrate care for crews' safety and well being

### When:

- Pause and review when there are changes in exposures or adequacy of controls
- Anytime you think a check-in is necessary



Safety Connections



Observe and Engage



Re-Tailboard Job



Unplanned Job Pause



# Debrief

The purpose of the Post-Job Debrief is to review the work you and your crew completed. **Identify and discuss the following:**

1. Best practices
2. Opportunities for improvement
3. Lessons learned

Consider with yourself and the crew:

- What went well?
- What did not go well?
- What did we learn?
- Who needs to know what we learned?



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# Physical Hazard Inspection

*Looking for Trouble*

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# Physical Hazard Inspection

A **Physical Hazard Inspection** is a workplace inspection, conducted to assess the working environment and identify hazards that may pose a risk to employee and/or public safety.



# Plan The Inspection



1

Be curious and anticipate the types of exposures you might encounter.



2

Look for hazards, exposures, and controls.



3

Ask:

- What hazards were discussed in the pre-job briefing?
- What controls were implemented to reduce or eliminate exposures?
- What equipment and PPE are needed on the job?
- What hazards, exposures, and/or controls were missed?



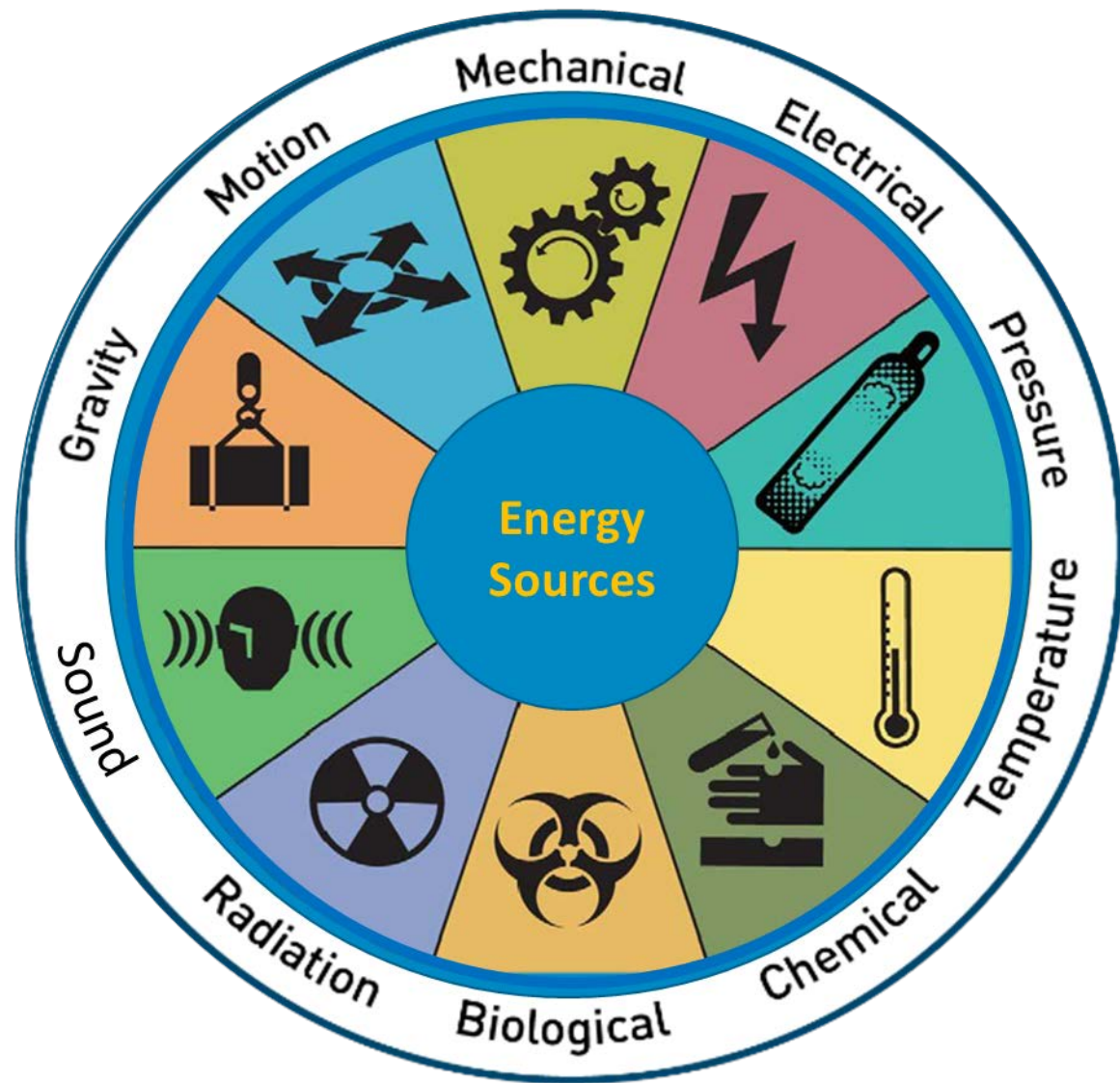


# Hazard Identification

Use **The Hazard Identification Wheel** to identify workplace hazards you may encounter.

This wheel is part of the Serious Injury and Fatality (SIF) prevention measure index. For a detailed list of exposures, look in the SIF Prevention Field Guide.

For more tools and techniques to help identify SIF exposures, refer to the **Serious Injury and Fatality Prevention Field Guide** via the Safety website on the PG&E Intranet.



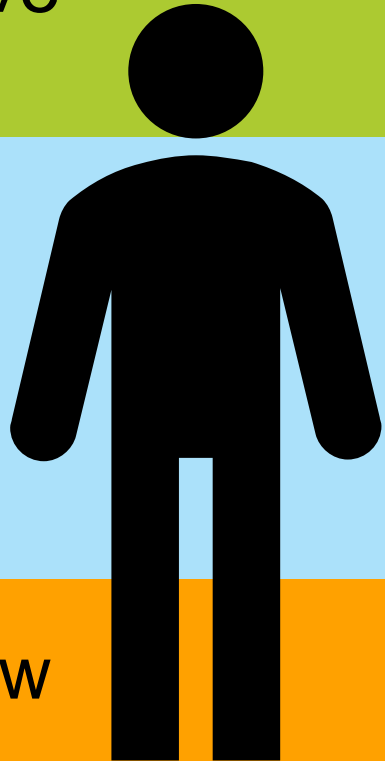


# Identify Exposures

2. Head and Above

3. Knee to Head

1. Knee and Below



## Conduct Three-Level Inspections

A **Three-Level Inspection** is a simple scan technique to maintain situational awareness at a job site. This visual scan helps break up the scene into three distinct sections.

While conducting the three level inspection, reference the hazard identification wheel at each level to help identify any unanticipated and/or previously unrecognized hazards and exposures.



# Evaluate Controls



Go beyond what is currently visible in the work environment to anticipate new or changing hazards that may emerge.



Ask the following questions:



What **controls** best manage the exposures we identified?

How might an **exposure change** over the course of the day?

If an exposure changes, then **how will we handle it?**

Discuss with the crew:

“What did we miss?”

“What are we **taking for granted** because we always do it this way?”



# Verify Controls



Use these three verification tests to make sure the controls you identified are adequately in place.

## Procedure

Confirm the correct procedure will be/is being used.

## Control

Check that the exposure is actually controlled.

## Behavior

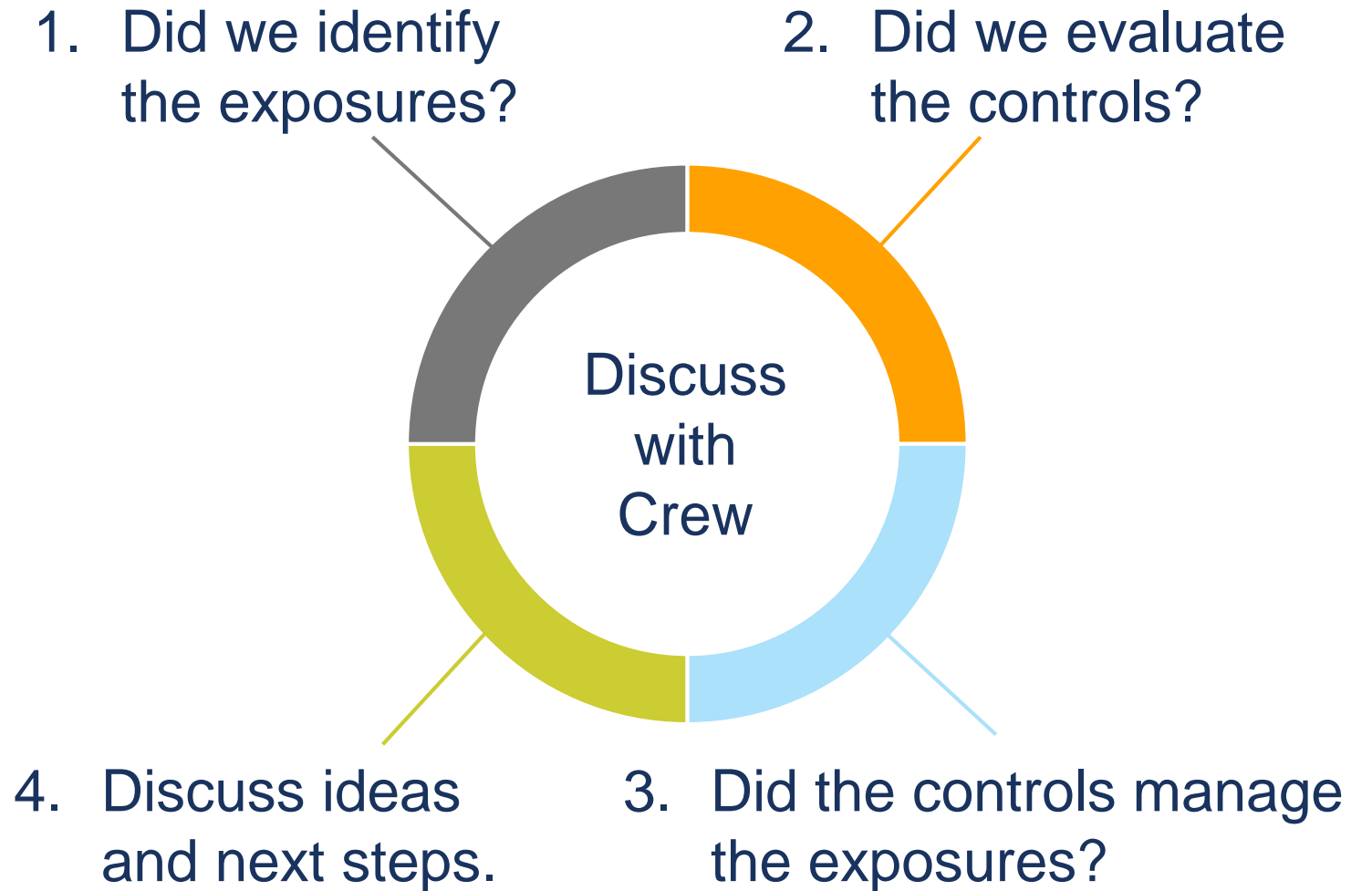
Check that employees are working safely and adhering to established procedures.





## Discuss and Follow Up

The final step is to discuss the hazards and exposures encountered, the adequacy of the controls, and anything that was missed.



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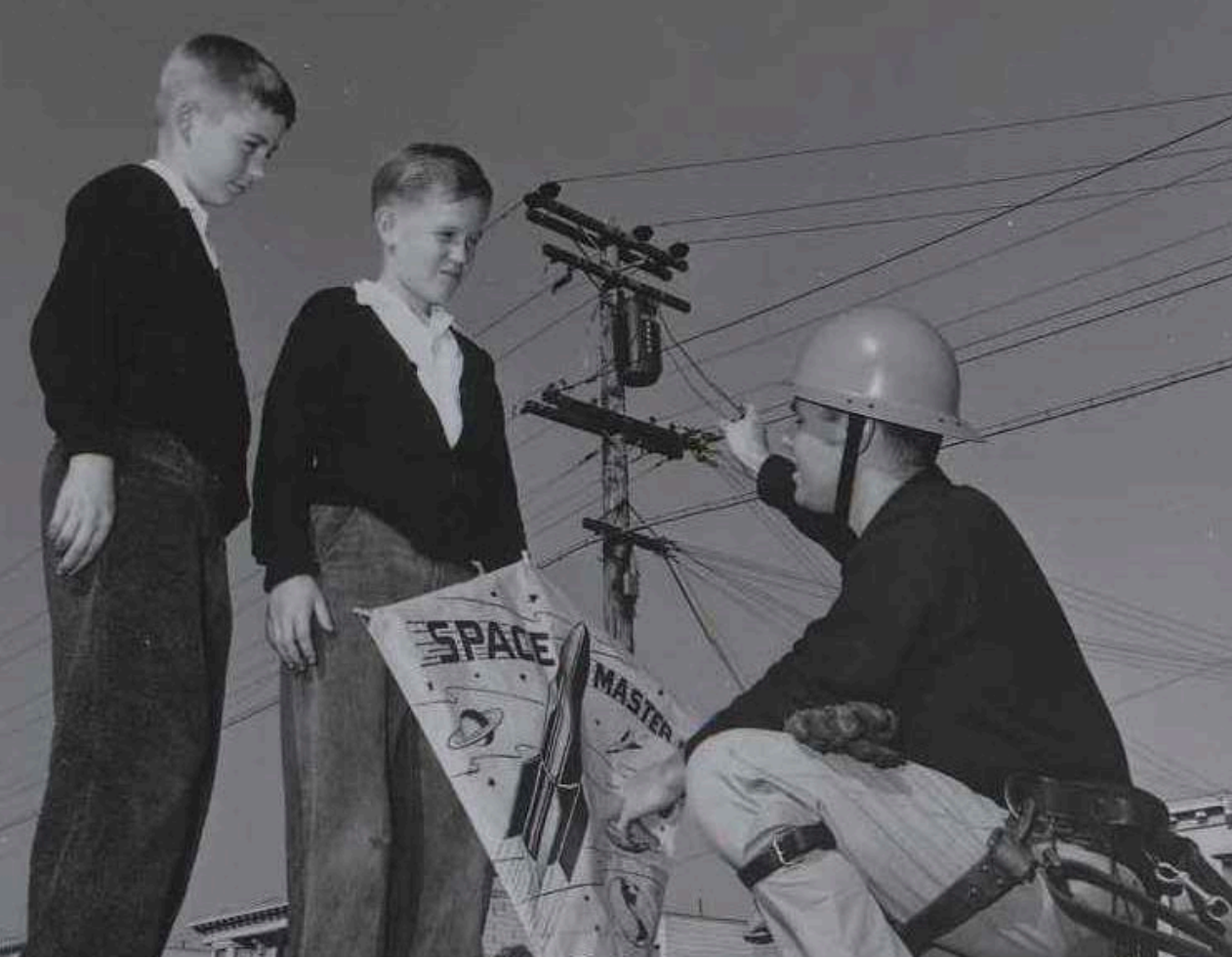
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# Sustaining Safety Leadership

*Leaders sustain safety culture*

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# How to Sustain Your Safety Leadership

You are responsible for helping others develop their safety leadership skills too.



## Strengthen Continuous Learning

Share lessons learned and best practices with others, including your leaders. Look for what is working well, and speak up about ways to improve.



## Ask and Listen

Practice asking open-ended questions and respectfully listening to your team. Use Safety Connections and Job Safety Briefings to create a trusting environment where everyone can be honest and safe.



## Grow Safety Culture

Shift your focus from *who* failed to *what* failed. Help others move away from blame and punishment, and move towards learning and improving by asking questions about systems and processes.



## Provide and Seek Effective Feedback

Without feedback we cannot build trust and learn from our successes and failures. Create a team that is empowered by both Success and Guidance Feedback.



## Follow Up

Show your team you are reliable and care by following through with commitments. Promote the use of CAP and other follow up tools PG&E offers you.



## Identify and Control Exposures

Use the tools in this playbook to help you and your employees identify hazards, exposures and controls. If you discover a hazard, and a corresponding exposure that lacks an appropriate control, pause the job and seek out the team who can help create controls.

# Action Card: Act and Implement

Write down three leadership skills or tools you commit to act on and implement. Discuss these actions with your leader during your Safety Leadership On-the-Job-Training (OJT).

Leadership Skills and Tools	Desired Outcome

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# Glossary

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# Safety Leadership Glossary

## CAR Feedback:

A feedback model used to provide success feedback: Context, Action, Results.

## CAR-AR Feedback:

A feedback model used when you give guidance feedback: Context, Action, Results. Pause to ask open-ended questions, then provide alternative action with the alternative result.

## Control:

Any tools, barriers, and procedures we use to manage exposures.

## Corrective Action Program (CAP):

CAP is a program to collect issues and categorize, assess for risk, and assign to an owner to implement effective corrective actions to prevent reoccurrence.

## Culture:

Culture impacts safety by influencing our level of exposure. Culture consists of attitudes, behaviors and beliefs that we share as employees and as a company.

## Exposure:

Exposure is the state of being vulnerable to a workplace hazard.

## Guidance Feedback:

Constructive feedback that is used to speak up about something related to the job site or task that needs improvement.

## Hazard:

Any potential source of harm, injury, or fatality.

## Job Pause:

To pause the job is the process of taking a temporary break in work to evaluate conditions and see if new controls or briefing is required (see definition of “Stop Work Authority”).

## Job Safety Briefing:

A Job Safety Briefing is a series of interactions throughout the day that focus on the requirements, procedures, and exposures associated with a work task.



### Physical Hazard Inspection (PHI):

A Physical Hazard Inspection is a workplace inspection, conducted by individuals, to assess the physical conditions which pose a risk to employee and public safety.

### Safety:

Identifying and controlling exposure for oneself and others.

### Safety Connection:

The safety connection is a routine interaction you use to build trust and engage with crew members about an exposure.

### Safety Culture:

A system of core values and behaviors that result from a collective commitment to make sure that safety is not compromised in order to protect people, property, and the environment.

### Safety Leader:

A person who builds trust and supports employees when they speak up about exposures they perceive are not controlled well

### Serious Injury or Fatality (SIF):

Serious injury or fatality (SIF) exposures are exposures that when left uncontrolled, can lead to a life-altering injury or fatality.

### Speak Up Culture:

A culture in which people are encouraged, and feel comfortable, speaking up about any and all safety concerns whether the concern is being raised to a subordinate, peer, or a supervisor.

### Stages of Safety Culture:

The continuum of an organization's safety culture maturity: compliance, goal-oriented, and continuous learning.

### Stop Work Authority (Job Pause):

The authority of a person, PG&E employee or contractor to stop or pause work when an unsafe condition and/or at-risk behavior is perceived or observed.

### Success Feedback:

Feedback that recognizes what is going well during a task or work activity.

### Tailboard:

A safety meeting which is conducted at the job site prior to the start of a job or work shift. It is one component of a full Job Safety Briefing.

### Three-level Inspection:

A Three-level Inspection is a visual scan of a work environment in a way that breaks up the visual frame into three distinct sections to more effectively identify exposures.



# Wildfire Mitigation Training

## 2022 Summer Readiness Session Training

---

EGO Training



## Safety Orientation



- ❑ **Earthquake:** Know the safest places to duck, cover, and hold, such as under sturdy desks and tables



- ❑ **Fire:** Know your exits, escape routes, and evacuation plan. Use your [compliant fire extinguisher](#) if safe to do so, exit the house, and call 911



- ❑ **Active Shooter:** Get out, hide out, take out, and call out to 911



- ❑ **Medical Emergency:** Know who can perform first aid/CPR. Call 911 if you're alone or share your location with call leader to send help. Ensure you and others in your household know how to use AED and where it's located if you have one.



- ❑ **Psychological Safety**  
*NEW:*
  - ❑ I'm cared for
  - ❑ People have my back and I have theirs
  - ❑ It's safe to take risks
  - ❑ New ideas are welcome
  - ❑ I practice self-care



- ❑ **Ergonomics** *NEW:*
  - ❑ Practice **30/30** (every 30 minutes, move/stretch for 30 seconds)
  - ❑ Ensure proper ergonomics
  - ❑ Use and update your RSIGuard



- ❑ **Emergencies**
  - ❑ Update your [emergency contacts](#) via PG&E@Work for Me
  - ❑ Create/update a [personal emergency preparedness plan](#)

- ❑ **Resources:**
  - ❑ Corporate Security: 800-691-0410
  - ❑ Nurse Care Line: 888-449-7787 Power Gen, Fresno and San Carlos Service Centers 877-888-8656
  - ❑ Employee Assistance Program (EAP) - Reach Out. Get Help. Feel Better. 888-445-4436
  - ❑ [Speak Up Now site](#)

For current COVID-19 information, visit the PG&E [COVID-19 page](#)

## Course Objectives

At the end of this training students will be able to:

- Describe the Document and Procedure updates related to 2022 Wildfire Mitigation
- Describe the Enhanced Power Safety Setting (EPSS) program
- Describe the Operating responses for both Reclosing and EPSS
- Describe the PSPS Changes for 2022

- **Document and Process Changes**
- Enhanced Power Safety Settings (EPSS)
- Operator Actions
- PSPS
- Wildfire Mitigation Tools

The following Documents and Procedures are new or modified for the 2022 Wildfire season:

## Defined HFTD + HFRA

Modified for 2022 per Meteorology (next slide)

## Preventing and Mitigating Wildfires

Relocated material and **Retired** [TD-1464P-01](#)

## EPSS Standard

**\*NEW** Enhanced Powerline Safety Settings [TD-1470S](#)

## EPSS Procedures

**\*NEW** Enablement Criteria (EPSS) [TD-1470P-01](#)

System Emergencies and Responding to Alarms (EPSS) [TD-1400P-07](#)

**\*NEW** Transmission Non-Reclose and EPSS (EPSS) [TD-1400P-07, Attachment 2](#)

**\*NEW** Enhanced Powerline Safety Settings (EPSS) and Patrol Process [TD-2700P-26](#)

## PSPS Procedures

Public Safety Power Shutoff for Electric Transmission and Distribution [PSPS1000P-01, Rev.4](#)

## What is the difference between FIA, HFTD & HFRAs?

Refer to the following: [TD-1464S Attachment 3](#), “Relationship between Fire Index Areas, High Fire Threat Districts & High Fire Risk Areas”

### Per TD-1464 Definitions:

**Fire Index Area (FIA):** A geographical area over which fire danger determinations are produced.

**High Fire Threat Districts (HFTD):** CPUC-approved delineated areas, where there is an elevated or extreme risk of utility-associated wildfires (including likelihood and potential impacts on people and property).

**High Fire Risk Area (HFRA):** HFRA map is a purpose-built map using the same methodology as the HFTD map for scoping PSPS events. It aims to ensure that all areas of catastrophic wildfire risk are fully captured in PG&E’s PSPS Program. The HFRA map is built off of the Tier 2 and Tier 3 and does not include Zone 1. This map considers catastrophic fire risk factors and utility infrastructure. It was developed by factoring in incremental changes to the HFTD map boundaries to add areas (HFRA Additions) where risk factors for the potential of catastrophic fire from utility infrastructure ignition during offshore wind events are higher.

Dear FIA User,

**What is happening?:** The current version of PG&E's High Fire Risk Area (HFRA 4.2) is being succeeded by a new version (HFRA 5.0). This does not affect the CPUC's High Fire Threat District (HFTD). However, it will prompt an update to some of PG&E's Fire Index Areas (FIA) with some FIAs increasing in size.

**What do I need to do?:** Please be aware that the FIAs were updated based on HFRA 5.0. You can visit the Fire Potential Index web page ([https://weatherprod.ss.pge.com/all\\_fpi](https://weatherprod.ss.pge.com/all_fpi)) to see the updated FIAs and download KML forecast data each day. These changes were made effective during the week of May 2.

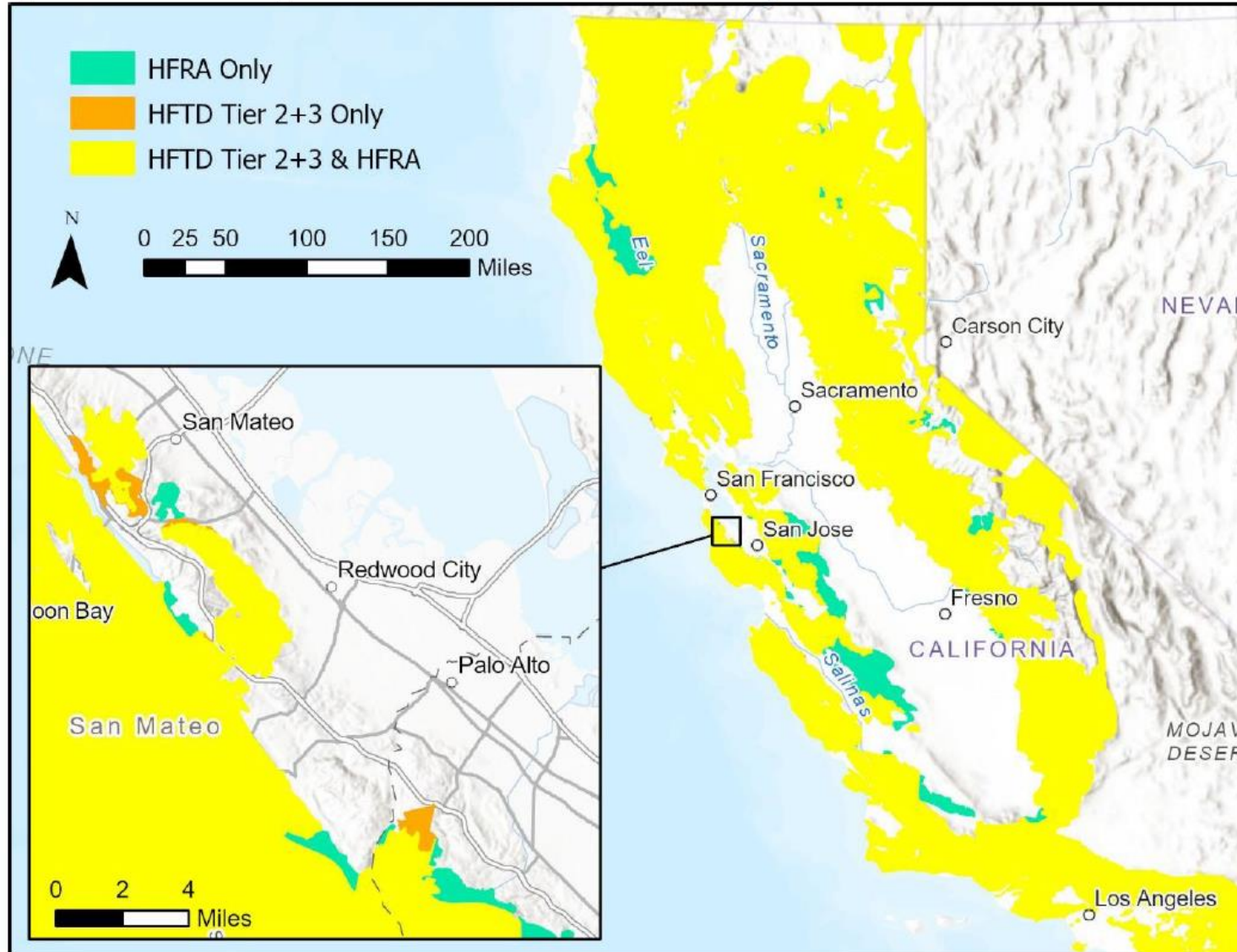
**How does HFRA 5.0 differ from HFRA 4.2?:** HFRA 5.0 was derived from HFRA 4.2 by both a) adding areas where it has been recently determined that an ignition during an offshore wind event could lead to a catastrophic wildfire, and b) removing areas where it has been recently determined that an ignition during an offshore wind event either would not occur or otherwise would not lead to a catastrophic wildfire. HFRA removal areas do not impact FIA boundaries.

Areas have been added to the HFRA and FIAs in Monterey and Santa Clara counties.

**Why is the HFRA changing?:** The purpose of the HFRA is to inform the PSPS scoping process by identifying areas where an ignition, during an offshore wind event, could lead to a catastrophic wildfire. PG&E began development of its HFRA in 2020, using the Tier 2 and Tier 3 portions of the CPUC's HFTD as a starting point, then incrementally adding and removing areas that did and did not meet this criterion, respectively. This process of incrementally refining the HFRA's boundaries to better meet the HFRA's purpose is ongoing. Further, boundaries will always need to be adjusted as situations on the ground change, and our ability to track those changes improves. Deployment of the next version of the HFRA, which could affect the FIAs, is anticipated for August 2022.



Figure 3-1: CPUC's High Fire Threat District and PG&E's High Fire Risk Area as of December 2021



## 6.3 Testing in High Fire Risk Areas (HFRAs), Elevated Fire Index Areas (FIAs) or with Enhanced Power Safety Settings (EPSS) enabled.

**CAUTION:** CONDUCT testing per [Utility Standard TD-1464S, “Preventing and Mitigating Fires While Performing PG&E Work,”](#)  
AND [Attachment 2, “Transmission Non-Reclose and EPSS”](#)

1. WHEN a CB has opened by relay and remains open,

THEN VERIFY the CB has tested to lockout using SCADA or alarms.

a. IF the CB was tested automatically,

THEN no additional testing is permitted until the overhead (OH) line is patrolled

AND all found troubles are cleared.

b. IF the CB did not test to lockout for either of the following reasons:

- The CB is not equipped with automatic reclosing.
- Automatic reclosing has been disabled.

THEN the CB may only be tested in accordance with Attachment 2 “Transmission Non-Reclose and EPSS”.

## Items of review from the attachment:

2.1.2 EPPS Settings will be tagged caution as abnormal

2.2.2 (Note) = To minimize the possibility of high transformer inrush current, return the EPSS settings to normal prior to energizing.

2.2.2.b. IF subsequent line sections are to be restored, PLACE Group Settings to normal to energize those segments, THEN return to EPSS settings.

2.2.2.b. (Note) = Customer restoration by the DCC will not be restricted once their associated transmission sources have been restored.

- Document and Process Changes
- **Enhanced Power Safety Settings (EPSS)**
- Operator Actions
- PSPS
- Wildfire Mitigation Tools

## TD-1470S EPSS Standard:

This standard established the guidelines for PG&E's Enhanced Powerline Safety Settings (EPSS) Program. This is intended to protect public safety by allowing our powerlines to quickly and automatically turn off power within one-tenth of a second when a hazard is detected, like a tree falling on a powerline. The measure will be in place during times of dry, hot, non-windy conditions and higher wildfire risk, typically during summer and fall; however **EPSS will be enabled whenever enablement criteria are met.** When wildfire risk is lower, equipment is returned to normal settings.

## TD-1470P-01, Section 2:

2.1 EPSS actions are determined by Fire Potential Index (FPI), Wind, Relative Humidity (RH), and Fuel Moisture.

2.2 EPSS is enabled at **R3 FPI and above**

**OR**

when PSPS minimum fire potential conditions (mFPC) are met

**OR**

when Wind Speed greater than >22 mph,

when Relative Humidity RH less than <25%,

when Dead Fuel Moisture 10hr (DFM10) less than <9% during **R2 conditions**

**OR**

when Wind Speed greater than >25 mph,

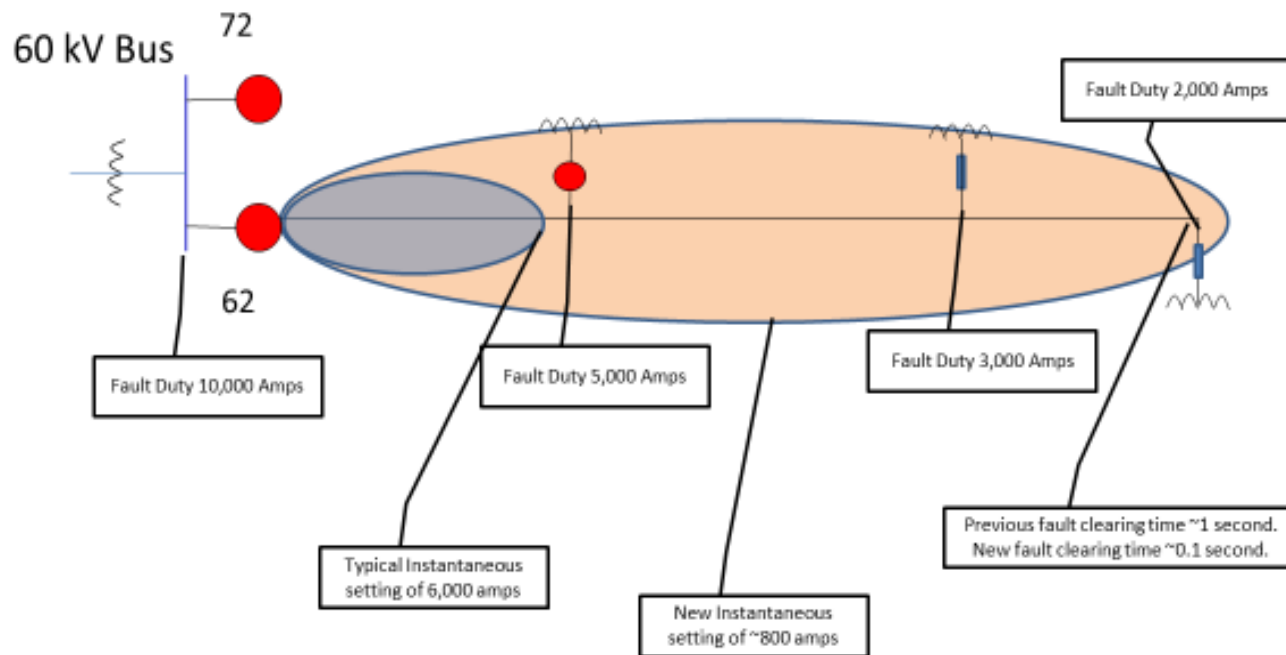
when Relative Humidity RH less than <20%,

when Dead Fuel Moisture 10hr (DFM10) less than <9% during **R1 conditions**

- **Purpose:** Reduce fire risks caused by faults on transmission lines.
- **I<sup>2</sup>t:** Risk of fault starting a wildfire is a function of fault energy
  - Fault Clearing Time
  - Fault Current
- **“Fast Tripping”:** Reduces Fault Clearing Time → Reduces Fault Energy
- **Anticipated Benefit:** Implementing Fast Tripping can reduce Fault Energy by 95%
- **Applicability:** Enabled during Wildfire Season. Presently, only applied to **Radial Non-BES transmission lines in HFTD.** Non-Radial Non-BES applications may occur in the future.

# Generic EPSS Protection

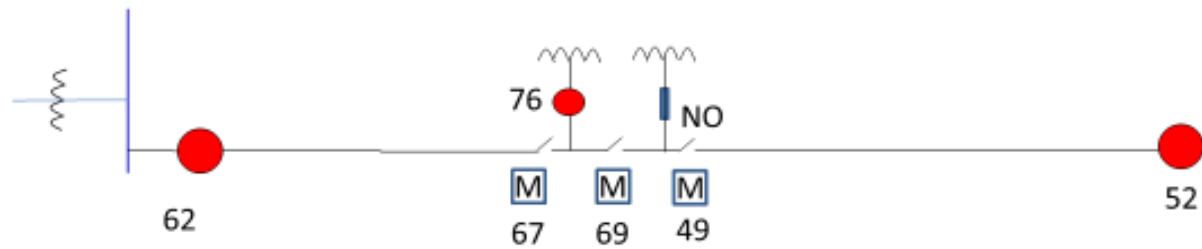
## Radial Transmission Fast Tripping Scheme (NON BES)



- Radial transmission feeding multiple distribution banks
- Normal protection coordination varies the fault pickup thresholds over the full line to allow maximum reliability minimum fault clearing
- EPSS settings lower **all** protection thresholds to lower pickup(s). This will (probably) increase overtripping as it lessens coordination.
- For lines with directional overcurrent settings, the phase and ground time overcurrent pickup settings are generally copied to an **instantaneous setting with no intentional time delay**. For lines with phase and or ground distance, the longest forward distance element used for normal protection is **converted to an instantaneous trip value with no intentional delay**. These settings are checked to ensure that they will not pickup for any distribution fault or distribution switching **under normal configurations**



## PG&E Radial Transmission Fast Tripping Scheme (NON BES)



In the diagram above, the **line test** on CB's 52 and 62 should be cut-out during the high fire risk season. When fast tripping is enabled, the **bank test** feature on circuit switcher 76 and the **restore features** on MOAS 67, 69 and 49 should be disabled to avoid the risk of tripping on bank inrush.

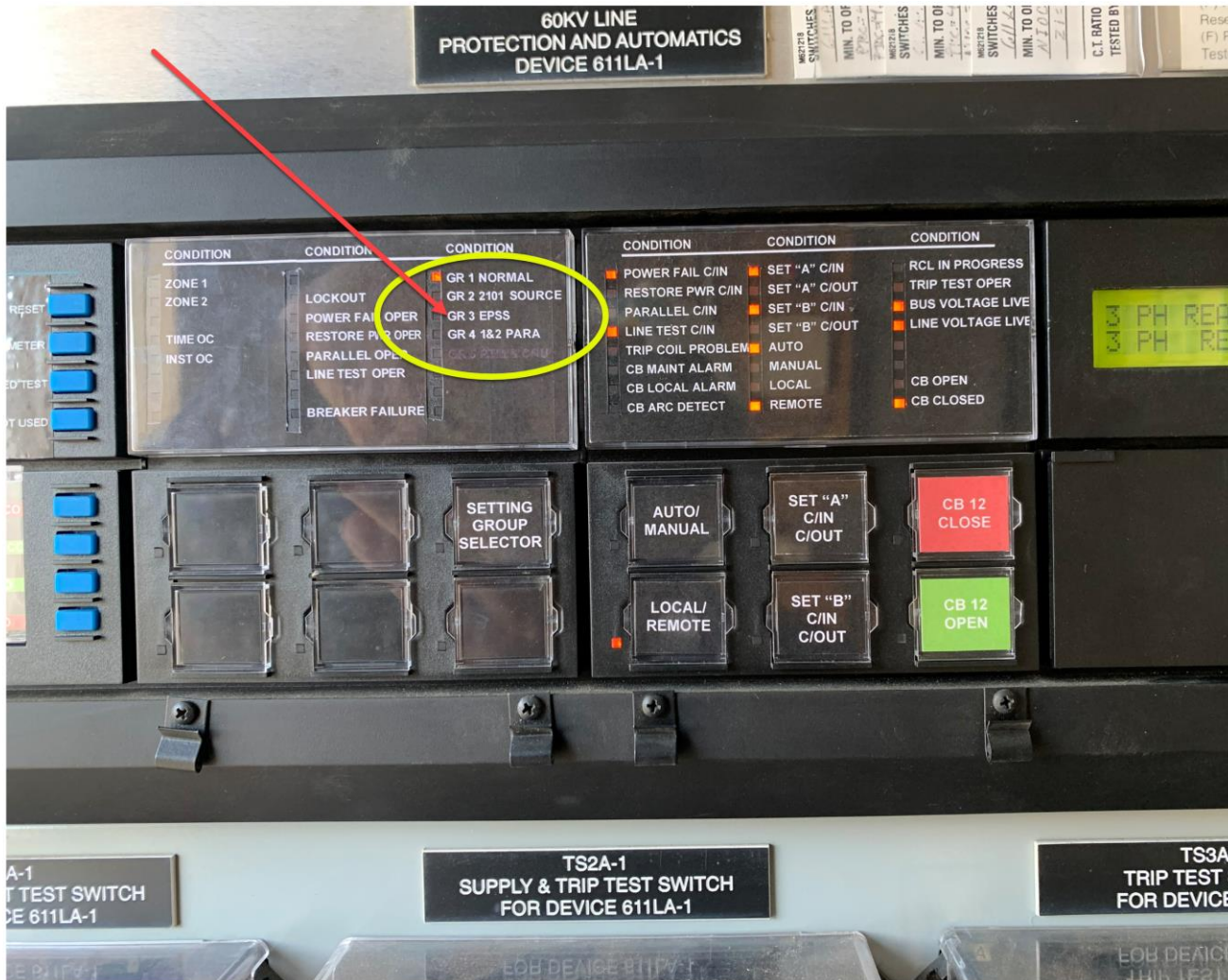
## General Guidance for Fast Trip

1. Radial Transmission Fast Trip settings are intended to reduce the risk of Wildfire Ignition.
2. Fast Trip settings are placed on **Setting Group 3** on a select group of lines.
3. Fast Trip settings may trip on inrush current for larger distribution banks.
4. It is recommended to cut out line test when Fast Trip settings are enabled.
5. It is recommended to return line relay settings to **Group 1** prior to manually testing the line.
6. It is recommended to disable any automatics that result in testing a transformer or additional line sections.
7. It is recommended to return line relay settings to Group 1 prior to the DCC manually testing or re-energizing a distribution bank connected to a fast trip line section.
8. Any clearance that adds line to a Fast Trip enabled line **should be routed through System Protection for review** as part of the AFW process or through protection requirements for emergency switching.

### **Setting group assignment:**

- Group 1 – Normal
- Group 2 – Special Set Up
- Group 3 – Fast Trip

# Radial Transmission Fast Tripping



## Faceplate for Burns CB12:

**GROUP 1: NORMAL**

**GROUP 3: EPSS**

Tech note: When this group is used, line test should be cut-out or CB 12 should be in "MANUAL"

**GROUP 2 & 4: Used for alternate line configurations.**

## Pilot EPSS Transmission Lines 2021

- Elk – Gualala 60kV
- Fort Ross – Gualala 60kV
- Fulton – Calistoga 60kV
- Konocti – Middletown 60kV
- Lakeville #1 60kV
- Lakeville #2 60kV
- Silverado – Fulton Jct 115kV

## Example of EPSS OE/PE Setups for pilot transmission lines

### **Elk – Gualala 60kV**

Switch Elk CB 12 to Group 3

Cut-Out Elk CB 12 Line Test

Cut-Out Gualala SW 59 Restore Bus

If the line trips, switch Elk CB 12 back to Group 1 prior to manually testing the line

- Reclosing scope = Tier 2 & 3 115kV & below lines
- EPSS scope = 47 - 115kV & below lines and taps
  - TOTL tracking = Notification Cards built with OE & PE setups
- Disabled Reclosing and enable EPSS Settings = 5/1-7/22
- Target for how often Reclosing will be disabled = for the Fire Season as in previous years
- Target for how often EPSS Settings will be enabled = for the Fire Season (v. Distribution which is daily)

- Document and Process Changes
- Enhanced Power Safety Settings (EPSS)
- **Operator Actions**
- PSPS
- Wildfire Mitigation Tools

- In general, the Operator responses to Reclosing & EPSS impacted equipment will be the same
- In general, all the R response thresholds have been lowered by ~~one~~ **Two** levels. That is, reclosing response to an R4 relay in 2021 will now be a reclosing response to an R3
- R2 & R3 will have the same testing & patrol requirements (patrol, fault targeting information may to used to sectionalize.) **Effective 6/9/22**

**Decision Flow Charts detail expected Operator Response**

## Assumption for all Scenarios:

- Reclosing is cut out for season and EPSS settings are enabled for the season
- Tier 2 & 3, 115kV & below assets
- For FPI conditions “R1” and below, facilities MAY be tested in accordance [Utility Procedure TD-1400P-07, “System Emergencies and Responding Alarms”, Section 6.](#)
- If applicable, place Relay settings to normal from Enhanced/EPSS
- Execute Manual Right of Way (first) test
- Sectionalize and test for subsequent tests
- If applicable, return settings to Enhanced/EPSS after successful test



- Refer to Section 1.3 & 1.4 of [TD-1400P-07, Attachment 2, Transmission Non-Reclose & EPSS](#)
- Verify no line test and sustained outage
- Can sectionalize and test **IF** fault location information is received
- Patrol all sections that are in the fault zone or no data available prior to manual test
- If applicable, place Relay settings to normal from Enhanced/EPSS
- Execute Manual Right of Way (first) test
- If applicable, return settings to Enhanced/EPSS after successful test



## Operator Actions for Fire Index Rating of R4 or Above

Assumption = Reclosing is cut out for season and EPSS settings are enabled for the season

- Refer to Section 1.5 of [TD-1400P-07, Attachment 2, Transmission Non-Reclose & EPSS](#)
- Verify no line test and sustained outage
- Can sectionalize and test **IF** fault location information is received
- Patrol all sections that are in the fault zone or no data available prior to manual test
- If applicable, place Relay settings to normal from Enhanced/EPSS
- Execute Manual Right of Way (first) test
- If applicable, return settings to Enhanced/EPSS after successful test

- Refer to Section 1.6 & 1.7 of [TD-1400P-07, Attachment 2, Transmission Non-Reclose & EPSS](#)
- For **R2** ~~R3 & R4~~ conditions, Momentary outages on 230kV lines: (see email dated 6/9/22)
  - Reclosing to be c/out
  - Line Patrol completed as soon as reasonably possible
- For R5 & R5+ conditions:
  - 230kV lines reclosing will be cut out Precontingency

- All FIAs with an active Red Flag Warning will be treated as follows:
  - Red Flag Warning is equivalent to R5
  - Applies to all HFTD Tiers, **including Tier 1**
  - Any portion of the FIA under Red Flag makes the entire FIA under Red Flag
  - Disable 230kV line reclosing for period of Red Flag Warning as R5 equivalent

Several of the EPSS lines have Distribution banks that do not have a high side breaker and instead have a fuse on the high side.

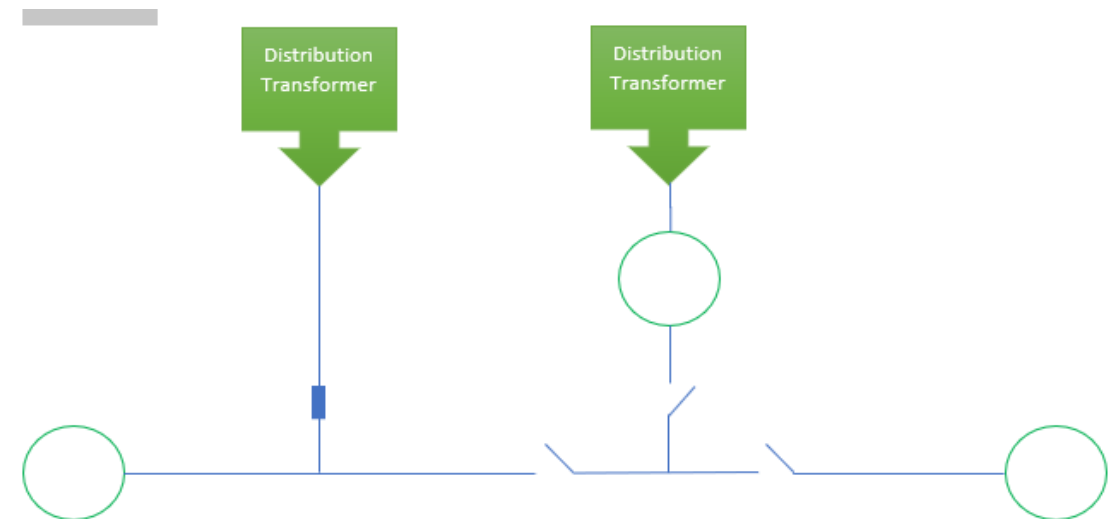
## Potential Protection Miscoordination:

- The enhanced setting of an EPSS line could trip the line **before** the fuse has time to blow.
- Cannot test the line without knowing if it was a Line or a Bank fault.

## Operator Action:

- In station verification of no targets on all the fused banks **prior** to testing the EPSS line.

**Exception:** If System Protection provides a fault location, indicating that the fused bank was not involved, sectionalize around the fault location and test the line, with the fused bank involved in the test.



For the given scenario, determine the following:

- How is the Reclosing and EPSS configured?
- What are the Operator actions when the line relays?
- What information, fault location or patrols (+results) are needed?
- Can the line be sectionalized? If so, when & where?
- What steps will you take to energize & test? What equipment will be tested?
- What will need to happen to return the entire line to service (assuming no trouble found and/or trouble repaired)?

- Document and Process Changes
- Enhanced Power Safety Settings (EPSS)
- Operator Actions
- **PSPS: What's new? What's important to remember?**
- Wildfire Mitigation Tools

## PSPS Annex section 3.2.2:

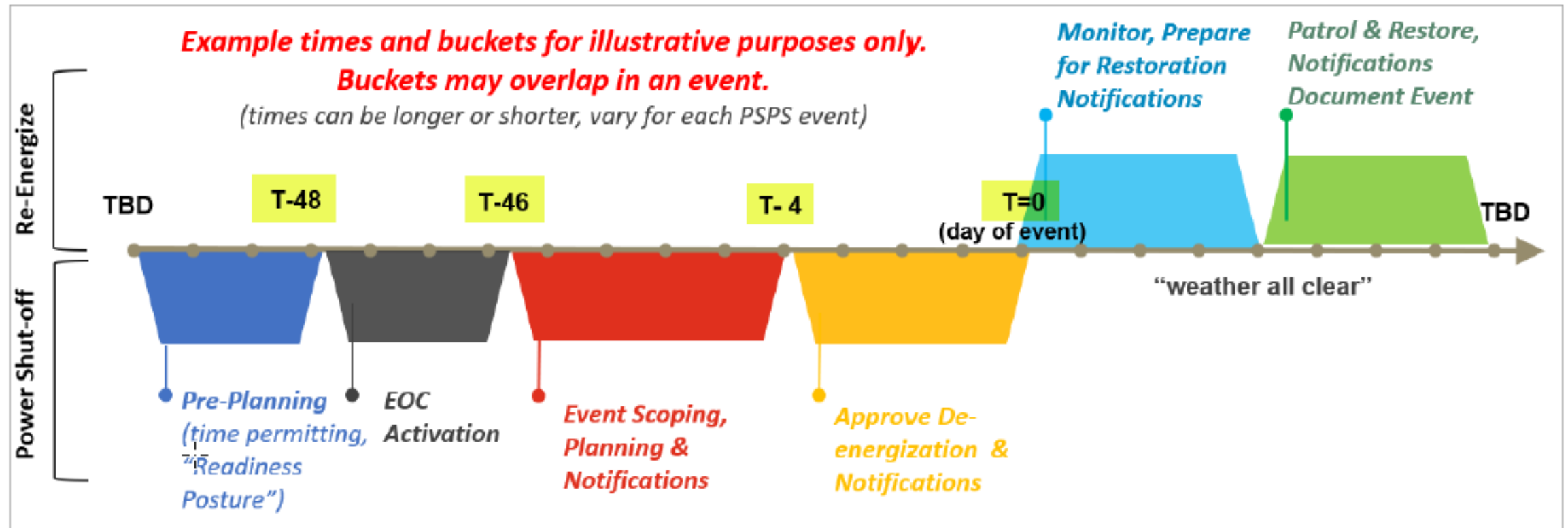
PG&E's PSPS program includes *all* electric lines that pass through HFRA — both Distribution and Transmission. The most likely electric lines to be considered for shutting off for safety will be those that pass through HFRA. Often lines that traverse HFRA also feed customers in non-HFRA. These customers could be impacted by risk associated with lines that could be many miles away.

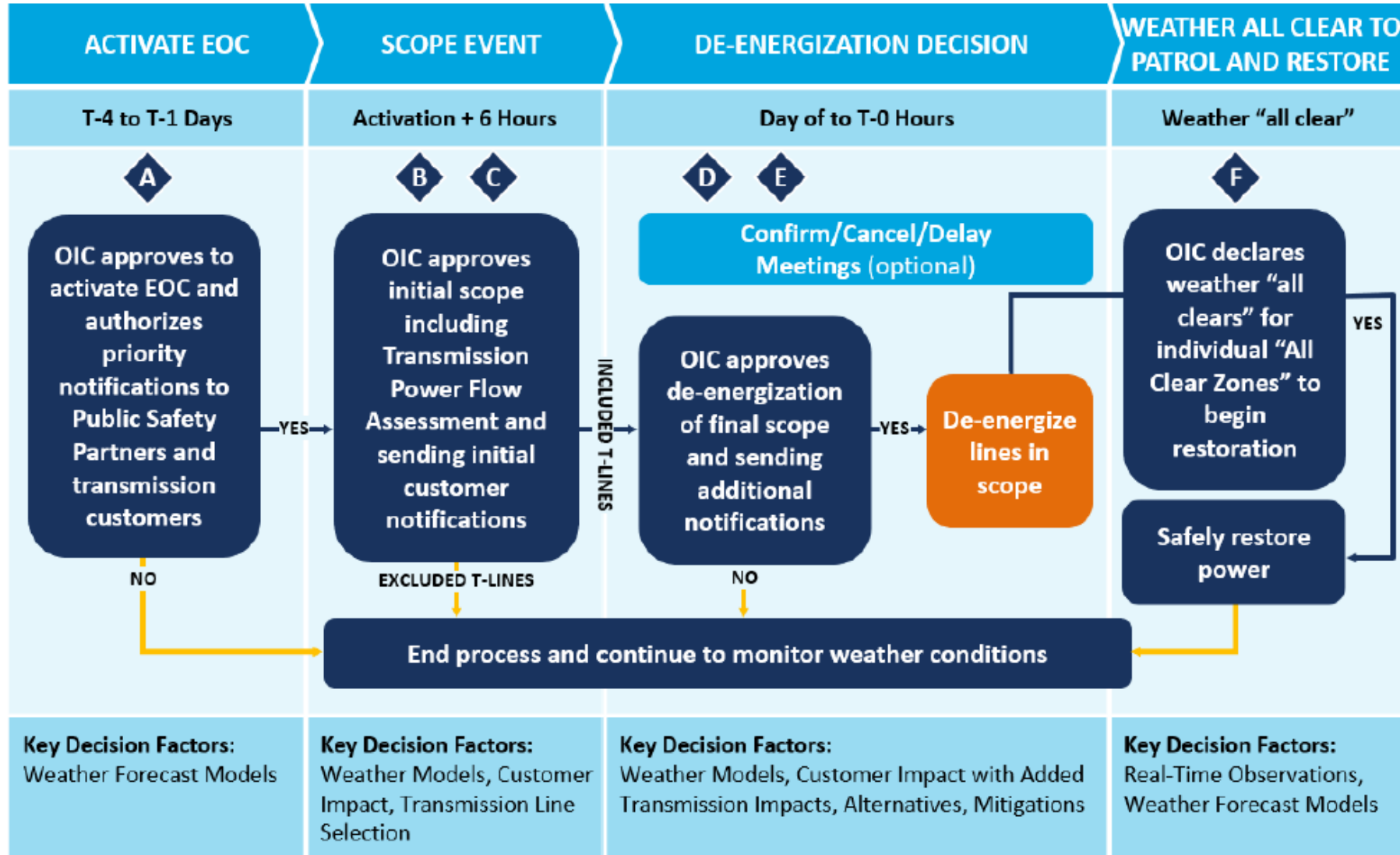


## 3.3.2 Example Sequence of a PSPS Event

Forecasts are subject to change quickly and preparation timelines adjust to forecasts for each PSPS event. Figure 3-9 shows a general example sequence for a PSPS event.

Figure 3-9: Example Timeline of PSPS Event



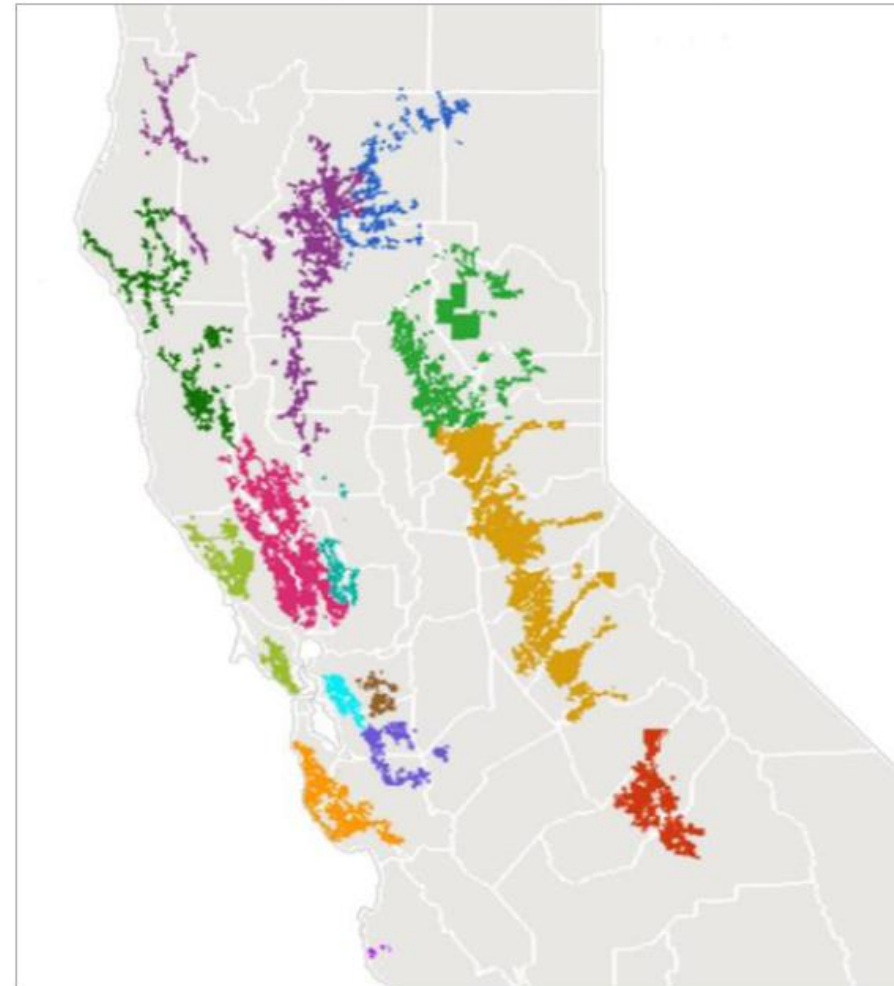


## Time Places:

A Time-Place (TP) is a portion of the PG&E grid where the impacted electric lines and geographical locations are aligned and is forecast to experience consistent timing for potential PSPS. Time-Places are identified for each PSPS event and receive consistent treatment for notifications and de-energization.

When there are multiple Time Places, each TP receives a number and is assigned a unique color for easy identification on a map as in Figure 3-2.

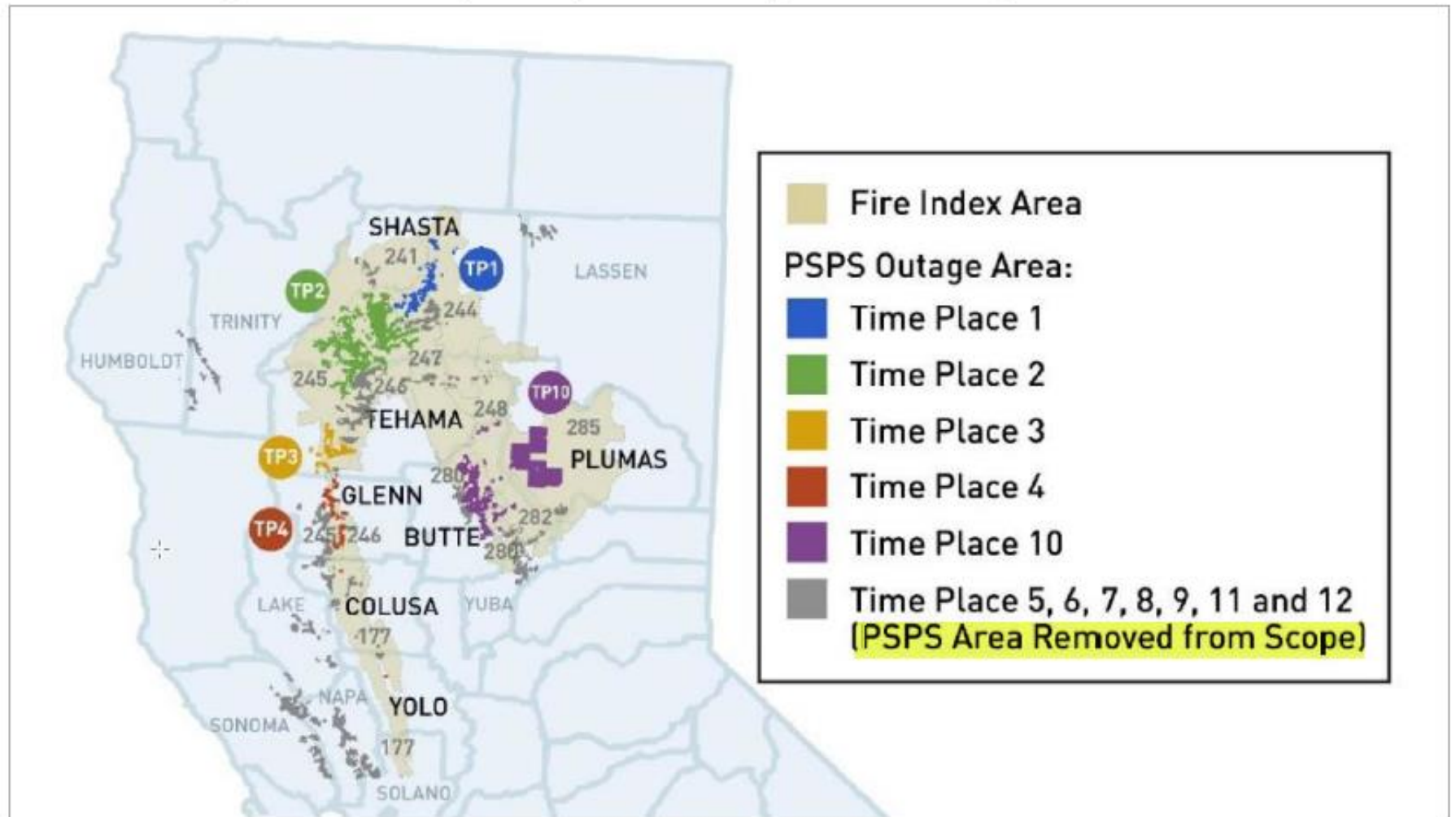
Figure 3-2: Example Map with colored Time Places



**Time Place Descope Map**

A Time-Place (TP) is a portion of the PG&E grid where the impacted electric lines and geographical locations are aligned and is forecast to experience consistent timing for potential PSPS. Time-Places are identified for each PSPS event and receive consistent treatment for notifications and de-energization.

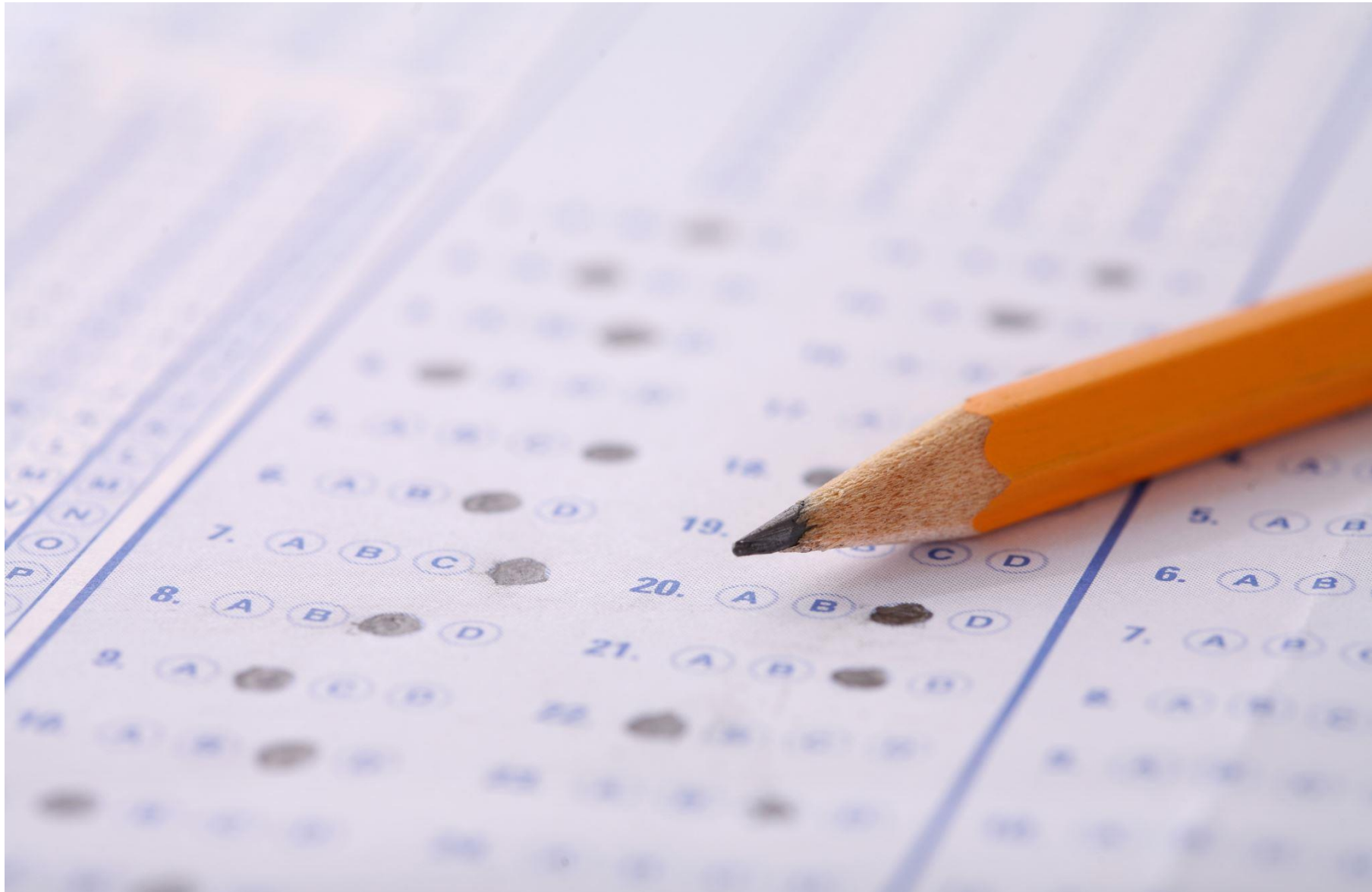
**Figure 3-3: Example Map with In-scope and De-scoped Time Places**



- **Customer Owned Lines (COL):** Distribution Customers metered at primary voltage. Customer Owned Lines are third party owned and operated power lines interconnected to PG&E's system. Customer owned facilities are third party facilities on the customer's side of the meter. Customer owner(s) are responsible for maintenance and operation of their line and equipment.
- **Foreign Transmission Lines (FTL)-** Third party owned lines transmission lines electrically interconnected to PG&E's system or physically collocated on transmission structures.
- **Induction Risk Lines** - CFPT Induction is a subset of the lines that are in scope for CFPT Asset which also have indicators that show a higher risk for induction related ignitions even while the line or segment is deenergized. Additional mitigations are considered for these lines.

- Document and Process Changes
- Enhanced Power Safety Settings (EPSS)
- Operator Actions
- PSPS
- **Wildfire Mitigation Tools**

FPI Dashboard release has been postponed.





# Vegetation Management Competency Assessment Team (CAT)

Executive Update

July 12, 2022



Together, Building  
a Better California



# Background

*Vegetation Management is establishing a “Competency Assessment Team” (CAT) program for ensuring that tree crew workers are assessed to perform PG&E work safely and competently.*

## Program Objective

Improve safety outcomes by verifying competency in commonly performed, inherently hazardous activities.

### Situation

- Increased oversight by 100%
- Developed Safe Work Practices
- >10X increase in observed high energy at-risk behavior between July 2021 and December 2021
- Efforts to address via awareness campaign were unsuccessful
- December 2021: Began competency assessments of tree crews operating in wildfire footprints
- Assessment outcomes generated immediate concern
- Subsequent assessment results have crystallized need for action

### Our Response

Reviewed Vegetation Management historical SIF data to identify highest-risk activities



Worked with North American Training Solutions to develop competency assessments for four high risk skills:

Cutting aloft, climbing operations, rigging operations, and chainsaw use



Established a new competency assessment yard in Oroville, CA



Began assessments

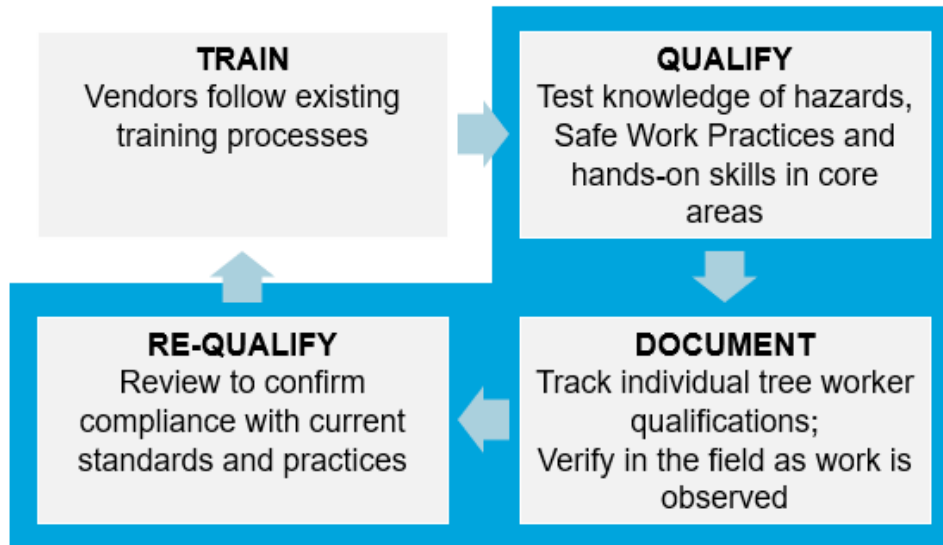
# Development of the CAT program

*We envision a sustainable program to verify that tree crew workers are qualified to safely perform their work, using established Safe Work Practices, before operating within PG&E's service area*

## Program Summary

- Qualified Evaluators perform Skills Assessments for tree crew workers in a safe, controlled environment
- Assessments currently target the four highest-risk tree worker skill categories

### Tree Crew Qualification Program Scope



## What We've Found

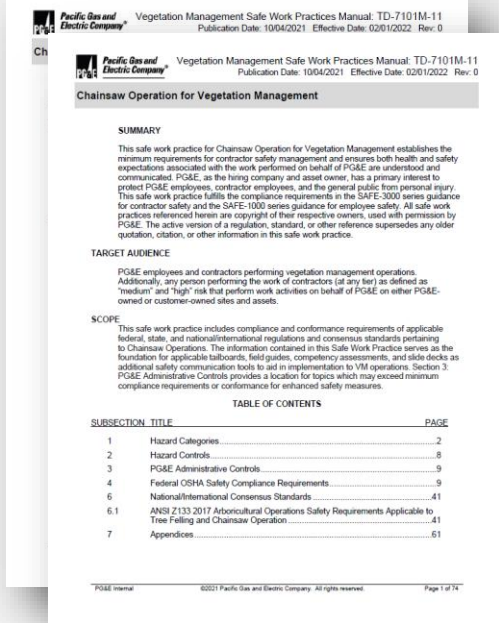
In assessments of tree crew workers' core skill competency, only **51%** passed all assessments relevant to their role on the first attempt.

ALL TC WORKERS (Incl. Foremen)	Individuals Tested	Results		
		Passed All Assessments	Failed $\geq 1$ Assessment	Pass Rate
Initial Attempt	532	272	260	51%
2 <sup>nd</sup> Attempt	58	43	15	74%
<b>Total</b>	<b>532</b>	<b>315</b>	<b>217</b>	<b>59%</b>



*Examples of unsafe equipment brought by tree crews for use in assessments: Frayed rope, malfunctioning carabiners, saw with wrong size chain*

The following images illustrate how assessments evaluate competency:



Chainsaw Bolt Cutting Competency Verification Form

Spanish | Bilingual | English

**Chainsaw Bolt Cutting Competency Verification Form**

Candidate Name: \_\_\_\_\_ Date: 14/10/2021 11:51  
Company: \_\_\_\_\_ Location: 3000 7th Ave., Coville, CA  
Previous Certification:  Yes  No Types: \_\_\_\_\_ Assessing on Bolt #: \_\_\_\_\_  
Fire ARM/CPR:  Yes  No Expiration Date: \_\_\_\_\_ Job Classification: \_\_\_\_\_

Demonstrates Proficiency  Demonstrates Competency  Needs Experience  Needs Training

Evaluator's Name: \_\_\_\_\_ Evaluator Comments: \_\_\_\_\_

**Standard-Based Grading Scale**

4. Demonstrate proficiency, meets expectations or target with efficiency and advanced knowledge or skill.  
3. Demonstrate Competency, meets expectations of target.  
2. Needs Experience, partial understanding of core practice, partial or single skill essential acquisition.  
1. Needs Training, CANNOT perform portions of target, even with instructor assistance.

**Safety Violations**  
During all portions of the evaluation that require demonstration testing, operators will be assessed for any safety violations. Any observed violation, 2 or more safety violations will be documented. Violations are to be noted upon evaluator's direction. The type:  
- Performing an unsafe act / stop-work  
- Failure to implement critical actions when given opportunity  
- Taking eyes from cutting area when break is designated  
- Complacency/unnecessary conversation/entertainment  
- Misusing/ignoring to safety PPE  
- Taking time off cutting area when break is designated/when break time is designated

**PPE and Tools**

<input type="checkbox"/> Yes <input type="checkbox"/> No ANSI Z89.1 helmet / hardhat	<input type="checkbox"/> Yes <input type="checkbox"/> No Goggles	<input type="checkbox"/> Yes <input type="checkbox"/> No Ankle & Calf
<input type="checkbox"/> Yes <input type="checkbox"/> No ANSI Z89.1 eye wear or face protection	<input type="checkbox"/> Yes <input type="checkbox"/> No Work Boots	<input type="checkbox"/> Yes <input type="checkbox"/> No Chainsaw "bar" tension
<input type="checkbox"/> Yes <input type="checkbox"/> No Heavy Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No Chainsaw Parts U.S. Certified	<input type="checkbox"/> Yes <input type="checkbox"/> No Handed & Full PPE
<input type="checkbox"/> Yes <input type="checkbox"/> No Long Sleeve Shirt	<input type="checkbox"/> Yes <input type="checkbox"/> No Pre-Assembled Stoppers	<input type="checkbox"/> Yes <input type="checkbox"/> No Wedges
<input type="checkbox"/> Yes <input type="checkbox"/> No ANSI Class II or 18-inches support	<input type="checkbox"/> Yes <input type="checkbox"/> No Manufacturer's Name	<input type="checkbox"/> Yes <input type="checkbox"/> No Chainsaw & Substrate

**Task**

Task	Score (max 4)	Notes
Chainsaw Safety & Work Area Safety		
1. Demonstrate PPE for chainsaw operation.	1 2 3 4	
2. Inspect all minimum safety features of a chainsaw.	1 2 3 4	
3. Inspect chain-brake function (method(s)).	1 2 3 4	
4. Identify machine force/quadrants of a chainsaw bar.	1 2 3 4	
5. Identify safety signs on chainsaw.	1 2 3 4	
6. Describe safe distance workers shall keep from chainsaw operators.	1 2 3 4	
7. Demonstrate three-way communication.	1 2 3 4	
Cutting Demonstration		
8. Demonstrate a safe chainsaw starting procedure.	1 2 3 4	
9. Demonstrate cutting on open face notch. Note: Notch must be 30° or greater and shall allow the tree to remain attached to the stump during most of its fall.	1 2 3 4	
10. Demonstrate notch depth, no more than 1/3 DBH.	1 2 3 4	
11. Demonstrate back cut (prefer back cut w/ backchecks). Note: A conventional back cut is acceptable resulting in a maximum slope of 1:10.	1 2 3 4	

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Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_ Years Exp: \_\_\_\_\_



Assessments align with PG&E Safe Work Practices

Example skills assessment activities

\* VM standards have been provided to all contractors to promote internal training and assessments

# Tree Crew Qualification Program Elements

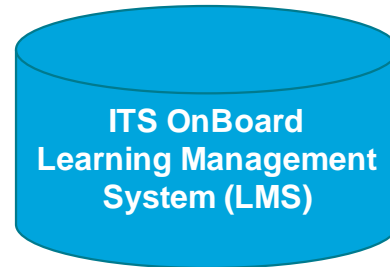
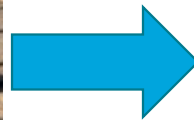


Workers will be qualified on skills relevant to their role, and those competencies will be verifiable in the field



## Skills Assessment & Qualification

- Climbing
- Tree Felling
- Chainsaw Use
- Aerial Lift
- Bucking & Limbing
- Chipping
- Rigging
- Wildfire Footprint
- Worksite
- Heavy Equipment
- Electrical Safety
- Etc.



## Qualification Tracking Platform

- Worker Skill Qualifications
- Worker Qualified Role(s)
- Worker Company
- Worker Training Completed
- Worker Language Fluency
- Worker Contact Information
- Worker Acknowledgement of New Requirements
- Qualification Renewal Timing & Alerts



## Portal Visibility/Access & Reporting

- PG&E
- Contractor
- Individual Worker



## In-Field Confirmation of Qualified Roles

- Physical Card Issued to Worker
  - Name & Photo
  - Scannable QR or Barcode
- Mobile App
  - For Supervisors & Observers
  - Functions Offline (Data on Device)
  - Device Data Updates ~Nightly

# An Initiative that Truly Saves Lives



*We are already seeing the powerful impact that this program can have on our coworkers and community*

## **Comments from Our Contract Partners**

“This is something the industry has needed for a long time.”

“We think [100% competency verification] is a great idea. People come to us and I’m sure our competitors every day claiming skills & experience they don’t have.”

“**Our industry needs this badly**, and participants should appreciate the evaluations.”

“The yard and facilities are well thought out, clean, safe and comfortable. The program is very **fair, well thought out, and gives each participant a clear understanding of their abilities**, and where they need some improvement.”

“It is a very professionally run program, with knowledgeable assessors that are very positive and encouraging. It is a well set up, run and needed **tool that anyone should want to take advantage of.**”



**Program Video**

<https://web.microsoftstream.com/video/7e8daa22-3f1e-4ef3-83f6-63ccc8f37704>

“The **PG&E NATS Assessment Yard is one of its kind**. Strategically and geographically placed in order to meet the needs of assessing utility line clearance arborists providing wildfire restoration services. The assessment yard is beautifully designed with amazing renewable resources to continue many different possibilities in the way of skill’s practice experience and evaluating assessments.”

“Revolutionary - The partnership with PG&E and NATS pushes the arbor culture Vegetation Line clearance industry towards the vision and mission that has been preached for decades about safety and knowledge. Training helps the vision and mission, but companies must put the training in action to have meaning. PG&E and NATS put in the dedication in each assessment to zone in on data on each specific employee to gather information for contractors to develop a specific training program for each employee. **Ultimately, saving our Brothers and Sisters.** Thank you, PG&E and NATS”

Category	Goal
Catastrophic wildfires shall stop (People)	Improve the way we execute work and demonstrate operational excellence in delivering safe, reliable, affordable and clean energy.
Catastrophic wildfires shall stop (People)	Execute the approved capacity and reliability workplan to build a safer, more resilient and compliant delivery system.
Catastrophic wildfires shall stop (People)	Execute work in WMP in a timely manner and deliver all approved targets to decrease wildfire risk.
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Catastrophic wildfires shall stop (People)	Improve the way we execute work and demonstrate operational excellence in delivering safe, reliable, affordable and clean energy.
Catastrophic wildfires shall stop (People)	Perform preventative and corrective maintenance correctly with no rework required.
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Metric/Target
<ul style="list-style-type: none"> <li>•Eliminate priority as-build backlog by June 30</li> <li>•PSPS - De-energize Distribution System Prior to Weather Start 100%</li> <li>•PSPS - Timely restoration</li> <li>•PSPS - ETOR accuracy (two or less updates to ETOR after weather all clear)</li> </ul>
Execute 39 CEMI Units Execute TBD Capacity Units Execute TBD Reliability Units
SRI: 470 miles UG: 200 miles Non-Exempt Fuses: 3,000 Fuse Savers: 80 Temp Generation Microgrids: 4 Distribution Sectionalization: 100 Distribution Line MSO: 50 SCADA Recloser: 17 Surge Arrestors: 4,590 Butte Rebuild: 55 miles
SRI: 100 miles UG: 200 miles Non-Exempt Fuses: 3,000 Fuse Savers: 80 Temp Generation Microgrids: 4 Distribution Sectionalization: 100 Distribution Line MSO: 50 SCADA Recloser: 17 Surge Arrestors: 4,590 Butte Rebuild: 55 miles
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- HFTD Response
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 Execute TBD Reliability Units

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 UG: 200 miles  
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 Fuse Savers: 80  
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 Distribution Sectionalization: 100  
 Distribution Line MSO: 50  
 SCADA Recloser: 17  
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 Butte Rebuild: 55 miles

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Distribution Line MSO: 50

SCADA Recloser: 17

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Butte Rebuild: 55 miles

Execute 39 CEMI Units

Execute TBD Capacity Units

Execute TBD Reliability Units

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Execute 39 CEMI Units

Execute TBD Capacity Units

Execute TBD Reliability Units

<p>           391. 470 miles            UG: 200 miles            Non-Exempt Fuses: 3,000            Fuse Savers: 80            Temp Generation Microgrids: 4            Distribution Sectionalization: 100            Distribution Line MSO: 50            SCADA Recloser: 17            Surge Arrestors: 4,590            Butte Rebuild: 55 miles            EPC Pole Pilot            MHP Target Units         </p>
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<p>           Sri: 470 miles            UG: 200 miles            Non-Exempt Fuses: 3,000            Fuse Savers: 80            Temp Generation Microgrids: 4            Distribution Sectionalization: 100            Distribution Line MSO: 50            SCADA Recloser: 17            Surge Arrestors: 4,590            Butte Rebuild: 55 miles         </p>
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<p>           Execute 39 CEMI Units            Execute TBD Capacity Units            Execute TBD Reliability Units         </p>
<p>           Sri: 100 miles            UG: 200 miles            Non-Exempt Fuses: 3,000            Fuse Savers: 80            Temp Generation Microgrids: 4            Distribution Sectionalization: 100            Distribution Line MSO: 50            SCADA Recloser: 17            Surge Arrestors: 4,590            Butte Rebuild: 55 miles         </p>
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<ul style="list-style-type: none"> <li>• Eliminate priority as-build backlog by June 30</li> <li>• PPS - De-energize Distribution System Prior to Weather Start 100%</li> <li>• PPS - Timely restoration</li> <li>• PPS - ETOR accuracy (two or less updates to ETOR after weather all clear)</li> </ul>
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<p>48 preventative maintenance checks conducted during (2022)</p>
<p>Catastrophic wildfires shall stop. (People) improve the way we execute work and demonstrate operational excellence in delivering safe, reliable, affordable and clean energy.</p> <ul style="list-style-type: none"> <li>• Eliminate priority as-build backlog by June 30</li> <li>• PPS - De-energize Distribution System Prior to Weather Start 100%</li> <li>• PPS - Timely restoration</li> <li>• PPS - ETOR accuracy (two or less updates to ETOR after weather all clear)</li> </ul>

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<p>Execute 39 CEMI Units  Execute TBD Capacity Units  Execute TBD Reliability Units</p>



Category	Goal
Catastrophic wildfires shall stop (People)	Execute work in WMP to decrease wildfire risk including PSPS and EPSS.
Catastrophic wildfires shall stop (People)	Plant/Prosperity: Support efficient execution of T&S WMP Commitments
Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
Catastrophic wildfires shall stop (People)	The full list of 2022 goals can be found here:  \\fairfield09\PM\Project Managers\00 Substation\99 PCA Onboarding\Goals\2022
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Catastrophic wildfires shall stop (People)	•Maintenance Work Plan Adherence (Wildfire Mitigation) 85-90%
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Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
Catastrophic wildfires shall stop (People)	-Execute plan to install Enhanced Powerline Safety Settings on all targeted circuits
Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
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Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
Catastrophic wildfires shall stop (People)	Enhanced Powerline Safety Settings Goal to be developed once workplan is defined -execution of scopes/carts for EPSS-related work on TLine and Substation projects.
Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
Catastrophic wildfires shall stop (People)	Strengthen and build a safer, more resilient, and compliant delivery system
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Catastrophic wildfires shall stop (People)	B Priority Notification Compliance.
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Catastrophic wildfires shall stop (People)	Execute plan to install Enhanced Powerline Safety Settings on all targeted circuits Edit
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Metric/Target
100% Completion of EPSS Temporary LK Installations by end of 2nd Quarter
100% Completion of EPSS School site visits and Resiliency Reports by end of 2nd Quarter
For the 2022 PSPS season 7 Distribution Microgrids pre-staged and interconnected by September 1, 2022.
For the 2022 PSPS season 10 Hospitals pre-staged and interconnected by July 1, 2022.
For the 2022 PSPS season 88 CRCs pre-staged and interconnected by July 1, 2022.
<ul style="list-style-type: none"> <li>•Completing on station inspection, preventative maintenance and corrective actions on time with proper documentation.</li> <li>•Completing the T-Line 2022 work plan</li> </ul>
Audit Readiness
Quality Verification Finding Reduction in Overall Performance From 2021
Quality Verification Reduction in High Findings
The full list of 2022 goals can be found here:
\\fairfield09\PM\Project Managers\00 Substation\99 PCA Onboarding\Goals\2022
Audit Readiness
Quality Verification Finding Reduction in Overall Performance From 2021
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EPSS EXECUTION
-TBD based on identified work plan for EPSS-related substation projects
Audit Readiness
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TBD

Audit Readiness  
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<https://pge.sharepoint.com/sites/TSProjectMgtPortfolio/Shared%20Documents/Forms/AllItems.aspx?ga=1&id=%2Fsites%2FTSProjectMgtPortfolio%2FShared%20Documents%2FGeneral%2F100%20%2D%20Goals%2F100%20%2D%20PM%20PCA%20M%26C&viewid=b7eed7dd%2Dd761%2D473b%2D9673%2D5f7a90ab31de>

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- Completing the T-Line 2022 work plan

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## Preventing and Mitigating Fires While Performing PG&E Work

### SUMMARY

This utility standard establishes precautions for PG&E employees and contract partners to follow when traveling to, performing work, or operating outdoors on any forest-, brush-, or grass-covered land.

The information in the standard supplements the instructions contained in local, state, and federal fire regulations and permits. However, if a local or state fire regulation or permit contains provisions more stringent than those in this document, the more stringent provisions **must** be followed.

### TARGET AUDIENCE

The standard targets all PG&E employees and contract partners working on or near facilities located on any forest, brush, or grass-covered lands using equipment, tools, and/or vehicles whose use could result in the ignition of a fire. This includes areas that may seem urban or suburban but have vegetation that can aid in the spread of an ignition.

PG&E’s workforce, including our contract partners, will be further defined as “work personnel” throughout the standard.

Training (SAFE-1503WBT, “Fire Danger Precautions”) targets work personnel working on any forest-, brush-, or grass-covered lands. This training is profiled to the target audience as mandatory, generally to be completed annually between January 1 and April 1.

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## Preventing and Mitigating Fires While Performing PG&E Work

### REQUIREMENTS

#### 1 Safety

- 1.1 Performing utility work on any forest-, brush-, or grass-covered lands presents a danger of fire, in addition to the hazards inherent to utility work.
- 1.2 Following the directives in this standard is essential to mitigating fire danger and protecting the environment, the utility system, work personnel, and the public.
- 1.3 Perform all operations or action within hazardous fire areas in accordance with [Utility Standard SAFE-1001S, "PG&E Injury & Illness Prevention Plan \(IIPP\),"](#) and the [Code of Safe Practices](#).

#### 2 General Requirements

- 2.1 When performing work that could produce a spark, fire, or flame on or near any forest-, brush-, or grass-covered lands, follow the requirements laid out in this section, **regardless** of the daily [Utility Fire Potential Index \(FPI\) Forecast](#).
- 2.2 During R1–R2 conditions, when vegetation cannot sustain combustion permitting the spread of a fire due to snow, rain, dense fog, or wet vegetation, the requirements of this standard do not apply.
- 2.3 The work supervisor/local superintendent and managers must ensure that the following actions are taken:
  1. Identify and comply with the local, state, and federal fire authority permits and/or restrictions in the area where the work is to be performed, including Federal Energy Regulatory Commission (FERC) project requirements.
- 2.4 Any person in charge (PIC) of work personnel must follow locally changing meteorological conditions, as well as be aware of the possibility of increased fire danger during the time work is in progress.
- 2.5 When fire suppression tools and extinguishers are required, they must be available in the immediate area from which a spark, fire, or flame may originate.
- 2.6 When traveling to the jobsite, or when operating on unimproved roadways, all work personnel must take the following actions:
  1. **Do not drive** off unimproved roadways (through fields, forests, etc.), except when performing required work, or during an emergency.
  2. Ensure that required tools, at a minimum, are available on vehicles.

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.6 (continued)

3. All vehicles are required to have one dry chemical fire extinguisher (rated ABC – multi-purpose use) in good working order. Supplement the fire extinguisher with the following tools, as required below:
  - a. Passenger vehicle:
    - One shovel
  - b. Trucks (1/2 ton or larger) and all-terrain vehicles (ATVs):
    - One shovel
    - One 5-gallon backpack pump
    - Compressed Air Foam Systems (CAFS) may be used as a supplemental extinguishing agent. However, CAFS cannot be a substitute for a 5-gallon backpack pump.
  - c. Heavy machinery or equipment (e.g., tractors, tub grinders, whole tree chippers, excavators, bulldozers):
    - One shovel
    - One 5-gallon backpack pump
    - CAFS may be used as a supplemental extinguishing agent. However, CAFS cannot be a substitute for a 5-gallon backpack pump.

#### NOTE

When multiple vehicles are traveling to a jobsite, a full set of tools is not required for all vehicles. This situation includes heavy machinery that cannot accommodate the tools. However, the required tools must be available for work personnel at the jobsite to extinguish a fire. Tractors **must** have at least one shovel on them while operating.

4. While driving off, or parking off, paved roadways (i.e., gravel or dirt roadways), maintain situational awareness. Look for potential ignitions that could occur when driving or parked in the vicinity of dry brush, grass, or other vegetation.
5. Ensure that vehicles are parked in an area cleared of vegetation (e.g., paved, gravel or cleared to bare mineral soil).

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.6 (continued)

- a. IF unable to park in a cleared area,  
THEN take the following steps:
  - (1) Park on vegetation that has been mowed or cut to a maximum height of 4 inches.
  - (2) Park in such a manner that the tailpipe is not within 36 inches of any standing vegetation.
  - (3) Use a Working Fire Watch until the vehicle exhaust system has cooled, and there is no chance of an ignition.
  - (4) Ensure that the proper fire extinguishing tools are easily accessible.
  - (5) Consider wetting down parking area.
6. Turn off the motors of unoccupied vehicles when parking them off road, **unless** the vehicle and the motor need to remain running for work purposes. Maintain situational awareness for potential ignitions.
7. When **idling**, the vehicle **must** be parked on a cleared area defined as paved or gravel, or on dirt cleared down to bare mineral soil.
  - a. IF idling and unable to park in a cleared area,  
THEN take the following steps:
    - (1) Park on vegetation that has been mowed or cut to a maximum height of 4 inches.
    - (2) Park in such a manner that the tailpipe is not within 36 inches of any standing vegetation.
    - (3) Use a Working Fire Watch while the vehicle is idling.
    - (4) Ensure that the proper fire extinguishing tools are easily accessible.
    - (5) Wet down the area under the vehicle before beginning work, and as needed, to prevent an ignition.
8. When operating a vehicle with a Diesel Particulate Filter (DPF) system, **always** park on a paved, gravel or bare mineral soil surface, or where vegetation has been mowed or cut to a maximum height of 4 inches. The exhaust system remains extremely hot before, during, and after the regeneration process. An ignition can occur even while the vehicle is off.



## Preventing and Mitigating Fires While Performing PG&E Work

2.7 **Before starting work** on or near any forest-, brush-, or grass-covered lands, all work personnel **must** review and understand the following requirements:

1. Daily [Utility Fire Potential Index \(FPI\) Forecast](#)
  - a. If working in a location without an FPI rating, and the area contains flammable vegetation forest, brush, or grass-covered lands, the following guidelines apply:
    - (1) For areas located within a 5-mile distance of the closest Fire Index Area (FIA) with an FPI rating, use the FPI rating of the closest FIA.
    - (2) For work areas located farther than 5 miles from an FIA with an FPI rating, follow all R1–R3 general mitigations outlined in this standard.
2. Job Site Tailboard Requirements
  - a. As part of the jobsite safety tailboard, assess and proactively address wildfire risks.
  - b. During the tailboard, review all work being performed, review [Attachment 1, “Wildfire Mitigation Matrix,”](#) and complete [Attachment 2, “Wildfire Risk Checklist,”](#) **before** starting work.

### NOTE

Organizations can use other suitable means to review and document their Wildfire Risk tailboard (e.g., online app, incorporation into Line of Business [LOB] procedures), as long as the minimum requirements in [Attachment 2](#) are covered.

- (1) [Attachment 1](#) is set up with work activities and activity descriptions on the left, and the required mitigations dependent on the Fire Potential Index ratings across the top. Activities requiring additional mitigations are referenced in the corresponding box in blue text.
  - Red Flag Warnings require the use of R5 Fire Mitigations outlined in [Attachment 1](#).
- (2) [Attachment 2](#) – At a minimum, review the following information:
  - Work description
  - Work location
  - Environmental conditions (e.g., FIA, Fire Danger Rating, Red Flag Warning status)
  - Fire risk mitigations (e.g., required actions)
  - Emergency response (e.g., evacuation plan, communications availability, local fire agency, fire agency dispatch)

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.7 (continued)

- c. Before starting any work, it is recommended to wet down the work area to a minimum of 10 feet.

### 3. Firefighting Tools, Equipment Availability and Readiness

To assure quick response to an ignition, firefighting tools and equipment must be at the immediate work location and readily accessible.

#### a. Water Buffaloes

- (1) It is recommended to always have a water buffalo on a job site.
- (2) At the beginning of the day, before starting work, start and test the water buffalo to ensure it is in good working order.
- (3) When required, the water buffalo or equivalent, must be as close to the worksite as practical, and have the required 200 feet of hose to extinguish any possible ignition.
  - Ensure that the hose is at least 1 inch in diameter AND is a minimum of 40 pounds per square inch (psi) at the nozzle.
  - The hose on the water buffalo must be extended, ready for use, and capable of reaching the work location.
  - As part of the tailboard, a person must be assigned to start the pump, if needed.
- (4) Position all vehicles and equipment to ensure safe egress in the event the crew must evacuate the location quickly. Park vehicles facing the evacuation route.
- (5) At no time will any work personnel be asked to fight any fire beyond their experience or training.
- (6) IF the conditions do not allow water buffalo access to the worksite,  
THEN take the following actions:
  1. Consider adding additional hose to extend the reach of water buffalo.
  2. When the number of workers exceeds two, have a minimum of three 5-gallon backpacks and enough firefighting hand tools, including shovels, McLeods, or axes for each worker at the jobsite. The required tools must be accessible within 25 feet of the immediate work location.

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.7 (continued)

3. Postpone work activity to a day with an FPI rating of R3 or below.
4. Electric operations organizations should consider performing work de-energized.

#### b. Fire Extinguishers

- (1) All vehicles must have a dry chemical fire extinguisher (rated ABC).
- (2) Use dry chemical fire extinguishers (rated ABC) for flammable liquids, vehicle, or equipment fires; they have limited effectiveness on vegetation fires.
- (3) Use backpack pumps and other water-based extinguishers for controlling vegetation fires.

### 2.8 Major work operations require a sealed box with firefighting tools at the jobsite.

1. These specific firefighting tools must meet state law requirements and provide an option for work personnel or first responders to have additional tools onsite.
2. The sealed box must be easily accessible for fire-suppression purposes AND must contain the following items:
  - One backpack-type fire extinguisher filled with water
  - Two axes
  - Two McLeod fire tools
  - Enough shovels for each remaining worker at the operation not already equipped with provided tools in sealed box
  - One or more serviceable chainsaw(s) with at least 3 ½ horsepower, with a 20-inch cutting bar. This tool does not have to be in the sealed box but must be at the jobsite.

#### **NOTE**

All Vegetation Management Program operations on or near any forest-, brush-, or grass-covered lands must have the sealed box of tools mentioned above. The operations must also have all necessary permits, including, but not limited to, Utility Right of Way Exemption or Timberland Conversion Permits.

## Preventing and Mitigating Fires While Performing PG&E Work

- 2.9 When working at the jobsite, all work personnel **must** perform the following actions:
1. Observe all laws, rules, and regulations of local, state, and federal fire authorities having jurisdiction over areas in which they are working.
  2. Perform prevention and mitigation measures, as described in this standard during any operation or action that could result in an uncontrolled fire.
  3. Do not start any fire that could escape control through careless or negligent actions.
  4. While performing stationary ground level jobs or activities from which a spark, fire, or flame may originate (e.g., welding, cutting, grinding), remove all flammable material (e.g., grass, leaf litter, including snags) down to mineral soil, for a minimum of 10 feet around the jobsite.
    - a. IF the ground cannot be sufficiently cleared due to environmental reasons (i.e., riparian zones, sensitive plants and animals) or erosion concerns, OR IF the work is being performed above ground level (i.e., installation and removal of master grounds on a de-energized transmission line adjacent to an energized transmission line),  
  
THEN perform the following actions:
      - (1) Wet down the area around such operation for a minimum of 10 feet.  
  
**OR**
      - (2) Cover the flammable vegetation, including snags, with fire blankets, for a minimum of 10 feet around the area.  
  
**AND**
      - (3) IF the FPI rating is R1, R2, or R3,  
  
THEN assign a Working Fire Watch at the jobsite.
      - (4) IF the FPI rating is R4,  
  
THEN assign a Working Fire Watch at the jobsite, equipped with at least 120 gallons of water, with at least 200 feet of hose, not less than 1 inch in diameter, and a minimum of 40 psi at the nozzle.
      - (5) IF the FPI rating is R5,  
  
THEN assign a Dedicated Fire Watch, equipped with at least 120 gallons of water, with at least 200 feet of hose, not less than 1 inch in diameter, and a minimum of 40 psi at the nozzle.
      - (6) When responding to an emergency, follow all the requirements included in this standard, as applicable, if possible.

## Preventing and Mitigating Fires While Performing PG&E Work

- 2.10 When fires ignite on the jobsite, work personnel must perform the following actions:
1. Call emergency services (9-1-1) to report the ignition, **even if the fire has been suppressed.**
  2. Take safe, reasonable suppression actions consistent with PG&E training.
  3. If necessary, evacuate to a safe location and provide any information possible to first responders when they arrive.
  4. After contacting emergency services, the jobsite supervisor must call the Hazard Awareness and Warning Center (HAWC) at 1-800-255-7593 to report the fire. The supervisor must include the following information, at a minimum:
    - Location
    - Source of ignition
    - Impacted assets
  5. All jobsite work personnel **must** report incidents to their direct supervisors, and follow any additional reporting procedures, as required (e.g., notify Control Centers).
- 2.11 Smoking (including, but not limited to, cigarettes, cigars, vape pens, etc.) is only allowed when the FPI rating is R1, R2, or R3 AND the following mitigations haven't been taken:
1. There is a designated smoking location (cleared down to mineral soil) at the jobsite with a 3-foot radius.
  2. There is a means to extinguish any potential ignition.
  3. There is a water-filled or sand-filled receptacle (e.g., a metal bucket) to extinguish cigarettes, cigars, etc.
  4. Do NOT smoke when the utility FPI ratings are R4, R5, or R5-Plus.

### 3 Electric Operations Requirements

- 3.1 Consider performing work de-energized to minimize fire risk.
- 3.2 A Dedicated Fire Watch is required when performing work under R4 conditions while working on energized overhead equipment.
- 3.3 Apply the following restoration and testing procedures when the FPI rating is R4, R5, or R5-Plus.

## Preventing and Mitigating Fires While Performing PG&E Work

- 3.4 Before starting to replace fuses, work personnel must ensure that the following are true:
1. The overhead (OH) line is successfully patrolled, and hazards are cleared.
  2. Conditions at the base of the pole do not support ignition or the rapid spread of fire in the event of arcing or sparking.
- 3.5 Follow electric distribution and transmission overhead patrol requirements.
1. Refer to [Utility Procedure TD-1470P-01, "Enhanced Powerline Safety Setting \(EPSS\) Enablement Criteria,"](#) for information about patrolling and preventing automatic testing in [Fire Index Areas](#) with fire ratings of R4 and above.

### 4 Fire Potential Index Determination Process

- 4.1 Fire Index Areas (FIAs) are geographical areas for which fire danger ratings are determined. These areas were originally developed by the [United States Forest Service \(USFS\)](#) Pacific Southwest Research Station, and are still used by [California Department of Forestry and Fire Protection \(CAL FIRE\)](#) and federal agencies (e.g., USFS).

Over the years, these geographical areas have been modified for PG&E operations. Mapping of the FIAs is available from the [PG&E GIS department](#).

The PG&E Meteorology team operates a high-resolution combined weather and fire danger model. This model outputs granular (2 kilometers [km]) fire-weather and danger parameters.

Model outputs are leveraged to produce fire danger adjective ratings, ranging from R1 to R5-Plus for each FIA within the PG&E service territory.

Fire Weather Watches and Red Flag Warnings issued by the National Weather Service are also incorporated as R5 in the weather component of the model.

For additional information on FIAs and the relationship between High Fire Threat Districts (HFTD) and High Fire Risk Areas (HFRA), refer to [Attachment 3, "Relationship Between Fire Index Areas, High Fire Threat Districts, and High Fire Risk Areas."](#)

- 4.2 The Fire Potential Index rating predicts the most severe rating expected for each area from midnight to midnight. This information is posted and updated daily on the [Fire Potential Index](#) website.
1. Fire Potential Index ratings are effective from 6 a.m. (0600) and remain in effect for 24 hours.

#### NOTE

While intraday updates are rare, they may occur if the fire danger conditions or other circumstances warrant the update.

## Preventing and Mitigating Fires While Performing PG&E Work

### 4.2 (continued)

2. The [Fire Potential Index](#) website allows work personnel to perform the following actions:
  - a. Filter information by Grid Control Center Area, Distribution Control Center Area, or [Fire Index Area](#).
  - b. Subscribe to receive, either by email or E-page, the daily “Fire Adjective Index” summary (issued at 6:15 a.m.).

## 5 Mitigations

- 5.1 The mitigations outlined in this standard are minimum requirements. Implement additional mitigations if the PIC deems them necessary.
- 5.2 When the FPI rating is R1, R2, or R3, work personnel must follow the mitigations provided in [Section 2, “General Requirements,”](#) on Page 2, when performing work in any forest-, brush-, or grass-covered lands.
- 5.3 During R4 and R5 conditions, work personnel must always consider additional vegetative fuel modifications before starting work.
  1. Modifications include the following methods:
    - Mowing
    - Masticating
    - Disking
    - Wetting down the vegetation in the area
  2. Any vegetative fuel modifications that result in ground disturbing activity must have the appropriate environmental review.
    - a. Consult the project’s Environmental Release to Construction (ERTC) (included in the Job Construction package) to confirm if the proposed mitigation is approved.
- 5.4 When the FPI rating is R4, work personnel must take the following mitigations in addition to the mitigations listed in [Section 2](#), unless otherwise noted in [Attachment 1](#).
  1. The trailer-mounted water tank, water tender, or other water-delivery/fire-suppression must be in the immediate area where the spark, fire, or flame may occur – with a hose long enough to reach the entire jobsite, at all times, while performing normal work duties.

## Preventing and Mitigating Fires While Performing PG&E Work

### 5.4 (continued)

2. Evaluate weather conditions throughout the day to ensure that it remains safe to work, and to confirm that mitigations are appropriate based on the FPI rating.
3. Assign a **Working** Fire Watch to monitor for fire at the jobsite while performing normal work duties.
  - a. The Working Fire Watch must remain at the jobsite for 30 minutes after work ends.

### 5.5 When the FPI rating is R5 or R5-Plus, work personnel must take one or more of the following mitigations, in addition to the mitigations previously listed, unless otherwise noted in [Attachment 1](#).

1. Ensure that there is a **Dedicated** Fire Watch at the jobsite while performing normal work duties.
  - a. The Dedicated Fire Watch must remain on the jobsite for at least 30 minutes after work ends.
2. Evaluate weather conditions throughout the day to ensure that it remains safe to work.
3. The trailer-mounted water tank, water tender, or other water-delivery/fire-suppression must be in the immediate area where the spark, fire, or flame may occur – with a hose long enough to reach the entire jobsite, at all times, while performing normal work duties.
  - a. When the trailer-mounted water tank or other water-delivery device leaves the jobsite to refill, work personnel must stop work until it returns.
4. **Suspend all planned work during R5-Plus conditions**, as defined in [Attachment 1](#).
5. For any **emergency work** performed in R5-Plus conditions, work personnel **must ensure that one of the following safety measures is in place**:
  - A Safety and Infrastructure Protection Team (SIPT) **must** be at the jobsite on standby while the work is performed,

**OR**

  - A 300-gallon, trailer-mounted water tank, water tender, or other water delivery/fire suppression device **must** remain at the jobsite AND **must** be dedicated to fire suppression.

#### NOTE

Additional mitigations for R4 through R5-Plus conditions may be noted in [Attachment 1](#) within the matrix itself. Review all work activity requirements before starting work.



## Preventing and Mitigating Fires While Performing PG&E Work

### 6 Quality Reviews

- 6.1 Each organization must have a method to verify work personnel's adherence to the requirements of this standard and its attachments.
1. The Predictive Solutions SafetyNet Safety Observation Program is an enterprise-wide program that allows leaders to interact with personnel to reinforce positive safety behaviors and increase safety awareness.
  2. Organizations should use SafetyNet to conduct [Utility Standard TD-1464S](#) quality reviews.
  3. Inspectors should use SafetyNet while performing fire mitigation outlined in this standard.
    - a. Use the **Wildfire Mitigation** observation card in SafetyNet to perform fire risk mitigation observations.
    - b. Engage in dialogue with PG&E employees on best practices and gaps.
- 6.2 The regional field safety organizations perform regular, documented safety observations to identify safe and at-risk behaviors, provide immediate guidance and recommendations on how to control/mitigate potential risks, and share best practices identified during the observations with our work personnel.
- 6.3 The document owner of this standard performs enterprise-level trend analysis and develops plans to communicate best practices and address identified gaps with the respective LOBs.

### END of Requirements

### DEFINITIONS

**Dedicated Fire Watch:** A crew member whose **only** assigned job responsibility is to stand by at a jobsite to watch for possible or new fire ignitions while work is being performed. This person should have complete situational awareness, help to extinguish fires quickly, and stop work, when needed, due to safety.

**Designated Roadway:** Paved, graveled, and/or maintained dirt roads used by work personnel. These roadways are completely cleared of all ground litter or grass.

**Disking:** Using a disc-shaped tool to till soil for vegetation removal.

**Fire Index Area (FIA):** A geographical area over which fire danger determinations are produced.

## Preventing and Mitigating Fires While Performing PG&E Work

### DEFINITIONS (continued)

**Fire Potential Index (FPI) Rating:** A rating to determine the risk of fire and its likely behavior. Its calculation and scale from R1 to R5-Plus considers fuel moisture, humidity, wind speed, air temperature, and historical fire occurrence. These ratings are as follows:

- **R1:** Very little or no fire danger.
- **R2:** Moderate fire danger.
- **R3:** Fire danger is so high that care must be taken using fire-starting equipment. Local conditions may limit the use of machinery and equipment to certain hours of the day.
- **R4:** Fire danger is critical. Using equipment and open flames is limited to specific areas and times.
- **R5:** Fire danger is so critical that the use of some equipment and open flames is not permitted.
- **R5-Plus:** The greatest level of fire danger where rapidly moving, catastrophic wildfires are possible. This is, typically, when fire danger is extreme; “plus,” there are high-risk weather triggers (e.g., strong winds). PSPS triggering event is an example.

**Fire Tools:** The tools used to fight fires. Fire tools include the following equipment:

- **Shovel:** A standard, round point shovel, at least 42 inches in length.
- **McLeod:** A hand tool used for raking and scraping.
- **Pulaski:** An axe-like fire hand tool used for cutting, chopping, or grubbing.
- **Backpack pump:** A portable 5-gallon water pack with a hose and nozzle used to extinguish fires (e.g., collapsible backpacks, plastic or steel tanks).
- **Crosscut felling saw:** Two-man-operated saw, at least 6 feet long.
- **Double-bit axe:** An axe with 2 blades and a 36-inch handle.
- **Felling wedge:** A smooth wedge that is placed in a tree while cutting, to prevent the chainsaw or saw from getting stuck.

**Fire Weather Watch:** A type of watch issued by the National Weather Service to alert fire officials and firefighters of potentially dangerous fire weather conditions in the next 24 to 36 hours.

**High Fire Threat Districts (HFTD):** CPUC-approved delineated areas, where there is an elevated or extreme risk of utility-associated wildfires (including likelihood and potential impacts on people and property).

## Preventing and Mitigating Fires While Performing PG&E Work

### DEFINITIONS (continued)

**High Fire Risk Area (HFRA):** HFRA map is a purpose-built map using the same methodology as the HFTD map for scoping PSPS events. It aims to ensure that all areas of catastrophic wildfire risk are fully captured in PG&E's PSPS Program. The HFRA map is built off of the Tier 2 and Tier 3 and does not include Zone 1. This map considers catastrophic fire risk factors and utility infrastructure. It was developed by factoring in incremental changes to the HFTD map boundaries to add areas (HFRA Additions) where risk factors for the potential of catastrophic fire from utility infrastructure ignition during offshore wind events are higher.

**Major Work Operations:** A job where work activities or staging of resources is concentrated in and out of a staging area. Jobsites where people stage and conduct construction-type activities typically are large.

**Masticating:** Mechanically reducing vegetation into small chunks to assist in removing small trees (e.g., snags).

**Overland Travel:** Areas that are overgrown with grass and/or brush without a visible road.

**Red Flag Warning:** A warning issued by the National Weather Service to alert fire officials and firefighters of potentially dangerous and imminent fire weather conditions.

**Safety and Infrastructure Protection Team (SIPT):** This in-house team consists of two-person crews composed of IBEW-represented PG&E employees who are trained and certified safety infrastructure protection specialists. They provide standby protection and asset protection services in support of crews and protect critical utility infrastructure within PG&E's service territory, especially in areas at higher risk of wildfire.

**Sealed Box of Tools:** The sealed box of tools required on major work operations must be located within the operating area and must be reserved for firefighting purposes only. The box that contains the tools can be made of any material or can be in a single compartment on a vehicle, as long as the box can be closed, and it is understood that the tools must not be used for routine work. The box is not required to be locked, in accordance with California Public Resource Code.

**Stationary Work:** Work being performed in a single location for an extended period of time that is neither intended nor expected to move.

**Unimproved Roadways:** Roadways without pavement, gravel, or other surfacing that may have grass or ground litter present.

**Working Fire Watch:** A crew member who, **in addition to** normally assigned work duties, is responsible for fire detection, risk mitigation, and total situational awareness while the work is being performed. This crew member is also responsible for stopping work, when required, due to safety hazards AND for helping extinguish fires.

## Preventing and Mitigating Fires While Performing PG&E Work

### IMPLEMENTATION RESPONSIBILITIES

The vice president, PSPS Operations and Execution, is responsible for approving and distributing this standard.

The directors responsible for field and operational teams within the following organizations must ensure that their PG&E employees, whose actions could result in igniting a fire, are aware of and comply with this standard:

- Electric Operations
- Gas Operations
- Power Generation
- Information Technology
- Customer Care
- Shared Services
- Other groups not mentioned above who travel to, perform work, or operate outdoors on any forest-, brush-, or grass-covered land.

### GOVERNING DOCUMENT

NA

### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

[California Department of Forestry and Fire Protection \(CAL FIRE\)](#)

[California Health & Safety Code](#)

[California Public Resources Code – Division 4, “Forests, Forestry and Range and Forage Lands \[4001 - 4958\],” Part 2, “Protection of Forest, Range and Forage Lands \[4101 - 4789.7\],” Chapter 6, “Prohibited Activities \[4411 - 4446\],” Article 2, “Prohibited Activities \[4421 - 4446\]”](#)

[United States Forest Service](#)

#### Records and Information Management:

PG&E records are company assets that must be managed with integrity to ensure authenticity and reliability. Each Line of Business (LOB) must manage records and information in accordance with the Enterprise Records and Information Management (ERIM) policy, standards, and Enterprise Records Retention Schedule (ERRS). Each LOB is also responsible for ensuring records are complete, accurate, verifiable, and can be retrieved upon request. Refer to [GOV-7101S, “Enterprise Records and Information Management Standard,”](#) for further records management guidance or contact ERIM at [Enterprise\\_RIM@pge.com](mailto:Enterprise_RIM@pge.com).

## Preventing and Mitigating Fires While Performing PG&E Work

### REFERENCE DOCUMENTS

#### Developmental References

- [CAL FIRE: Wildfire Prevention Engineering Field Guides](#) (click “Power Line Fire Prevention Field Guide” to select the most current field guide)
- [California Public Resources Code – Division 4, “Forests, Forestry and Range and Forage Lands \[4001 - 4958\]”](#)
- [National Wildfire Coordinating Group \(NWCG\)](#)
  - [NWCG User Guide for Glossary of Wildland Fire](#)
- [Numbered Document 015225, “Cutouts, Fuses, and Disconnects for Overhead Distribution Lines”](#)
- [Safety and Health Procedure SHC-236, “Fire Prevention during Welding, Cutting and other Hot Work”](#)
- [United States Department of Agriculture \(USDA\) – Forest Service, Cibola National Forest and National Grasslands: National Fire Danger Rating System](#)
- [Utility Standard TD-1460S, “Welding Control”](#)

#### Supplemental References

- [California Department of Forestry and Fire Protection \(CAL FIRE\)](#)
- [Code of Safe Practices](#)
- [Fire Index Areas](#)
- [PG&E GIS department](#)
- [United States Department of Agriculture \(USDA\) – Forest Service](#)
- [Utility Fire Potential Index \(FPI\) Forecast](#)
- [Utility Procedure TD-4640P-01, “Hot Work Control – Fire Prevention”](#)
- [Utility Standard SAFE-1001S, “PG&E Injury & Illness Prevention Plan \(IIPP\)”](#)

### APPENDICES

NA

## Preventing and Mitigating Fires While Performing PG&E Work

### ATTACHMENTS

[Attachment 1, "Wildfire Mitigation Matrix"](#)

[Attachment 2, "Wildfire Risk Checklist"](#)

[Attachment 3, "Relationship Between Fire Index Areas, High Fire Threat District, and High Fire Risk Areas"](#)

### DOCUMENT REVISION

This utility standard cancels and supersedes Utility Standard TD-1464S, "Preventing and Mitigating Fires While Performing PG&E Work," Rev. 6, dated 1/6/2022.

### DOCUMENT APPROVER

Angie Gibson, Vice President, Emergency Preparedness & Response

### DOCUMENT OWNER

Cecile Pinto, Manager, Emergency Planning & Process Improvement

### DOCUMENT CONTACT

Beth Neilson, Emergency Management Specialist, Expert, Emergency Planning & Process Improvement

### REVISION NOTES

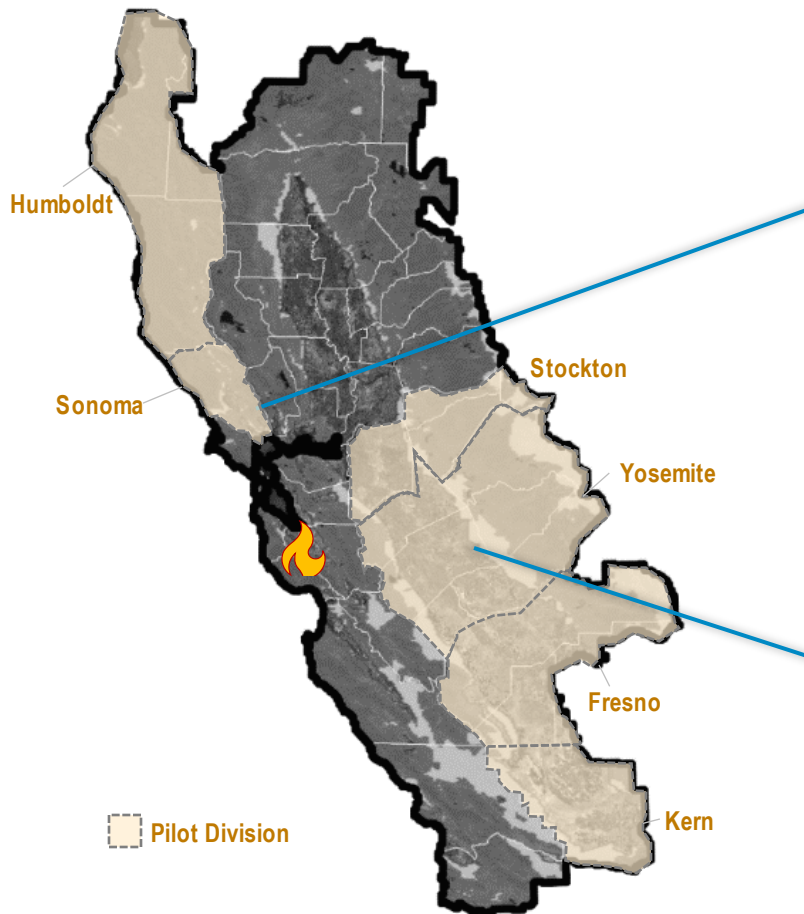
Where?	What Changed?
Section 2.7	2.7.3: Added clarifying language to set expectations for tool and equipment availability and readiness.
	2.7.3a.(6).2: Replaced current language with minimum requirement in lieu of water tank delivery system.
Section 2.8.2	Added clarifying language on shovels.
Section 3.5	Updated link for Utility Procedure TD-1470P-01, "Enhanced Powerline Safety Setting (EPSS) Enablement Criteria."
Document Approver, Document Owner, Document Contact	Updated names and titles.

# **ENHANCED POWERLINE SAFETY SETTINGS (EPSS)**

## **PARTIAL VOLTAGE (PV) FORCE OUT**

# PV Force Out Pilot Update

Since initiating our Partial Voltage Force Out program earlier this month across six divisions in our service territory, we have had two PV alarm events that were forced out



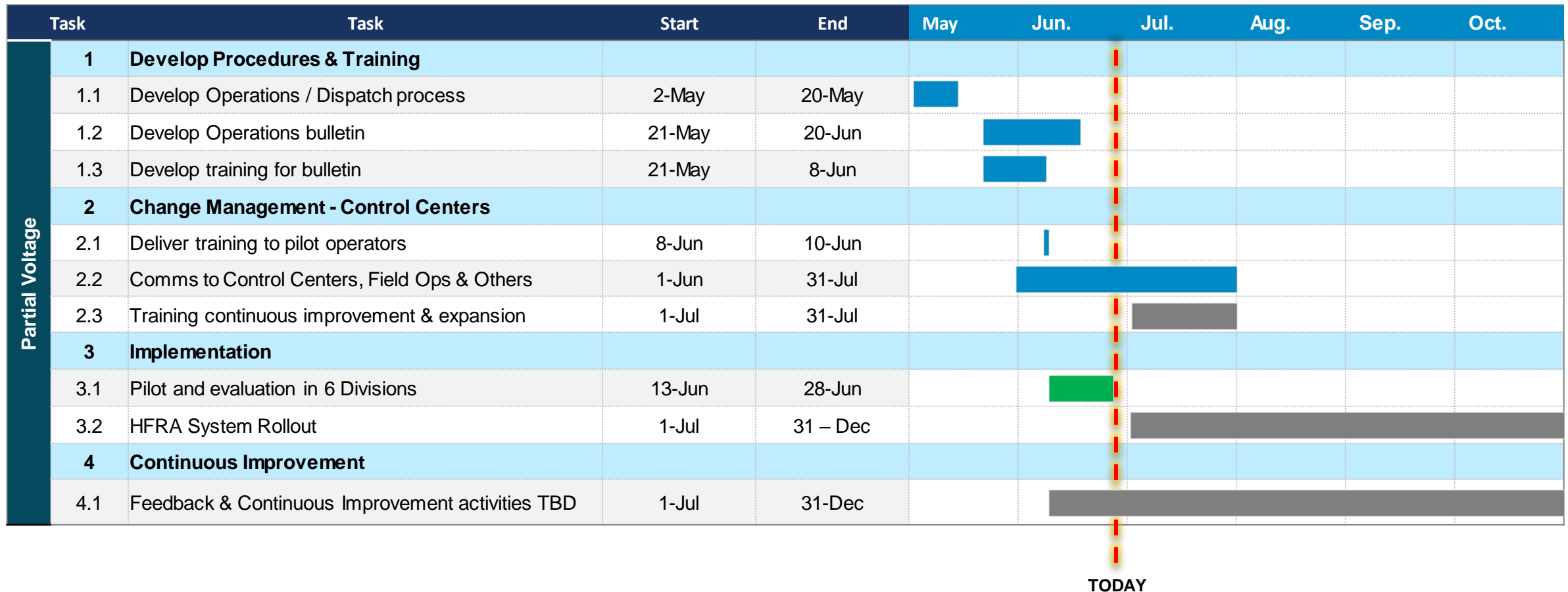
Outage 22-0075875	
CIRCUIT	RINCON 1101
PV Call:	06:34
Force Out:	06:41 (7 minutes)
CESO	3,735
CAIDI	69
CAUSE	Animal at riser

Outage 22-0078026	
CIRCUIT	CURTIS 1703
PV Call:	05:32
Force Out:	05:47 (15 minutes)
CESO	3,071
CAIDI	274
CAUSE	Unknown



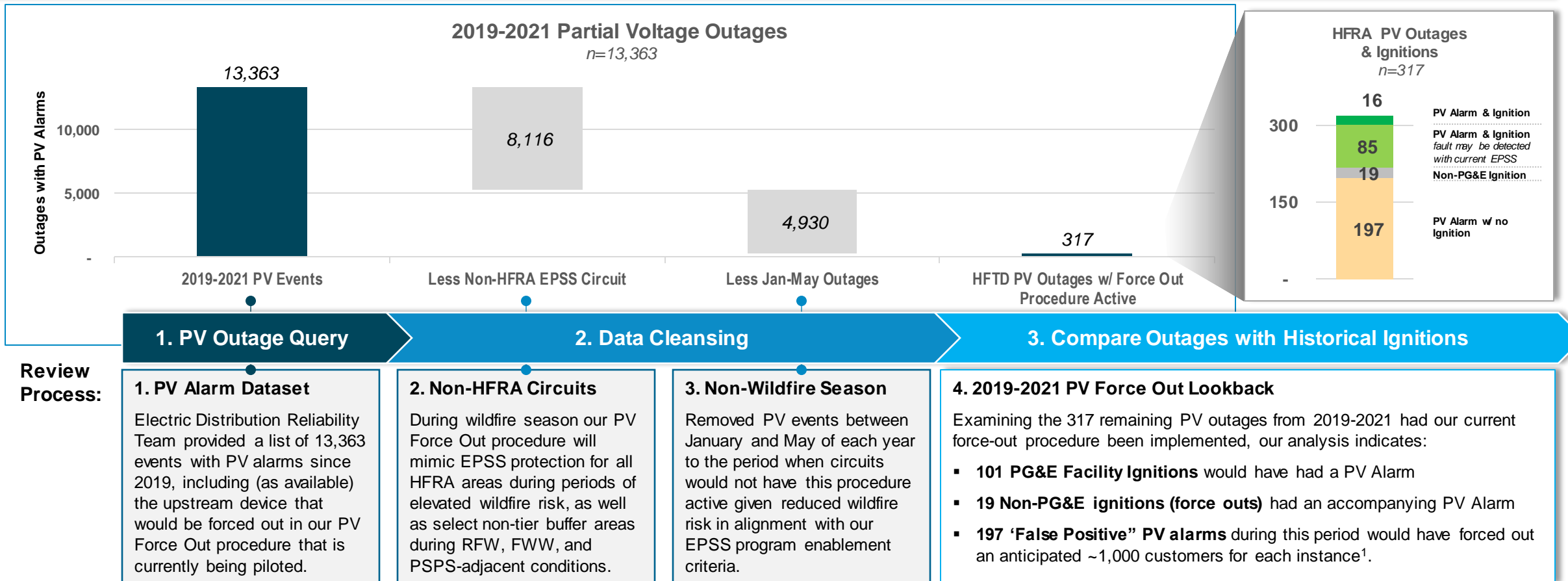
# Revised PV Force Out Implementation

Based on the results of our 6-division pilot and lessons learned from ignition events YTD, we plan to expand the PV force-out program in alignment with when our EPSS is active to mitigate ignition risk



# Partial Voltage Force Out – Historical Ignition Analysis

We reviewed PG&E facility ignitions that have occurred since we have had PV capability (since 2019), to compare which of those accompanied a PV Outage



1. 45% of events did not have complete data for customer impact of upstream device. Estimate of ~1,000 customers based on 2.5 impacted zones at 417 customers per device (program average)

# Decision

<b>Approval Status</b>	<b>PENDING</b>
------------------------	----------------

<b>Decision Detail</b>
<b>1. Approve expansion of Partial Voltage Force Out Procedure across remaining divisions to be used during periods of elevated wildfire risk conditions as defined by our EPSS enablement criteria</b>

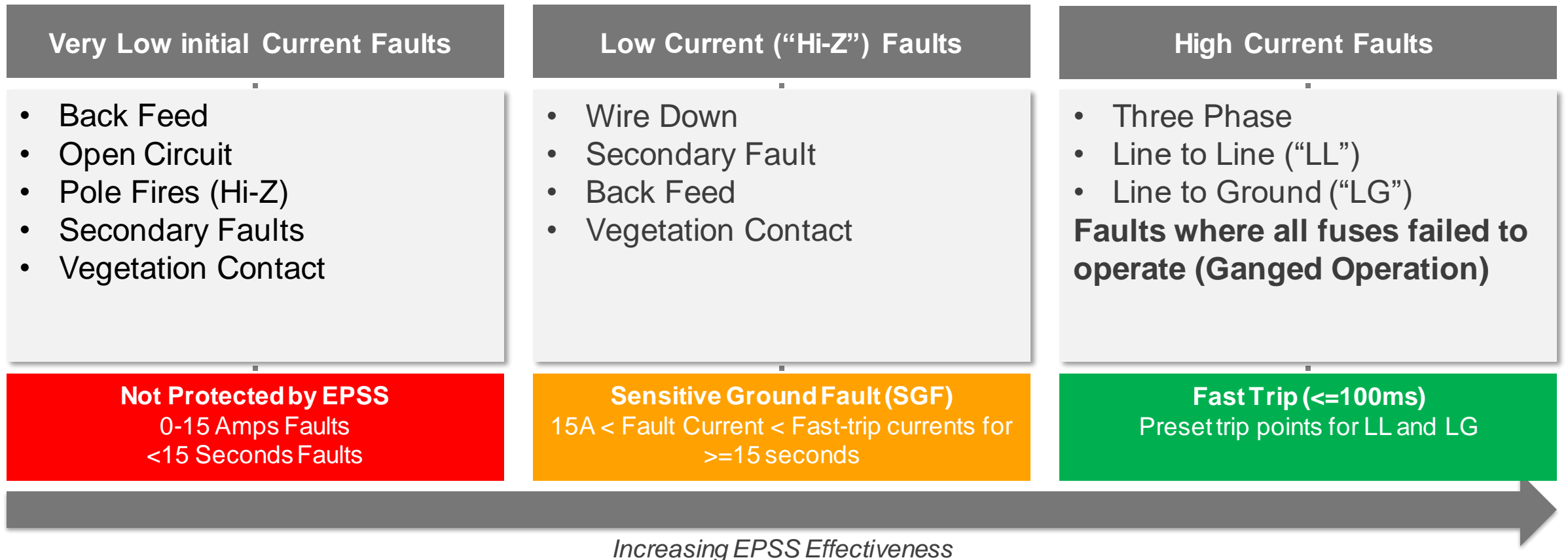
<b>Concerns and Mitigations</b>

<b>Approvals</b>	
Sumeet Singh	
Wade Smith	
Joe Bentley	
Stephen Cairns	
Mark Quinlan	
Peter Kenny	

<b>Action Items and Validations</b>	

# Recap: Fault Categorization

Regardless of cause (e.g., vegetation strike, equipment failure), faults, their corresponding ignition risk, and our mitigation programs can be categorized based on fault current and duration:

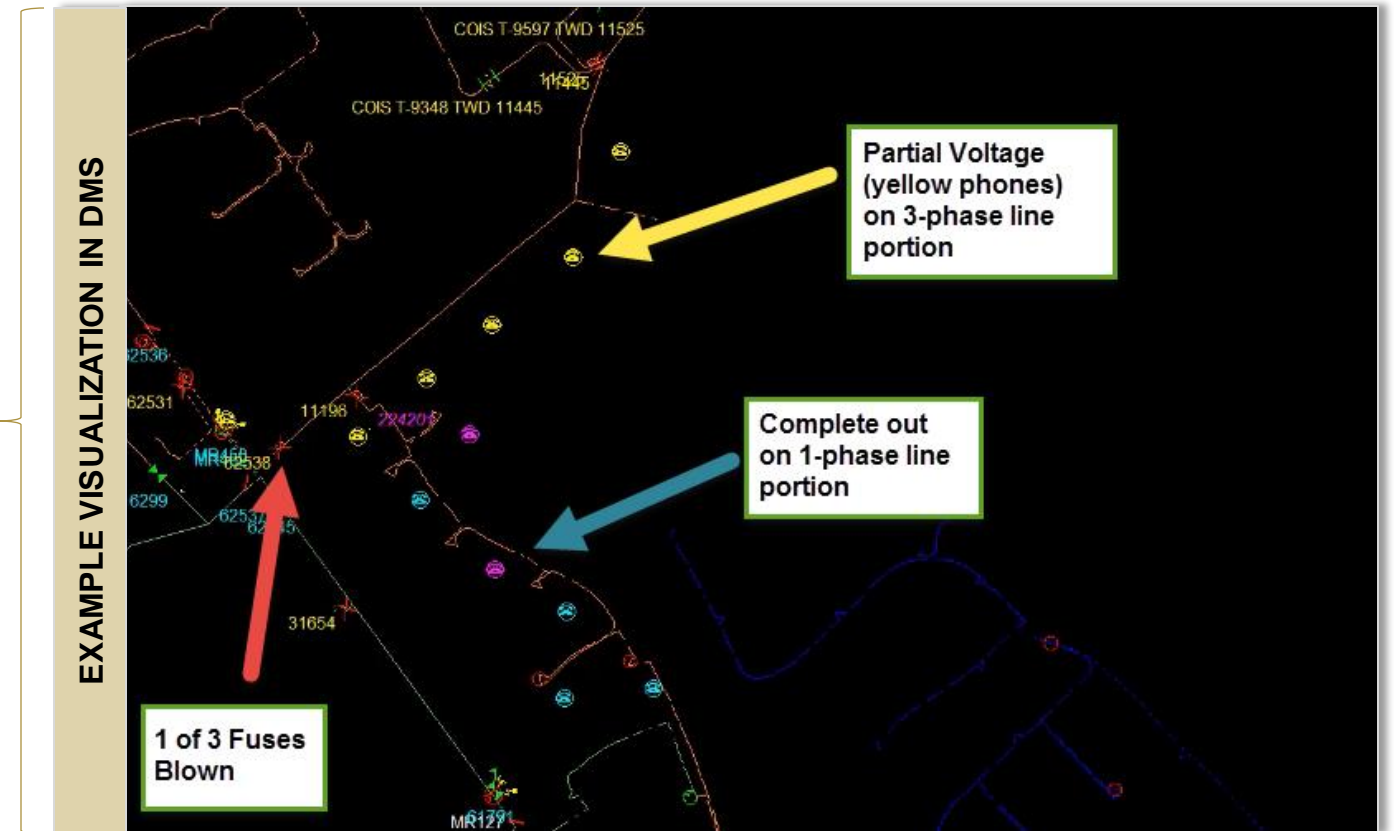


# Smart Meter Partial Voltage Detection

To support our identification and response to low and very-low initial current (high-impedance) faults we are developing and implementing new data-driven capabilities leveraging our SmartMeter network

## SmartMeter Partial Voltage Alert Details:

- PV Alerts work for the 3 wire distribution system with Line-to-Line connected transformers.
- PV Alert indicates low SmartMeter Voltage (25 - 75% of nominal 240V)
- Network Interface Card (NIC) remains on and able to return pings down to 25% Voltage, while metrology turns off at 75% voltage
- New PV alert configuration settings prevent nuisance alerts from transient conditions
  - Partial Voltage Detection Alert (after 45 seconds of persistence + 20 second trap send wait time)
  - Partial Voltage Repeat Alert (repeats every 20 minute)
  - Partial Voltage Clear Alert (after 90 seconds of normal Voltage persistence)



# PV Detection Increases Situational Awareness

Since 2021 PV detection has consistently identified outage events prior to other systems-based warning systems by an average of 29 minutes across over 5,700 PV outages:

Period	Total Outages	PV Outages	PV_Beneficial_IND	Beneficial PV Duration	Average Minutes prior to FNL
January 2021	1,079	1,079	451	19,616	43
February 2021	268	268	145	5,218	36
March 2021	360	360	205	5,287	26
April 2021	336	336	194	4,921	25
May 2021	348	348	269	4,341	16
June 2021	26	26	16	274	17
July 2021	161	161	125	1,966	16
August 2021	394	394	239	4,632	19
September 2021	310	310	166	4,511	27
October 2021	45	45	27	551	20
December 2021	740	740	210	8,850	42
January 2022	74	74	36	1,608	45
February 2022	285	285	169	3,720	22
March 2022	400	400	202	4,090	20
April 2022	415	415	202	7,493	37
May 2022	353	353	179	5,407	30
June 2022	144	144	73	2,183	30
<b>Total</b>	<b>5,738</b>	<b>5,738</b>	<b>2,908</b>	<b>84,668</b>	<b>29</b>

Advanced FNL notice is provided by the loss of partial power source(s) that can be identified by the customer meters, caused by conditions such as backfeeds, open circuits, or one of two phase loss

# PV Detection Implementation Plan

We are updating documentation as well as creating training for our field and control center teams with anticipated implementation by June and continuous improvement activities to follow.

Task	Task	Start	End	May	June	July	August
Partial Voltage	<b>1</b>	<b>Develop Operationalize Procedures</b>					
	1.1	Develop Operations / Dispatch process	2-May	20-May	█		
	1.2	Develop Operations bulletin	21-May	20-Jun		█	
	1.3	Develop training for bulletin	21-May	8-Jun		█	
	1.4	Deliver training to operators	8-Jun	10-Jun		█	
	<b>2</b>	<b>Change Management - Control Centers</b>					
	2.1	Begin Pilot in South DCC: Stockton, Fresno, Kern	17-Jun	17-Jun		█	
	2.2	Communicate to Electric Dispatch	17-Jun	30-Jun		█	
	2.3	Evaluate Pilot Expansion & Implementation	31-Jul	31-Jul			█
	<b>3</b>	<b>Change Management – Field</b>					
	3.1	Communicate to Field Operations	17-Jun	30-Jul		█	
	<b>4</b>	<b>Continuous Improvement</b>					
	4.1	Feedback & Continuous Improvement activities TBD	1-Jul	31-Aug			█

TODAY

# Partial Voltage Pilot

We propose to start implementing PV force out procedure via pilot in select Divisions beginning 6/17 before implementing across the balance of HFRA service territory.

## Recommendation to pilot in Stockton, Fresno, and Kern divisions driven by:

- Circuits in these divisions (Southeastern portion of service territory) frequently meet our Enablement Criteria (e.g., PV Detection process will be active)
- Pilot planned to be hosted out of South Distribution Control Center to concentrate data / feedback collection
- Scoping of all circuits in a division allows for instructions to field and operators to be consistent (e.g., reduce operational risk)
- Lower outage frequency and moderate YTD EPSS outage size and duration

Division	HFRA EPSS Circuits	2022 YTD Enabled	HFRA Miles	2022 EPSS Outages	Average CESO	CAIDI
SIERRA	92	92	4,559	22	1,654	● 249
NORTH VALLEY	89	87	3,890	25	914	● 190
HUMBOLDT	75	41	3,191	2	798	● 168
CENTRAL COAST	71	59	1,773	14	352	● 155
LOS PADRES	60	60	1,817	19	925	● 172
NORTH BAY	50	48	998	11	1,861	● 271
SONOMA	50	50	1,449	13	311	● 236
DIABLO	45	45	328	2	3,221	● 163
YOSEMITE	38	38	2,719	10	1,274	● 188
SAN JOSE	33	30	338	5	1,432	● 133
MISSION	32	29	251	-	-	-
<b>STOCKTON</b>	29	29	2,005	7	404	● 294
PENINSULA	27	21	357	-	-	-
<b>FRESNO</b>	26	26	1,009	8	189	● 369
SACRAMENTO	26	26	308	13	1,140	● 379
EAST BAY	24	12	112	-	-	-
<b>KERN</b>	18	18	160	2	52	● 353
DE ANZA	14	14	281	2	336	● 64
	799	725	25,543	155	980	● 215

NOTE: Enablement and outage data through 5/31/22





# EPSS Newsletter

VOLUME 9

## The Latest EPSS Updates, Important Dates and More

As we continue to enable Enhanced Powerline Safety Settings (EPSS) in high fire-risk areas (HFRA), we are focused on enhancing our enablement criteria, minimizing the impact of outages on customers and conducting ongoing outreach and education.

### YEAR-TO-DATE EPSS PROGRESS\*

- > **1.5 million** Customers Protected by EPSS
- > **25,176 miles** Protected in High Fire-Risk Areas
- > **229 outages** on Protected Lines
- > **77% ignition reduction** Compared to the 2018-2020 Average\*\*
- > **196 minutes** Average Outage Duration (Based on CAIDI)

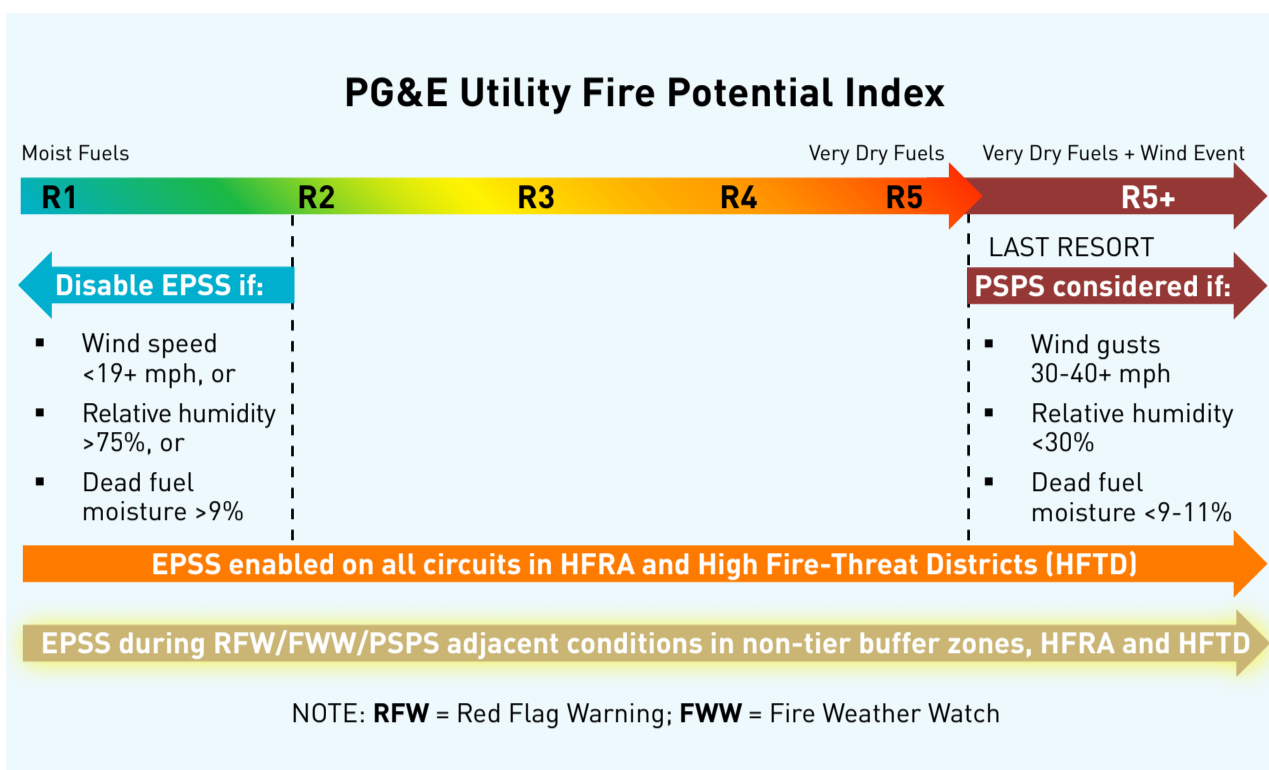
\*All data is approximate and subject to change. Data through June 8, 2022.  
 \*\*Preliminary ignition data through June 12, 2022. Ignition incidents under investigation and ignition confirmation may not yet be determined.

### UPDATING EPSS ENABLEMENT CRITERIA

Based on the early-season wildfire activity we are seeing as we approach mid-June, we have moved forward with enabling EPSS on more circuits more often.

As the chart on the right shows, we are now characterizing our actions as disabling rather than enabling circuits.

The primary tool we use to guide when to enable EPSS is our internal Fire Potential Index (FPI). The FPI takes into account weather, fuel moisture, topography and fuel model type. These factors combine to produce a one to five plus scale of wildfire risk, or R1 to R5+. This index drives EPSS enablement at the circuit level and the need for Public Safety Power Shutoffs (PSPS).

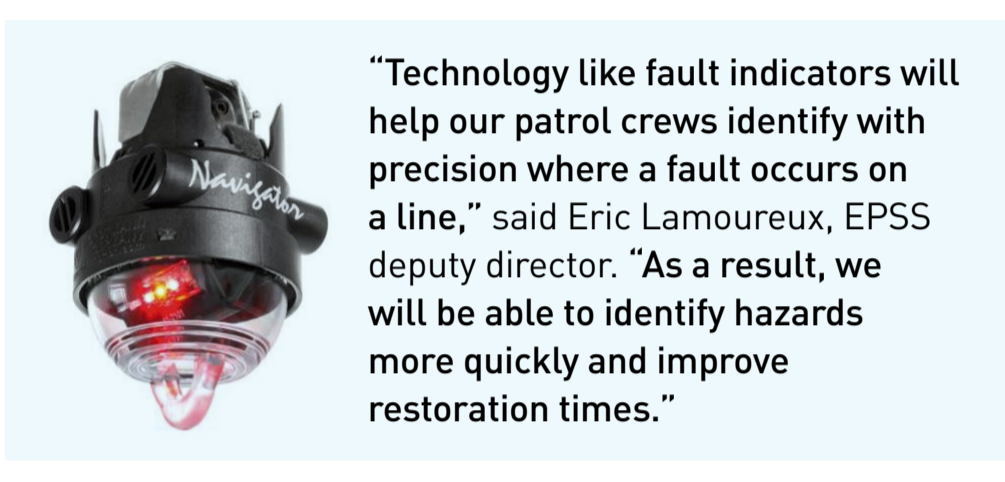


Our number one priority is the safety of the customers and communities we serve. That is why we are continually evaluating and refining our enablement criteria based on the wildfire risk we monitor daily.

### MINIMIZING THE IMPACT OF EPSS FOR CUSTOMERS

We are taking action to reduce the burden of outages on our customers and communities, without compromising safety. This includes:

- Conducting vegetation management to keep overhanging tree limbs and branches away from powerlines.
- Installing approximately 4,100 fault indicators in nearly 1,600 locations by the end of 2022.
- Identifying common outage causes to prevent repeated outages.
- Adapting our patrol methods to shorten restoration times.

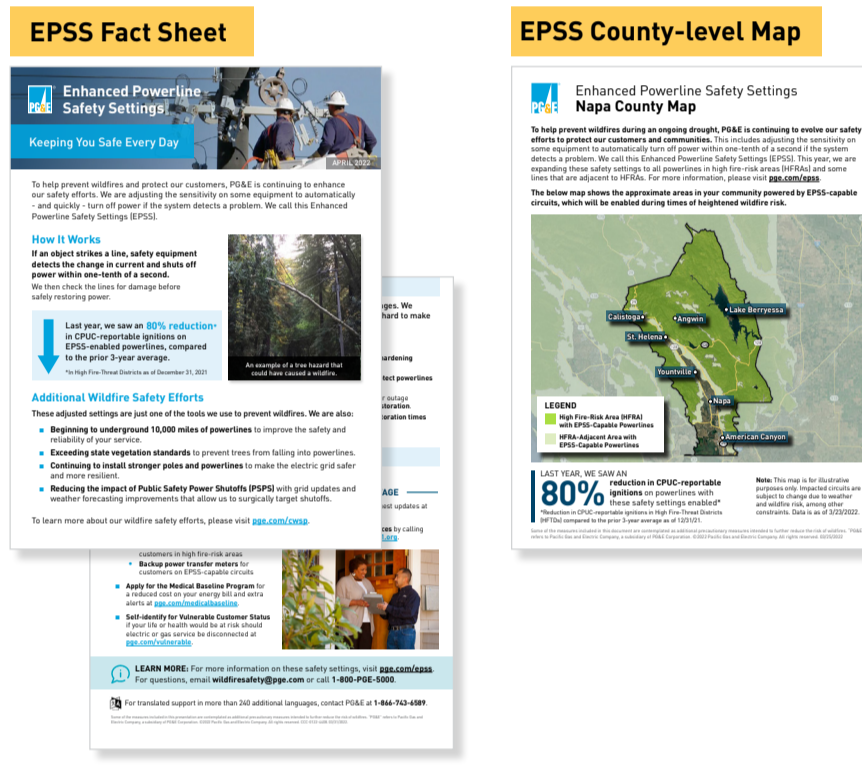


### COMMUNITY OUTREACH

This month, local government agency representatives will receive an email they can share with their community partners to educate customers about EPSS and help them prepare for unplanned outages. This includes materials and images for their website and social media channels.

**County-level maps** are being shared to show approximate areas protected by EPSS-capable circuits. We are also sharing educational pieces on EPSS, including our **video**, **fact sheet**, **infographic**, **residential preparedness guide** and **non-residential/master-meter landlord guide**.

In addition, we are directing customers to our website to discover backup power options and attend our wildfire safety webinars to learn more about our safety and mitigation efforts in their community.



### EPSS TEAM SPOTLIGHT

Protecting more than 43,000 distribution line miles with EPSS-capable powerlines requires contributions from many dedicated EPSS employees. We are proud to highlight a few members of the EPSS team who are making this effort possible.

**OAKLAND**  
Attorney, Law Department

“I believe that PG&E will gain back the trust of our customers, the public and regulators through our actions and leading by example.”

10 YEARS AT PG&E

**FUN FACTS**

**Early dream job**  
I had dreams and pursued a career in professional baseball, but I also focused on academics as my “backup” plan.

**Favorite sports team**  
I started playing rugby in college and continued playing through and after law school. I played with a club in New Zealand for a summer, so I would have to say that my favorite sports team is the New Zealand All Blacks, especially when they do the “Haka” before every game!

**Favorite safety tip**  
As an economics major and self-proclaimed nerd, I do a risk-benefit analysis in everything I do in life, including my hobbies, such as mountain biking.  
Before every ride, I do a “safety tailboard” and even conduct a “site hazard assessment” for every trail. Job tailboards and hazard/risk assessments are just as applicable to everything we do in life. Safety is always first!

**How are you involved in the EPSS Program?**  
My legal work on PSPS and the Wildfire Safety Inspection Program (WSIP) was a natural fit for, and transition to, EPSS.

**What do you like most about your role in the EPSS Program?**  
Working with a team who genuinely cares about the safety of the public and the customers we serve. The team is dedicated to mitigating wildfire risk and supporting all customers impacted by the challenges of living in HFRAs.

**How is your work on the EPSS Program important to you personally? Your work with PG&E?**  
Having participated in our first PSPS in 2018 and WSIP in 2019, witnessing some of the most catastrophic wildfires in California history was life changing for me. I gained an appreciation for, and greater understanding of, the impacts of climate change and the obligation we have as a utility to operate a safe electric infrastructure under the most challenging environmental conditions.

Because we operate in such a highly regulated industry, as an attorney, it is my role to navigate the EPSS Program and team through the regulatory/legal landscape, which includes oversight from the California Public Utilities Commission (CPUC), Office of Energy Infrastructure Safety (OEIS), local agencies and the public. EPSS is an innovative and effective wildfire mitigation tool, and it is important that we not only focus on the operational, engineering and programmatic success, but we do so in a manner that meets regulatory and legal requirements.

**How would you describe the significance of the EPSS Program?**  
Given the environmental challenges we are facing and the complexities of operating an electric infrastructure in areas with the highest risk of wildfires, EPSS has proven to be an effective tool to mitigate wildfire risk.

The EPSS Program really goes to the heart of *everything and everyone is always safe* and by doing so, we are also *leading with love*. I am a huge believer in leading by action and behavior. I believe that PG&E will gain back the trust of our customers, the public and regulators through our actions and leading by example. Actions speak louder than words!

**SAN CARLOS**  
Expert, Local Government Affairs

“The EPSS Program allows me to talk about all the people and components that work together safely and efficiently behind that light switch on the wall.”

8 YEARS AT PG&E

**FUN FACTS**

**Early dream job**  
As a child, I thought I wanted to be an airline pilot. Then eyesight genetics took over.

**Favorite sports team**  
SF Giants, 49ers, Missouri Tigers and GW Colonials

**Favorite safety tip**  
Growing up on a tropical island in the Pacific: never, ever go into the ocean without shoes.

**How are you involved in the EPSS Program?**  
Explaining EPSS and communicating with local jurisdictions regarding EPSS details, timing and answering questions. I also clarify confusion among PSPS, EPSS, rolling outages, planned outages and the various unplanned varieties.

**What do you like most about your role in the EPSS Program?**  
It’s another opportunity to tell PG&E’s story and highlight the details and complexities of bringing electricity to a home or business. It allows me to talk about all the people and components that work together safely and efficiently behind that light switch on the wall.

**How is your work on the EPSS Program important to you personally? Your work with PG&E?**  
I’m a newspaper reporter by training and education, so I like telling stories and translating complex topics into plain language. I also try to express the pride I have in being colleagues with an army of professionals – whether at a desk or climbing a pole in the rain – making sure millions of Californians can see, work, eat and stay warm.

**How would you describe the significance of the EPSS Program?**  
Two words: ignition prevention. EPSS is among the tools PG&E (and other utilities) uses to reduce the likelihood of a wire-caused ignition. My best example: masks, vaccines, social distancing, hand-washing and avoidance of crowded spaces are all tools to prevent infection. It all works together.

**UPCOMING EVENTS**

**15 JUNE** [Virtual Safety Town Hall for San Mateo County](#)

**15 JUNE** [Wildfire Safety Webinar in Hmong for ALL Counties](#)

**16 JUNE** [Wildfire Safety Webinar in Spanish for Amador, Calaveras, El Dorado, Nevada, Placer, Plumas, Sacramento, San Joaquin, Sierra, Solano, Stanislaus, Sutter, Tuolumne, Yolo and Yuba Counties](#)

**22 JUNE** [Virtual Safety Town Hall for Monterey and San Benito Counties](#)

**RECENT EVENTS**

**6 JUNE** [CPUC EPSS Briefing](#)

**6-10 JUNE** [Mid-Year Safety Focus for All Coworkers and Contractors](#)

**7 JUNE** [Napa County Board of Supervisors Meeting](#)

**8-10 JUNE** [Q2 Regional Working Groups](#)

**9 JUNE** [Wildfire Safety Webinar in Spanish for Fresno, Kern, Kings, Madera, Mariposa, Merced and Tulare Counties](#)

**RESOURCES FOR YOU** | Learn more about EPSS by visiting our internal and external EPSS webpages. We encourage you to reach out to the EPSS team with any questions via email.

Internal EPSS webpage

External EPSS webpage

Reach the team

## Serious Injury and Fatality (SIF) Standard

### SUMMARY

This Standard describes an Enterprise approach for the prevention or mitigation of exposures that have the potential to cause a Serious Injury or Fatality (SIF) in the workplace.

The purpose of the Standard is to provide an approach for identifying SIF incidents (both actual and potential), verifying that the proper controls are in place to prevent workers from suffering fatal, life-threatening, and -altering injuries, and investigating SIF incidents (both actual and potential).

This Standard aligns with federal, state, and local regulations.

#### NOTE

PG&E and contractor motor vehicle incidents (MVI) and MVI injury SIF classifications are not included in this Standard. These classifications are covered under the SAFE-1002S Motor Vehicle Safety Standard.

### TARGET AUDIENCE

- Management personnel in Lines of Business (LOBs) responsible for ensuring that compliance requirements for SIFs are known and followed.
- Personnel providing and creating procedural content for SIFs.
- Training Academy, or employees or contractors (“personnel”) developing training for SIFs.
- Enterprise Health & Safety (EHS) personnel who provide expertise and cooperation to LOBs on SIFs.
- Other personnel wanting knowledge of PG&E’s requirements for SIFs.

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## Serious Injury and Fatality (SIF) Standard

### REQUIREMENTS

#### 1 Objective

- 1.1 To outline standard processes used in identifying, preventing, and investigating SIF potential and actual incidents, preventing or reducing the occurrence of SIF incidents, and strengthening PG&E's safety and health programs.
- 1.2 This Standard applies to accidents from work performed at or for PG&E that resulted in or had the potential to result in any of the following to PG&E employees, contractors, or directly supervised contractors:
  1. A fatality – work-related fatal injury or illness
  2. A life-threatening injury or illness required immediate life-preserving action that if not applied immediately, would likely have resulted in the death of that person
  3. A work-related life-altering injury or illness that resulted in a permanent and significant loss of a major body part or organ function

#### 2 Roles and Responsibilities

The following roles and responsibilities should not be considered all-inclusive.

##### 2.1 EHS will:

1. Develop and implement Enterprise standards, procedures, and processes. Provide subject matter expertise and guidance on SIF determinations to individual LOBs.
2. Establish and maintain the Hazard Energy Sources and Subtypes and update as needed. At a minimum, an annual review is required
3. Establish and maintain the SIF Hazard (High-Energy) Icons and update as needed. At a minimum, an annual review is required.
4. Establish and maintain the SIF Determination Flowchart and update as needed. At a minimum, an annual review is required.
5. Provide guidance documents, tools, observation system requirements, and coaching to support field observations.
6. Provide subject matter expertise and lead the cause evaluation analysis of SIF Actual incidents.
7. Develop and maintain the SIF investigation/cause evaluation process and workflow per GOV-6102S, Enterprise Cause Evaluation Standard.

## Serious Injury and Fatality (SIF) Standard

8. Provide subject matter expertise for guidance on cause evaluations for SIF Potential incidents.
9. Develop and implement Enterprise change and communications strategy, materials, and tools (e.g., SIF Determination Flowchart). Provide guidance to the LOBs in the development of change and communication tools for specific LOB needs.
10. Coordinate the development of training materials for use company-wide. Integrate materials into company training programs, where applicable.
11. Manage the collection of data and reporting of program metrics. Analyze company-wide incident and leading indicator data to provide insight and guidance on SIF program enhancements and LOB-specific opportunities.
12. Partner with LOBs on implementation and sustainability of the SIF Program.
13. Audit the SIF program implementation and effectiveness to maintain continuity of definitions and interpretations.
14. Lead the Enterprise SIF Team.

### 2.2 Lines of Business (LOB) will:

1. Review all injuries, near-hits and safety incidents submitted through the Enterprise Corrective Action Program (ECAP) and the Serious Incident Notification emails to determine SIF classification. For incidents involving an uncontrolled release of high energy or a serious injury (see appendix A), a further review by the complete LOB SIF Review Team is required.
2. Establish a SIF Review Team to:
  - a. Assess all high-energy incidents resulting from work performed at PG&E or for PG&E as reported through ECAP, SEMS or Serious Incident Notification emails.
  - b. Assess all serious injuries that are a result of work performed at PG&E or for PG&E as reported through the ECAP, or the Safety Incident Notification emails.
  - c. Determine SIF classification within 48 hours of incident occurrence. If the 48-hour mark occurs on a weekend or holiday, classification must be finalized on the next business day
3. Ensure the LOB SIF review team utilizes the SIF Determination Flowchart (Attachment 1) to classify incidents and determine the cause evaluation type required per section 5.2.
4. Document SIF Review Team decisions and justifications in CAP per section 6.2.

## Serious Injury and Fatality (SIF) Standard

5. Follow the SIF Incident Naming Standardized Format (see Attachment 4) for all injuries and near hits classified as a SIF Actual or Potential
6. Develop and implement LOB-specific SIF communications, procedures, processes, and training where applicable. Ensure consistency with Enterprise SIF Program.
7. Establish the frequency and processes for leaders to perform SIF Observations utilizing the Enterprise systems and tools.
8. Integrate the SIF standard, procedures, and processes into job planning and execution (e.g., JSSA). Develop and implement LOB-specific procedures, where applicable.
9. Conduct a cause evaluation for each SIF incident (Actual or Potential) per GOV-6102S, Cause Evaluation Standard.
10. Provide the required data to the CAP/SEMS systems as it relates to SIF incidents.
11. Appoint a LOB representative that will serve on the Enterprise SIF Team (when necessary).
12. Analyze LOB incident (lagging) and leading indicator data to provide insight and guidance on SIF program enhancements at the LOB level.
13. Ensure LOB leadership has visibility related to the SIF incidence rate, type of SIF incidences, and corrective actions associated with SIF incidents.
14. Audit the performance of LOB SIF Observations and other aspects of the SIF program to verify the quality of implementation.
15. Document and maintain information on reviews and SIF determinations.

### 2.3 Enterprise SIF Team will:

1. Provide a standard, consistent, and effective approach for implementing the SIF methodology, tools, processes, and systems at PG&E.
2. Provide direction on the communications and change management approach for SIF activities.
3. Ensure integration of SIF efforts across the LOBs and share best practices.
4. Provide a uniform One PG&E approach and strategy for SIF implementation in all aspects of hazard identification, mitigation, and integration with investigations, observations, job planning, lessons learned, corrective actions, etc.
5. Develop or review business cases for enterprise SIF safety-related initiatives and efforts for endorsement.

## Serious Injury and Fatality (SIF) Standard

6. Represent and champion SIF-related initiatives across PG&E and sponsor the initiative within each LOB.
7. Provide a forum for each LOB to share information and lessons learned related to SIF effectively.
8. Represent and communicate back to the LOB on SIF-related issues.
9. Provide input about training and communications materials for use by LOBs related to the SIF program.

### 2.4 ECAP Team will:

1. Per GOV-6102S, be responsible for the cause evaluation process, training, tools, and subject matter expertise, including providing guidance to the LOB ECAP Teams and LOB SIF Teams, as needed.
2. Participate in the activities of the Enterprise SIF Team, providing subject matter expertise to the LOBs in the performance of cause evaluations.
3. Verify that cause evaluation standards, procedures, training, and guidance documents include the requirement to evaluate SIF incidents.

## 3 Hazard Energy Sources and Subtypes

- 3.1 The Hazard Energy Sources and Subtypes (see Attachment 2) are maintained by EHS and accessible to all employees and leaders. These are used to assess and identify a hazard's energy.
- 3.2 Hazard Energy Sources and Subtypes are utilized by SIF Review Teams when making SIF classifications

## 4 SIF Hazard (High-Energy) Icons

- 4.1 The SIF Hazard (High-Energy) Icons (see Attachment 3) are maintained by the Enterprise SIF Team and are accessible to all employees and leaders. SIF Hazard Icons are helpful and straightforward high-energy condition thresholds but are NOT all-inclusive or absolute. The complete context of every incident will be evaluated to determine if conditions as they existed meet the high-energy threshold. There are also conditions not included as a specific SIF Hazard icon with enough energy to exceed the high-energy threshold.
- 4.2 SIF Hazard (High-Energy) Icons will be incorporated into job planning and procedures, where applicable (including JSSAs, LOB procedures, and the Code of Safe Practices [CSP]).
- 4.3 SIF Hazard (High-Energy) Icons are utilized by SIF Review Teams when making SIF classifications.

## Serious Injury and Fatality (SIF) Standard

### 5 Cause Evaluations

- 5.1 All cause evaluations will follow GOV-6102S.
- 5.2 For incidents reviewed by the LOB SIF Teams, the following cause evaluation type is required based on classification:
  - 1. High-Energy SIF (HSIF), Low-Energy SIF (LSIF), Root Cause Evaluation (RCE)
  - 2. SIF Potential (PSIF): Apparent Cause Evaluation (ACE)
  - 3. Non-SIF: Capacity (CPCY), Success (SUCC), Exposure (EXP), Low Severity (LSEV): Work Group Evaluation (WGE) or an Apparent Cause Evaluation (ACE)
- 5.3 LOB Vice President or Director approval per CE procedure is required to escalate the CE type to a higher than minimum required level.
- 5.4 In all cases, any SIF Actual and Potential classification or CE type de-escalation requires the written approval of any of the following EHS Senior Manager of SIF Investigations, ECAP Director of EHS, Vice President of EHS or Chief Safety Officer.
- 5.5 The SIF Cause Evaluation Team will use the SIF Cause Evaluation Closeout Checklist (see attachment 5) after the SIF Investigation has been completed. (Do not use if the investigation is on Legal Hold)

### 6 Reporting/Analysis/Metrics

- 6.1 When an incident is identified as SIF Actual or SIF Potential, data must be collected to support reporting requirements. The reporting requirements include, but are not limited to:
  - 1. Count the number of HSIF, LSIF, PSIF, Exposure, Capacity, and Low Severity incidents classified by LOB SIF Review Teams in a specified period.
  - 2. Identify the related Energy Sources for SIF incidents.
  - 3. Identify the corrective actions resulting from SIF incident investigations, including but not limited to responsible parties, related dates, and completion verification information.
  - 4. Monitor the lifecycle of the SIF incident and corrective actions.
- 6.2 When an incident involving an uncontrolled release of high energy or a serious injury has been classified by the LOB SIF Review Team, information must be recorded in the appropriate database (CAP or SEMS). The specific information required includes, but is not limited to:
  - 1. Energy source
  - 2. Energy source subtype

## Serious Injury and Fatality (SIF) Standard

3. SIF classification
  4. SIF classification justifications - Brief statement documenting why the SIF Review Team determined yes or no to every SIF Determination Flowchart question
- 6.3 SIF Cause Evaluation teams must validate the SIF classification made by the LOB SIF Review Team. Data must be entered into the relevant system (CAP or SEMS) before closing the investigation portion of the incident management process. Data required supported by the investigation, including any modification needed to those identified at the time of initial classification at this time includes, but is not limited to:
1. Energy source
  2. Energy source subtype
  3. SIF classification justifications
- 6.4 SIF-related metrics and associated targets may be identified in several forums, including but not limited to the Enterprise SIF Working Team and the LOB SIF Teams. Metrics include:
1. Count of SIF Actual and SIF Potential incidents distinguishable by incident type (Injury, MVI, Near Hit, CAP issue).
  2. SIF % exposure (SIF Potential incidence rate + SIF Actual incidence rate).
  3. % SIF-related Corrective Actions completed on time.
- 6.5 LOB SIF Teams will share current and potential SIF-related metrics with the SIF Program Manager before implementation in support of a standard Enterprise approach, ensuring no unintended consequences and best practice development.
- 6.6 SIF incident data collected through the SEMS and CAP tools supports real-time visibility through the CAP Dashboard. Metric calculation for purposes of reporting will follow applicable practices. Details related to specific metric definitions and reporting conventions can be found in the annual process documentation for the relevant reporting forum, e.g., LOB Executive Dashboard, etc.
- 6.7 Basic trend information for SIF incidents is available via the Safety Statistical Information webpage.

### **7 SIF Program Sustainability**

- 7.1 The following criteria are used to verify the integrity and sustainability of the SIF program:
1. Consistent definitions of SIF Determination Classifications, Hazard Energy Sources and Subtypes, SIF Hazard (High-Energy) Icons, and SIF Determination Flow Chart are in place and used by all LOB's.



## Serious Injury and Fatality (SIF) Standard

2. All LOBs use hazard Energy Sources and Subtypes and SIF Hazard (High-Energy) Icons to help determine SIF Exposure.
3. SIF has been fully integrated into work planning, work control, and observation processes across all LOBs.
4. Procedures are in place to develop additional Hazard Energy Source Subtypes and SIF Hazard (High-Energy) Icons as supported by data collected from SIF Review Team classifications and SIF Field Safety Observations.
5. Processes and procedures are in place that will allow EHS to detect patterns and trends associated with the reported SIF incidents.
6. Procedures are in place that allow for continuous improvement of the SIF program as new incidents occur and additional data is collected from cause evaluations, observations in the field, and analysis of trending.
7. A SIF Enterprise Team is in place to provide governance and oversight structure to lead and manage the SIF prevention efforts.
8. SIF sustainability and effectiveness reviews are documented on a routine basis.

### END of Requirements

#### DEFINITIONS

**ACE** - Apparent Cause Evaluation. A formal investigation based on readily available data and information and uses industry-accepted analysis methods to provide reasonable assurance that the cause of the problem was identified and identify corrective actions to reduce the likelihood or recurrence of the problem for a similar cause.

**CAP** - Corrective Action Program. Provides personnel with a process to identify, evaluate, resolve, and document issues, incidents and event. The issues are assessed for risk, evaluated, and any resulting corrective and preventive actions are tracked to completion.

**Capacity** – Incident where a direct control was present that provided worker(s) the ability to recover from a high-energy incident without life-threatening or altering injury.

**CE** - Cause Evaluation. One of several types of analysis used to identify the apparent or root cause of an accident or incident. Root Cause (RCE), Apparent Cause (ACE), and Work Group (WGE) evaluations are utilized by PG&E.

**Direct Control** - A barrier specifically targeted to the high-energy source; effectively mitigates exposure to the high-energy source when used correctly and provides the capacity to recover from the high-energy incident without suffering a serious injury or fatality

## Serious Injury and Fatality (SIF) Standard

**ECAP** - Enterprise Corrective Action Program. The PG&E group is responsible for implementing and maintaining the Corrective Action Program (software and supporting tools) used to track worker-reported deficiencies and items requiring attention for safety, performance, or other reasons.

**Enterprise SIF Team** - Develops a common framework, processes, and tools to identify SIF

exposures, mitigate hazards, and learn from actual and potential incidents. Representatives from the LOBs, the Planning and Governance group, the Cause Evaluation team, and EHS are included in the team. Other representatives from stakeholders may be included as deemed necessary.

**Exposure** – Incident where workers did not lose control of a high-energy source but did not have a direct control present.

**High-Energy** – Energy source across the energy forms gravity, motion, mechanical, electrical, pressure, sound, radiation, biological, chemical, and temperature where the physical energy meets a lethal level of force.

**High-Energy Incident** - An instance where the worker(s) lost control of a high-energy source, and a worker(s) came in contact with or in proximity to the high-energy source.

- Contact is defined as an instance when the high-energy is transmitted to the human body.
- Proximity is defined as a circumstance where the boundary of the high-energy exposure:
  - is within 6 feet of a worker who has unrestricted egress

OR

- is within any distance to a worker in a confined space, or the worker cannot escape the high-energy source

OR

- encroaches within the minimum hazard boundary distance outlined in the job task procedural guidance

**High-Energy Serious Injury or Fatality (HSIF):** Incident where a worker lost control of a high-energy source in the absence of a direct control that resulted in a fatality, life-threatening or altering injury to a worker.

**High-Energy Serious Injury or Fatality (HSIF) Potential:** A high-energy incident with the absence of a direct control where a fatality, life-threatening, or altering injury is not sustained.

**Low-Energy Serious Injury or Fatality (LSIF):** Incident where a worker lost control of a low energy source that resulted in a fatality, life-threatening or altering injury to a worker.

## Serious Injury and Fatality (SIF) Standard

**LOB SIF Team** - Team established to review and identify potential or actual SIF incidents reported through the SEMS program and tracked in the CAP system.

**Low Severity** – Incident where a worker lost control of a low energy source and did not result in a fatality, life-threatening, or altering injury to a worker.

**Near Hit** - An unplanned incident that did not result in harm or injury to employees, contractors, or the public but had the potential to do so.

**RCE** - Root Cause Evaluation. A formal and rigorous investigation that uses industry-accepted analysis methods to identify the root cause of the problem and identifies corrective actions that prevent or reduce the likelihood of a recurrence of the problem for a same or similar root cause.

**SEMS** - Safety and Environmental Management System

**SIF Actual** - A work-related high-energy incident from work at or for PG&E resulting in any of the following to employees, contractors, or directly supervised contractors:

- A fatality – work-related fatal injury or illness;
- A life-threatening injury or illness that required immediate life-preserving action that if not applied immediately would likely have resulted in the death of that person;
- A life-altering injury or illness that resulted in a permanent and significant loss of a major body part or organ function.

**SIF Potential** – A high-energy incident in the absence of a direct control where a fatality or life-threatening or altering injury is not sustained.

**Success** – When a worker did not lose control of a high-energy source and had a direct control present.

**WGE** - Work Group Evaluation

### IMPLEMENTATION RESPONSIBILITIES

Enterprise Health & Safety is the owner of this Standard and is responsible for maintaining and revising the Standard as necessary. Questions regarding this Standard should be referred to the Serious Injury and Fatality (SIF) Program Manager.

Line of Business Management ensures adherence to this Standard.

### GOVERNING DOCUMENT

SAFE-4400S, HSMS Performance Improvement Standard

## Serious Injury and Fatality (SIF) Standard

### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

#### **Records and Information Management:**

PG&E records are company assets that must be managed with integrity to ensure authenticity and reliability. Each Line of Business (LOB) must manage Records and Information in accordance with the

Enterprise Records and Information (ERIM) Policy, Standards and Enterprise Records Retention Schedule (ERRS). Each Line of Business (LOB) is also responsible for ensuring records are complete, accurate, verifiable and can be retrieved upon request. Refer to [GOV-7101S, "Enterprise Records and Information Management Standard"](#) for further records management guidance or contact ERIM at [Enterprise\\_RIM@pge.com](mailto:Enterprise_RIM@pge.com)."

California Code of Regulations Title 8 Section 3203 Injury and Illness Prevention Program

### REFERENCE DOCUMENTS

Code of Safe Practices

SAFE-2002S - Hazard Communication Standard

GOV-6102S - Enterprise Cause Evaluation Standard

SAFE-1004S - Safety Incident Notification & Response Management Standard

### APPENDICES

Appendix A, Examples of a Serious Injury

### ATTACHMENTS

Attachment 1 - SIF Determination Flowchart

Attachment 2 - Hazard Energy Sources and Subtypes

Attachment 3 - SIF Hazard (High-Energy) Icons

Attachment 4 - SIF Incident Naming Standardized Format

Attachment 5 - SIF Cause Evaluation Closeout Checklist

### DOCUMENT REVISION

NA

### DOCUMENT APPROVER

Natasha Rose, Director, Enterprise Corrective Action Program

### DOCUMENT OWNER

██████████, Safety Program Manager, Principal

## Serious Injury and Fatality (SIF) Standard

### DOCUMENT CONTACT

██████████, Safety Program Manager, Principal

### REVISION NOTES

Where?	What Changed?
Entire Standard	<ul style="list-style-type: none"> <li>Removed the term Serious Safety Incident</li> <li>Removed 500ft-lb as a threshold to define high-energy</li> </ul>
2.2.5	New guidance requiring the LOB to follow the SIF Incident Naming Standardized Format (Attachment 4) for all injuries and near hits classified as a SIF Actual or Potential
5.5	New guidance requiring the SIF Cause Evaluation Team will use the SIF Cause Evaluation Closeout Checklist (attachment 5) after the SIF Investigation has been completed. (Do not use if the investigation is on Legal Hold)
Appendix	New Appendix A, Examples of a Serious Injury
Attachments	Added the following: Attachment 4 - SIF Incident Naming Standardized Format Attachment 5 - SIF Cause Evaluation Closeout Checklist

## Serious Injury and Fatality (SIF) Standard

### Appendix A Examples of a Serious Injury

Page 1 of 2

#### Examples of a Serious Injury

A Serious Injury is a work-related life-threatening injury or illness, that requires immediate life-preserving action that if not applied immediately would likely have resulted in the death of that person

**OR**

that resulted in a permanent and significant loss of a major body part or organ function

Below are a list of injuries that can meet the definition of a Serious Injury

• Injuries that result in significant blood loss
• Cerebral hemorrhages and only severe concussions resulting in a loss of consciousness and/or symptoms lasting more than 24 hours
• Life-threatening injury to internal organs
• Permanent significant loss of a major organ function
• Brain and spinal cord injuries
• An incident requiring the application of cardiopulmonary resuscitation or an external defibrillator
• Eye injuries resulting in loss of vision
• Severe heat exhaustion and all heat stroke cases (Severe heat exhaustion cases are those where all the following symptoms are present: profuse sweating, nausea, and confusion). If confirmed fainting occurs due to the heat exposure, this is an automatic severe case. <ul style="list-style-type: none"> <li>○ Exclude cases where confirmed personal medical conditions or medications significantly contributed to heat exhaustion</li> </ul>
• Paralysis
• Amputations involving bone
• Serious bone fractures that result in permanent impairment or loss of function
• Life-threatening or altering burns (significant 2 <sup>nd</sup> degree or 3 <sup>rd</sup> degree burns)
• Significant disfiguring lacerations

## Serious Injury and Fatality (SIF) Standard

### Appendix A, Examples of a Serious Injury

Page 2 of 2

#### FAQ's

1. When should a case of organ damage be classified as serious, such as an exposure to a chemical substance?

Injuries should be classified as serious if objective medical evidence indicates significant or sustained (beyond initial event, acute treatment and testing) organ damage, or progressive changes in organ function or anatomy. This criterion does not include rapidly dissipating signs and symptoms from the acute event (such as irritation or localized redness) and their associated treatment, or injury from long term or repetitive exposures.

2. Is a hernia considered a serious case?

A hernia by itself would not be classified as a severe case. However, if the hernia causes damage to an internal organ such as a strangulated colon, it would be classified as a severe case.

3. Are broken teeth considered a serious case?

No.

4. Are partial tendon, ligament and cartilage tears included as serious injuries?

No. Partial tears are not to be classified as a serious injury.

5. Does a corneal abrasion constitute eye damage injury?

No. Corneal abrasions and/or scratches due to foreign bodies are considered minor and usually heal quickly.

6. Does loss of vision mean total loss or is some degradation of vision all that is required to meet the serious injury criteria?

Loss of vision means any permanent change in the employee's vision or change that requires corrective lenses.

7. If an employee receives an IV for heat exhaustion, does this make it a severe case?

The application of an IV does not necessarily indicate a severe case; further investigation should be conducted to determine if the criteria for severe heat exhaustion were met (profuse sweating, nausea, and confusion or confirmed fainting).

## Serious Injury and Fatality (SIF) Standard

### 2021-81163 Document Routing Request

**Created on:** 12/16/2021 7:40:29 AM **Status:** EDR request approved.  
**Requestor:** Pagel, Amanda **Department:** Safety Department  
**Document Type:** Standard **Readable by All:** No  
**Document Title:** Safe-1100S - SIF Program Standard  
**Dollar Amount:** \$0  
**Job Order Num:**  
**ITWR Number:**  
**Major Work Category:**

Documents		Reviewers/Approvers	
<b>Title</b>	<b>Version</b>	<input type="button" value="Modify Reviewers/Approvers"/>	
<a href="#">SAFE-1100S SIF+Program+Standard (12-21 Final).docx</a>	Original	<b>Approvers</b>	
<a href="#">SAFE-1100S Att 1 SIF Determination Flowchart.docx</a>	Original	Rose, Natasha	Approved on 12/17/2021 1:20:07 PM
<a href="#">SAFE-1100S Att 2 Haz Energy Sources Subtypes.docx</a>	Original	<a href="#">Show CC List</a>	
<a href="#">SAFE-1100S Att 4 SIF Incident Naming Std.docx</a>	Original		
<a href="#">SAFE-1100S Att 5 SIF CE Closeout Checklist.docx</a>	Original		
<input type="button" value="Consolidate Files"/>			

**Comments**



## Corrective Action Program Policy

### **POLICY STATEMENT:**

It is Pacific Gas & Electric Company's (PG&E's) policy to continuously improve performance and mitigate risks through an enterprise-wide Corrective Action Program that is designed to do the following:

- Identify and track actual and potential issues, problems or concerns.
- Determine risks and causes and implement corrective or preventative actions.
- Assess the effectiveness of corrective or preventative actions.
- Leverage opportunities for improvement.

The level of response to a problem, issue, concern, or opportunity for improvement depends on the level of associated risk, considering the impact on the risk factors of safety, the environment, compliance, reliability, reputation, and financial performance.

Each PG&E line of business (LOB) is required to incorporate a corrective action process in its operating procedures and governance processes. The Vice President, Safety and Health and Chief Safety Officer, is the executive sponsor of the Enterprise Corrective Action Program (ECAP).

The development and maintenance of the Nuclear Generation Corrective Action Program (CAP) process, is governed by program Guidance Documents which specifically address Nuclear Regulatory Commission and nuclear insurer requirements.

### **TARGET AUDIENCE**

Officers and directors of PG&E.

### **ACCOUNTABILITY:**

The Vice President Safety and Health and Chief Safety Officer, coordinating with each LOB, is responsible for developing and maintaining standards and procedures that govern implementation of this policy.

Each LOB is responsible for assigning an officer to lead the LOB Corrective Action Program (CAP). Each LOB CAP officer is responsible for ensuring that problems, issues, concerns, or opportunities for improvement are managed in compliance with standards and procedures that implement this policy.

## Corrective Action Program Policy

**APPROVAL:**

<b>Key Contact:</b>	Natasha Rose, Dir, Enterprise Corrective Action Pgm
<b>Reviewed by:</b>	Enterprise Corrective Action Program Leadership Team
<b>Sponsoring Officer:</b>	Francisco Benavides, VP and Chief Safety Officer
<b>Final Review by Compliance and Ethics:</b>	12/20/2018
<b>Approved by:</b>	Natasha Rose, Dir, Enterprise Corrective Action Pgm

**REVISION NOTES**

Where?	What Changed?
Entire Policy.	Updated Responsibilities and Approvals

NOTE: Key Contact updated from Gary Close to Natasha Rose,  
Sponsoring Officer updated from Jon Franke to Francisco Benavides, Approved by updated from Jon Franke to natasha Rose 2/21/2021

## PG&E Report It Mobile App – Salesforce Triage Process

### SUMMARY

The general public uses the PG&E Report It Mobile App ([Report It App](#)) to submit safety concerns with photos or video of potential safety hazards that could impact the utility's electric infrastructure. This utility procedure describes the process for responding to (triaging) those submissions.

Level of Use: Informational Use

### TARGET AUDIENCE

The target audience includes the following personnel:

- Electric operations
- Vegetation management
- Maintenance and construction (M&C)
- Estimating
- Asset strategy
- Dispatch and scheduling
- Distribution field operations
- Planning
- Engineering system inspection
- Contractors
- Construction crews
- Job owners
- Program managers

### SAFETY

Using the [Report It App](#) reduces the risk of catastrophic wildfires and other safety hazards to keep the public safe.

This procedure describes administrative tasks that do not expose personnel to any significant hazards.

### BEFORE YOU START

- From [My Electronic Access](#), SELECT **PGESVC – REPORT A PUBLIC SAFETY CONCERN TRIAGE DATA READ AND EDIT** to gain access to the Salesforce web application ([Salesforce](#)).
- COMPLETE the following PG&E Academy training courses:
  - TECH-0017WBT – Report It App for Contact Center Reps
  - TECH-0018WBT – Salesforce for Safety Triage Team
  - TECH-0019WBT – Palantir Foundry for PG&E Users

## PG&E Report It Mobile App – Salesforce Triage Process

### TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Process New Submission .....	2
2	Assess the Issue.....	4
3	Answer CPUC-Mandated Questions .....	5
4	Email/Contact the Submitter for More Information.....	6
5	Create a PSM Notification .....	6
6	Ensure Case Status is Correct .....	7
7	Review the Dashboard .....	8
8	Close the Case .....	8

### PROCEDURE STEPS

#### 1 Process New Submission

#### NOTE

SEE [Subsection 1.2, "References,"](#) on Page 4 for attachments with detailed instructions for processing submissions, as needed.

- 1.1 After a user (referred to as “submitter” in this procedure) reports a safety concern through the [Report It App](#), a PG&E triage team member, under the Centralized Inspection Review Team (CIRT), TAKES the following actions:
1. OPEN [Salesforce](#).
  2. SIGN ON using the “Single Sign On” option.
  3. CLICK the **[Cases]** tab.
  4. SELECT **PSM - New** from Lists.
  5. CLICK the case number to open the case and review the case details.
  6. REVIEW all pictures/photos, case information, GPS/GIS, comments, videos, etc.
  7. RESEARCH the Asset/GPS location using any software necessary (recommended: ED GIS or Foundry).

## PG&E Report It Mobile App – Salesforce Triage Process

### 1.1 (continued)

8. DETERMINE if the case is valid or invalid:
  - Valid = confirmed PG&E asset on electric infrastructure (potential safety issues pertaining to PG&E's electric infrastructure)
  - Invalid = gas asset, third-party issue, emergency situation, outside service territory (not a PG&E asset)
9. CHECK for an existing notification in SAP.
  - a. IF there is an existing notification in SAP,  
  
THEN TAKE the following steps in [Salesforce](#):
    - (1) DOCUMENT the existing notification number.
    - (2) SELECT **Safety Concern Already Identified by PGE**.
    - (3) CHANGE the Case Status to **In Progress**.
    - (4) UPDATE the CPUC Remediation questions with the information from the SAP notification, including:
      - Date of Remedial Action = required end date or field safety reassessment (FSR) date
      - Actions to be taken to remedy the potential issue.
  - b. TAKE the following steps in SAP:
    - (1) UPDATE the existing SAP notification with User Status **MBSF**.
    - (2) UPDATE the SAP notification comments to include the submission case number and a brief description of the safety concern identified in the submission.
10. VERIFY that submitted photos do not violate PG&E's privacy policy; then RELEASE approved photos for public viewing.
  - a. IF the photos **violate** the privacy policy,  
  
THEN CREATE a public comment that states: "Unable to release photos due to a violation of the PG&E Privacy Policy."

## PG&E Report It Mobile App – Salesforce Triage Process

### 1.1 (continued)

11. IF there is an inquiry with the submitter to clarify the asset location or safety concern, THEN SELECT **More Information Needed**.
  - a. SEE the following documents for detailed instructions:
    - [Attachment 1, “Processing Safety Submissions – More Information Needed”](#)
    - [Job Aid TD-2305P-02-JA02, “Processing Submissions Needing More Information”](#)
12. ASSIGN an owner to the case – typically, this is the triage member who initially reviewed the case.
13. ASSESS the safety issue identified by the submitter. SEE [Section 2, “Assess the Issue,”](#) below for details.
  - a. TAKE appropriate next steps to rectify the concern.
  - b. DOCUMENT all analyses AND actions taken on the case.

### 1.2 References:

- [Attachment 1, “Processing Safety Submissions – More Information Needed](#)
- [Attachment 4, “PG&E Report It App Emergency Submission Templates”](#)
- Job Aids:
  - [TD-2305P-02-JA01, “Validating Case Submissions”](#)
  - [TD-2305P-02-JA02, “Processing Submissions Needing More Information”](#)
  - [TD-2305P-02-JA03, “Processing Invalid Submissions \(Gas\)”](#)
  - [TD-2305P-02-JA04, “Processing Invalid Submissions \(Third Party\)”](#)
  - [TD-2305P-02-JA05, “Processing Electric Emergency Submissions”](#)

## 2 Assess the Issue

- 2.1 USE all available job aids, procedures, field knowledge, team, pod, AND/OR other resources to accurately identify the safety concern.
- 2.2 ESCALATE complex cases to the group huddle or pod for further discussion.

**PG&E Report It Mobile App – Salesforce Triage Process**

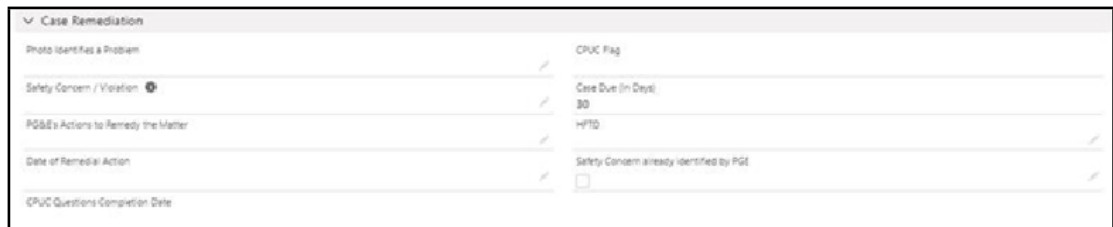
2.3 USE SAP AND GIS/Foundry to research assets and previous notifications and inspections.

1. SEE [Job Aid TD-2305P-02-JA01, “Validating Case Submissions.”](#) Steps 11–26.

**3 Answer CPUC-Mandated Questions**

3.1 Within 30 days of a submission, the California Public Utilities Commission (CPUC) requires that specific questions ([Items 3.1.1–3.1.3](#) below) be answered in the [Salesforce](#) “Case Remediation” section. Once those questions are addressed, the CPUC Flag is no longer visible.

1. ENTER the correct High Fire Threat District (HFTD) for the identified asset.
2. SELECT OR UPDATE the appropriate response to the following questions in the case details:
  - Photo Identifies a Problem (Yes/No/TBD More Information Needed)
  - Safety Concern/Violation
  - PG&E’s Actions to Remedy the Matter
  - Date of Remedial Action



**Figure 1. Salesforce Case Remediation Section**

3. IF more information is needed from the submitter or other source(s), OR IF unable to access the asset location due to issues outside of PG&E’s control,

THEN ANSWER the following questions AND ENTER a comment, as follows:

- Photo Identifies a Problem = “TBD More information needed”
  - Safety Concern or Violation = “TBD More information needed”
  - ADD a public case comment, if unable to access site due to fire threat or fire zone, such as, “Requires site visit and site is inaccessible currently due to fire threat or fire zone.”
- a. SEE [Job Aid TD-2305P-02-JA02, “Processing Submissions Needing More Information.”](#)

## PG&E Report It Mobile App – Salesforce Triage Process

### 4 Email/Contact the Submitter for More Information, If Necessary

#### NOTE

SEE the following attachments to this procedure for detailed instructions to request more information on submissions:

- [Attachment 1, “Processing Safety Submissions – More Information Needed”](#)
- [Job Aid TD-2305P-02-JA02, “Processing Submissions Needing More Information”](#)

4.1 IF additional information is needed from the submitter to triage the submission,

THEN TAKE the following steps:

1. SELECT/UPDATE the **More Information Needed** status. FOLLOW UP with emails, as needed.
2. SELECT **More Information** from the case status field.
3. SELECT **Compose** to start an email from the case details screen.
4. SELECT **template** to view the template choices.
5. SELECT the **PSM Case More Information** template.
6. ENTER standardized language or free text in the email message to the submitter (in the area above the “Case Number”).
  - a. SEE [Attachment 2, “Standardized Language,”](#) for approved language.
7. SELECT **Safetymobileappteam** as the “From” email address.
8. TRACK responses AND/OR emails for new information/pictures.
  - a. RESPOND within 48 hours of receiving an email.

### 5 Create a PSM Notification

5.1 Public Safety Mobile (PSM) notifications are created in [Salesforce](#) and then sent to SAP.

5.2 Once a case is reviewed and either validated or invalidated, DETERMINE if a corrective work ticket or SAP notification is needed.

1. This can be a **S5 S9 EC LC ECV TP/TPNU** notification.



## PG&E Report It Mobile App – Salesforce Triage Process

5.3 IF a PSM notification is needed,

THEN TAKE the following actions:

1. SELECT **New** from the PSM Notification drop-down options.
2. ENTER information in all required fields for an SAP notification.
  - a. SEE the following job aids:
    - [TD-2305P-02-JA06, “Creating a Case Notification”](#)
    - [TD-2305P-02-JA07, “Creating a Vegetation Case Notification”](#)
3. ENSURE the ItemSet is created and the notification is sent to SAP.

### 6 Ensure Case Status is Correct

6.1 IF the case status does not automatically update,

THEN UPDATE the status manually, based on the following classifications:

- **Received:** The submission is in the queue to be reviewed and assigned. The submission goes through PG&E’s verification process. Valid issues are placed in a queue for assignment. An email confirmation that the issue was received is sent to the submitter. (Submitters do not see their issue on the app until it reaches the “Assigned” stage.)
- **Assigned:** The submission is assigned and prioritized based on the severity of the issue, as presented. The goal is to move all issues to “In Progress” within 30 days. The submission can now be viewed by all users from the [Report It App](#).
- **More Information Needed:** A safety triage team and/or field team needs more information and will reach out to the submitter. At this point, the CPUC 30-day compliance deadline is met.
- **In Progress:** The triage team has reviewed and established the corrective actions necessary to remedy the issue. A safety triage team and/or field team is inspecting the issue and making necessary repairs or replacements. If the pole, wire, or equipment does not belong to PG&E, the triage team informs the company responsible with a third-party notification. The submission is in a regular maintenance cycle or with the team that will take corrective action. Once the corrective action is completed, PG&E can close the submission.
- **Closed:** The submission/issue has been repaired or addressed and closed, or the submission/issue has been deemed invalid.

## PG&E Report It Mobile App – Salesforce Triage Process

### 7 Review the Dashboard

- 7.1 REVIEW the [Salesforce](#) operational dashboard (statistics, metrics, and overall progress of submission) daily.
1. FOLLOW UP on all “More Information Needed” cases with emails to the submitter.
  2. ENSURE all cases do not exceed the 30-day deadline for CPUC-mandated responses.
  3. FOLLOW the Salesforce Quality Control (QC) Checklist for all case details (SEE [Attachment 7, Form TD-2305P-02-F01](#)).
  4. ENSURE all cases are being addressed by downstream partners.

### 8 Close the Case

- 8.1 CLOSE the case, as follows:
1. REVIEW all field investigations, details, etc.
  2. SELECT the appropriate “Info Based on SAP Notes” response in the case details.
  3. REVIEW all cases with updated information from SAP.
    - a. All information retrieved from SAP is at the notification level: Comments, Completion Date, etc. This condition must be met before the system allows a case to be closed.
  4. UPDATE the case with comment(s) stating whether additional remedial action(s) were taken.
    - a. SEE the following job aids:
      - [TD-2305P-02-JA08, “Closing Out Electric Emergency Safety Submissions”](#)
      - [TD-2305P-02-JA09, “Closing Out Safety Submissions”](#)
  5. CONTACT the vegetation program manager with questions or to clarify ambiguous comments.
  6. CONTACT any other department or personnel necessary to ensure correct information is documented for the case.

**END of Instructions**

## PG&E Report It Mobile App – Salesforce Triage Process

### DEFINITIONS

**Case status:** The status of a reported safety issue at various stages of the triage process, as follows:

- Received – The submission is in the queue to be reviewed and assigned.
- Assigned – The submission has been reviewed by the safety team and assigned to a triage team member for further investigation.
- More Information Needed – A safety triage team and/or field team needs more information to process the submission.
- In Progress – A safety triage team and/or field team is inspecting the issue and making necessary repairs or replacements.
- Closed – The issue is addressed or the submission is deemed invalid, and the issue/submission is closed.

**Notification:** Electronic method for generating orders in SAP to identify issues or deficiencies, initiate repairs, assign actions/tasks, maintain historical data, etc. Notification types include:

- EC – Electric Corrective Notification Distribution
- ECV – Electric Corrective Vegetation
- LC – Line Corrective Notification Transmission
- TP – Third Party
- TPNU – Third Party Non-Utility

**Submission:** A request for PG&E action from the public through the [Report It App](#) to mitigate or resolve a safety issue. A submission can be valid or invalid.

- Invalid – Includes emergency safety issues, gas assets, third-party issues, and issues outside PG&E's service territory.
- Valid – Is a potential safety concern to the electric infrastructure.

### IMPLEMENTATION RESPONSIBILITIES

The system inspections quality control compliance director is responsible for implementing this procedure.

### GOVERNING DOCUMENT

[Utility Standard TD-2305S, "Electric Distribution Maintenance Requirements"](#)

## PG&E Report It Mobile App – Salesforce Triage Process

### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

[CPUC Decision 20-10-003, Decision Approving Pacific Gas and Electric Company’s Mobile Application and Supporting Systems Pilot, Issued 10/12/2020](#)

#### Records and Information Management:

Information or records generated by this procedure must be managed in accordance with the Enterprise Records and Information (ERIM) program policy, standards, and Enterprise Records Retention Schedule (ERRS). Refer to [GOV-7101S, “Enterprise Records and Information Management Standard,”](#) and related standards. Management of records includes, but is not limited to:

- Integrity
- Storage
- Retention and Disposition
- Classification and Protection

### REFERENCE DOCUMENTS

#### Developmental References:

[Electric Distribution Preventive Maintenance Manual](#) (TD-2305M)

- [Job Aid TD-2305M-JA02, “Overhead Inspection”](#)

[Utility Standard TD-1001S, “Electric Transmission Line Inspection and Preventive Maintenance Program”](#)

#### Supplemental References:

NA

### APPENDICES

NA

### ATTACHMENTS

[Attachment 1, “Processing Safety Submissions – More Information Needed”](#)

[Attachment 2, “Standardized Language”](#)

[Attachment 3, “PG&E Report It Mobile App Process Flows”](#)

[Attachment 4, “PG&E Report It App Emergency Submission Templates”](#)

## PG&E Report It Mobile App – Salesforce Triage Process

### ATTACHMENTS (continued)

[Attachment 5, “Defining Safety Concerns and Violations”](#)

[Attachment 6, “System Inspections Distribution Contact List”](#)

[Attachment 7, Form TD-2305P-02-F01, “Salesforce Quality Control \(QC\) Checklist”](#)

#### Job Aids:

- [TD-2305P-02-JA01, “Validating Case Submissions”](#)
- [TD-2305P-02-JA02, “Processing Submissions Needing More Information”](#)
- [TD-2305P-02-JA03, “Processing Invalid Submissions \(Gas\)”](#)
- [TD-2305P-02-JA04, “Processing Invalid Submissions \(Third Party\)”](#)
- [TD-2305P-02-JA05, “Processing Electric Emergency Submissions”](#)
- [TD-2305P-02-JA06, “Creating a Case Notification”](#)
- [TD-2305P-02-JA07, “Creating a Vegetation Case Notification”](#)
- [TD-2305P-02-JA08, “Closing Out Electric Emergency Safety Submissions”](#)
- [TD-2305P-02-JA09, “Closing Out Safety Submissions”](#)

### DOCUMENT REVISION

NA

### DOCUMENT APPROVER

██████████, Principal, Centralized Inspection Review Team (CIRT)

██████████, Manager, CIRT

### DOCUMENT OWNER

██████████, Manager, CIRT

### DOCUMENT CONTACT

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██████████ ██████████, Expert Web Product Management Specialist, Digital Strategy

██████████ ██████████, Manager, CIRT

**PG&E Report It Mobile App – Salesforce Triage Process****REVISION NOTES**

Where?	What Changed?
NA	This is a new utility procedure.



# PG&E Lean Operating System Clear Sky Playbook



# Navigating the Clear Sky Playbook

## Tips on how to use this Playbook

The Clear Sky Playbook is the standard for the Lean Operating System: a resource and reference manual for implementing the Lean Operating System.

- Navigate using the Table of Contents
- Active links are identified by the orange font
- More than one way to get to the information you need
- Home button takes you back to the Table of Contents
- Bottom tabs on each slide takes you back to these major categories
- Tabs and Boxes represent sub-sections in each section

### Clear Sky Playbook – Table of Contents

<b>Introduction</b>	<b>The 4 Basic Plays</b>	<b>Additional Resources</b>
Why Lean?	1 <sup>st</sup> Play Visual Management	
Perspectives on Lean	2 <sup>nd</sup> Operating Reviews	
Lean Leadership Behaviors	3 <sup>rd</sup> Problem Solving	
	4 <sup>th</sup> Play Standard Work	





# Clear Sky Playbook – Table of Contents

## Introduction

Why Lean?

Perspectives on Lean

Lean Leadership Behaviors

## The 4 Basic Plays

1<sup>st</sup> Play Visual Management

2<sup>nd</sup> Operating Reviews

3<sup>rd</sup> Problem Solving

4<sup>th</sup> Play Standard Work

## Additional Resources





**Why Lean?**

**Perspectives on Lean**

**Lean Leadership Behaviors**

# Introduction

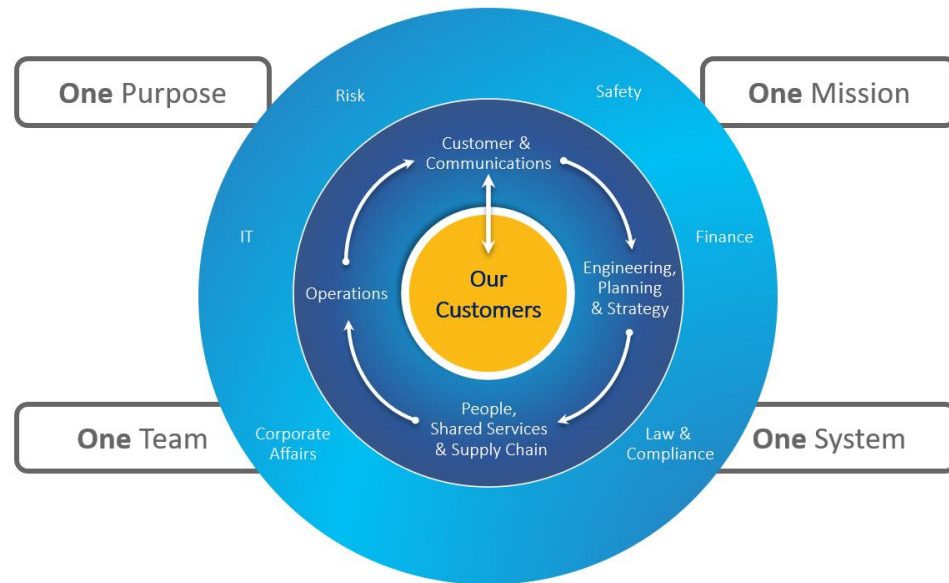
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# Why Lean?



The Lean Operating System is our new fundamental way of working as we build a better, safer PG&E for our customers, our hometowns and all of us.

It's designed to drive more effective decision-making and reduce the human struggle that many of us face in our day-to-day work and that our customers sometimes face in working with us.

Lean supports a way of working that leads to:

- A more empowered workforce
- Improved problem solving
- Clarity of the drivers of work across disciplines
- Standardized work that allows for continuous improvement
- The elimination of waste as we perform our work
- A more organized and efficient cadence of meetings to support coworkers

Ultimately, the Lean Operating System will help us improve our service for our customers and our hometowns. The result is strong performance, day in and day out.

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# Perspectives on Lean

**What is Lean?**

**Why 4 Plays?**

**Customers at the Core**

**Evolution of Lean  
Implementation**

**Evolution of Lean  
Culture**

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# Perspectives on Lean



## What is Lean?

Lean is about achieving the highest Quality, at the lowest Cost, in the shortest Lead Time for the Customer through relentless elimination of waste.

## 7 Types of Waste



# Perspective on Lean

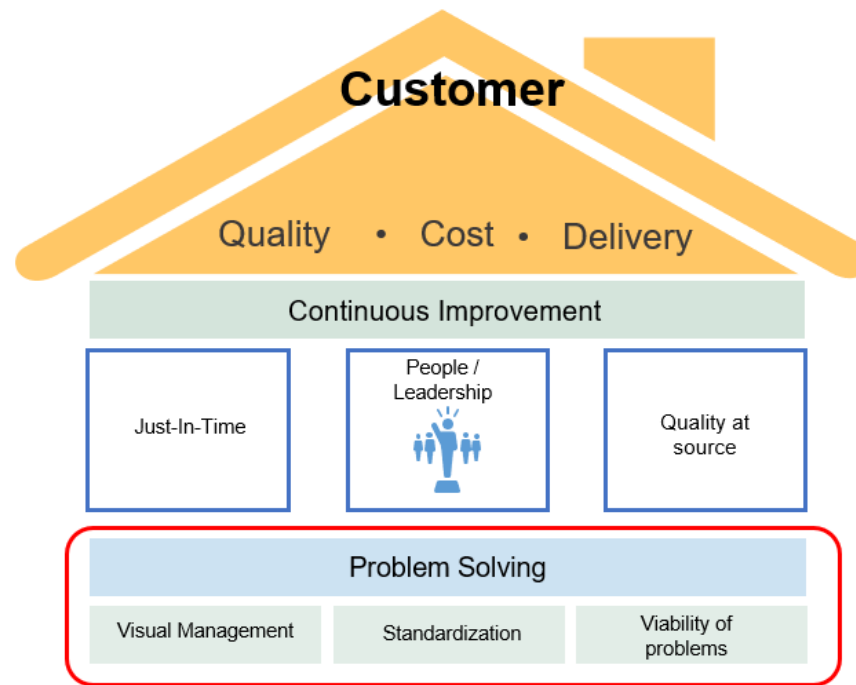


## Why 4 Plays?

The House of Lean foundations is comprised of Visual Management, Standardization, Viability of Problems which enables us to Problem Solve effectively.

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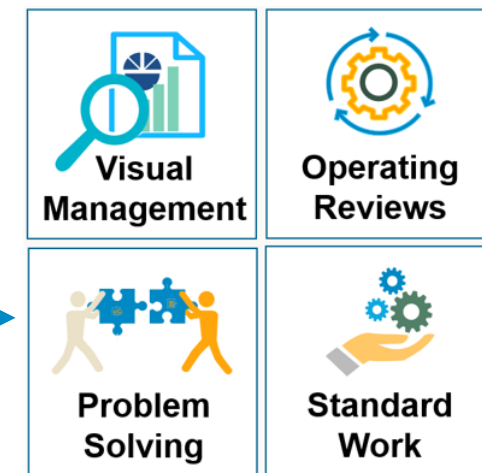
## House of Lean



4 Plays

Align with the

“Foundation” of the Lean House



# Perspectives on Lean

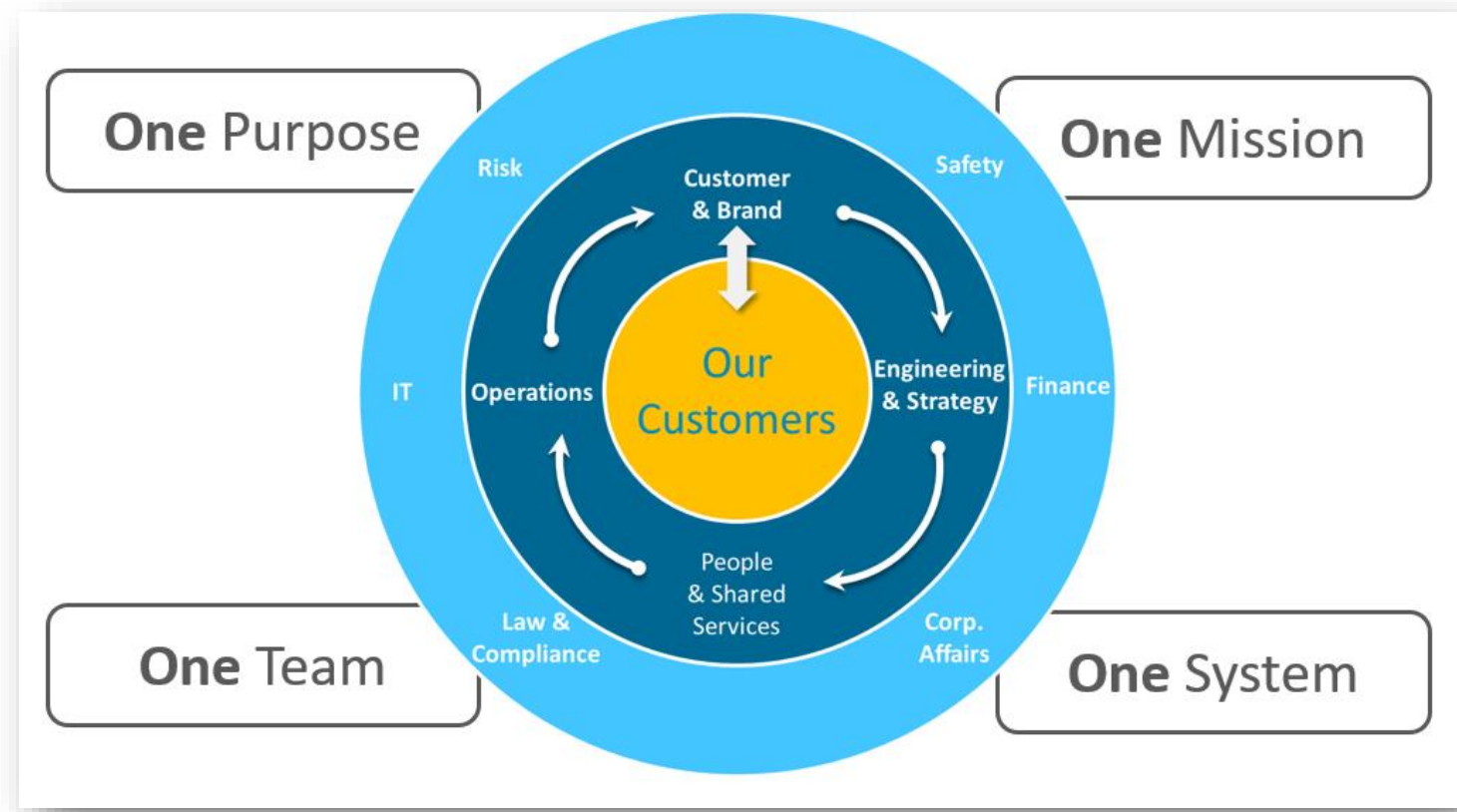


## Our Lean Journey

We at PG&E are organizing all that we do to be at service to our customers.

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## Customers at the Core



# Perspectives on Lean



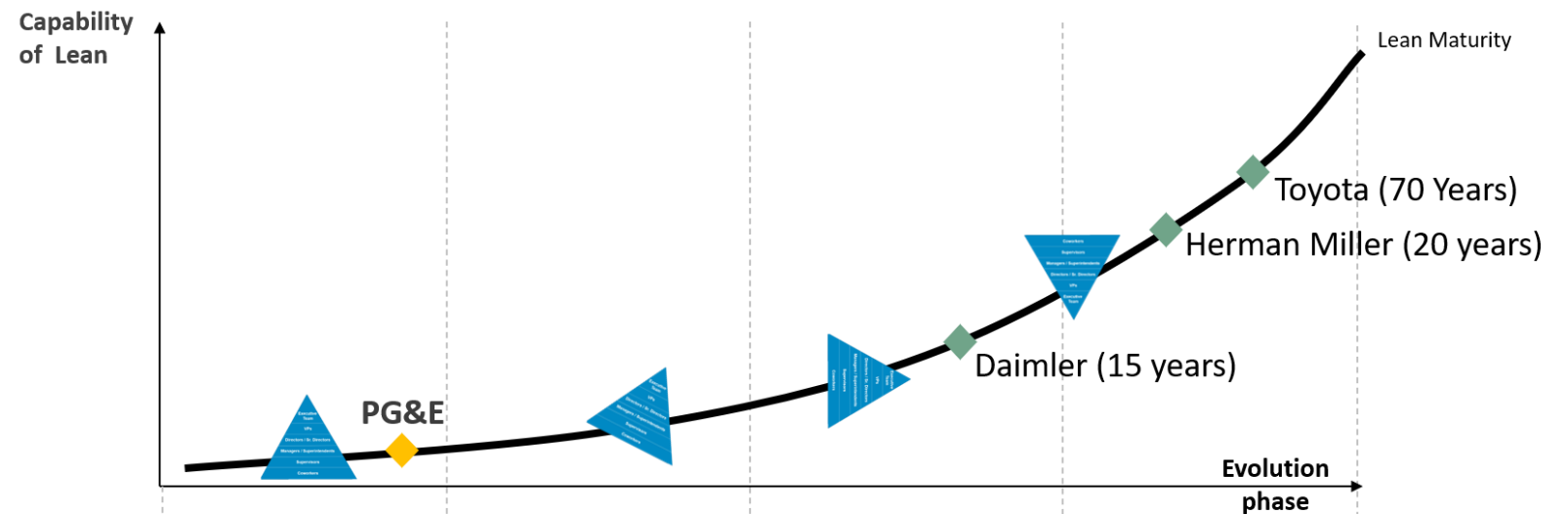
## Evolution of Implementation

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As PG&E embarks on this Lean journey, we recognize other companies that have taken and successfully matured and improved their overall operations. In this diagram companies like Toyota and Herman Miller are more mature than other companies. However, they are continuing to mature every day.

This diagram illustrates we are just starting; we are in the Infant stage. Whereas Toyota is in the “Wise Old Sage” phase of their evolution.



<b>Driver</b>	▪ Consultant / External push	▪ Leadership Push	▪ Leadership Pull	▪ Organizational Pull
<b>Focus</b>	▪ Tools / Toolbox	▪ Standardised process ▪ Methods	▪ Holistic Business System ▪ Lean transformation	▪ Corporate Way
<b>Approach</b>	▪ Small CI events / Workshops	▪ Audit / Best Practice ▪ Broad Training	▪ Coaching / Visual Mgmt.	▪ Learning Organization
<b>Level</b>	▪ Infant	▪ Teenager	▪ Adult	▪ Wise Old Sage

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# Perspectives on Lean



## Evolution of Lean Culture

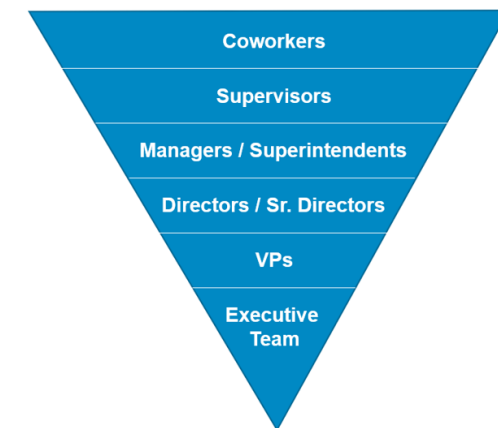
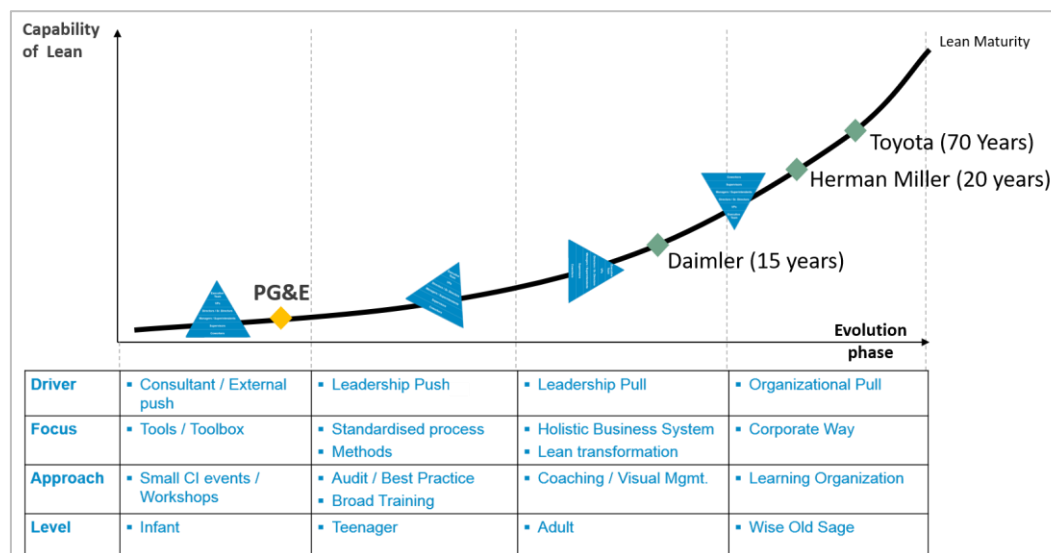
### Inverting the Pyramid Over Time

Lean approach is designed to harness the full capacity of coworkers

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Traditional organizational structure has the CEO at the top of a pyramid, managers in the middle, and all other employees at the bottom.



The inverted pyramid is to:

- Maximize communication and to
- Create a flexible, more-responsive team
- Increase the spread of ideas for improvement throughout the organization



# Lean Leadership Behaviors

**Overview**

**Go, Look, See**

**Lead by Example**

**Standardize**

**Let Data Lead Decisions**

**Challenge**

**Coach**

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# Lean Leadership Behaviors



## Overview

Lean puts people and leadership at its core and requires leaders to show key leadership behaviors.

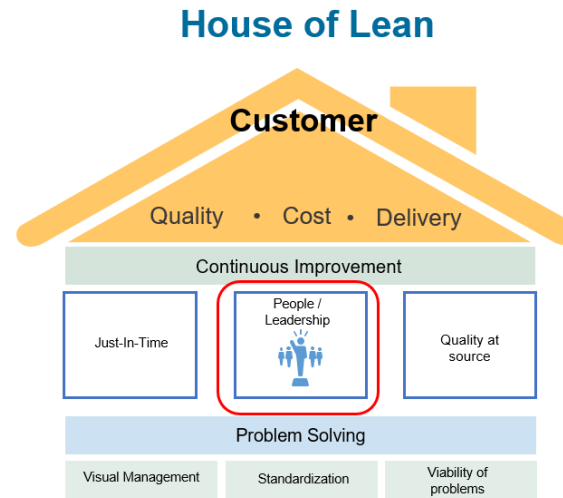
Six Key Leadership Behaviors. All are equally important.

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Everyday challenges in our jobs are the real puzzle. Lean is our journey to solve those challenges.

What senior leadership sees as goals are not necessarily what people closest to the work see. Instead of pushing Lean down from the top, the Lean idea is to leverage experience, knowledge, and insights at **all** levels of PG&E. This creates more opportunity for co-workers to grow professionally and help us get better at what we do every day.

As leaders, we're tasked with building bridges and filling gaps while leading our teams through everyday challenges. That's why it's so important to **understand and act on the six principles of Lean Leadership Behaviors.**

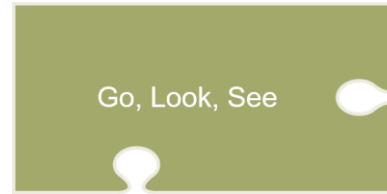
By accepting Lean as a key part of our workflow and culture, we also reassure our customers that they're in good hands and safer than ever.

# Lean Leadership Behaviors



## Go, Look, See

- ❖ Go to the source to see what is happening to make the right decisions
- ❖ Support coworkers delivering value for customers
- ❖ Ask why
- ❖ Be respectful



- Leaders spend a great deal of their time at desks reading reports and attending back-to-back meetings.
- Getting up and walking around is an opportunity for discovery — an eye-opener.
- Speak with coworkers directly and see firsthand how the process is operating.
- Grasp the situation.
- Go Virtually when unable to visit “in-person” - enable virtual visits using mobile devices such as cell phones or tablets.

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# Lean Leadership Behaviors



## Lead by Example

- ❖ Be punctual
- ❖ Do as you say you do
- ❖ Treat others with respect
- ❖ Don't walk past a problem
- ❖ Champion the Lean methodology

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Lead by Example

People observe and follow actions, not words.

The integration of **Lean Operating System** is about changing mindsets.

This makes it necessary for a **leader** to change his or her company's mental models through **leading by example**.

Go, Look, See and asking the right questions shows interest in coworkers' activities and can have a very positive impact on people's **behaviors** and thinking.



# Lean Leadership Behaviors



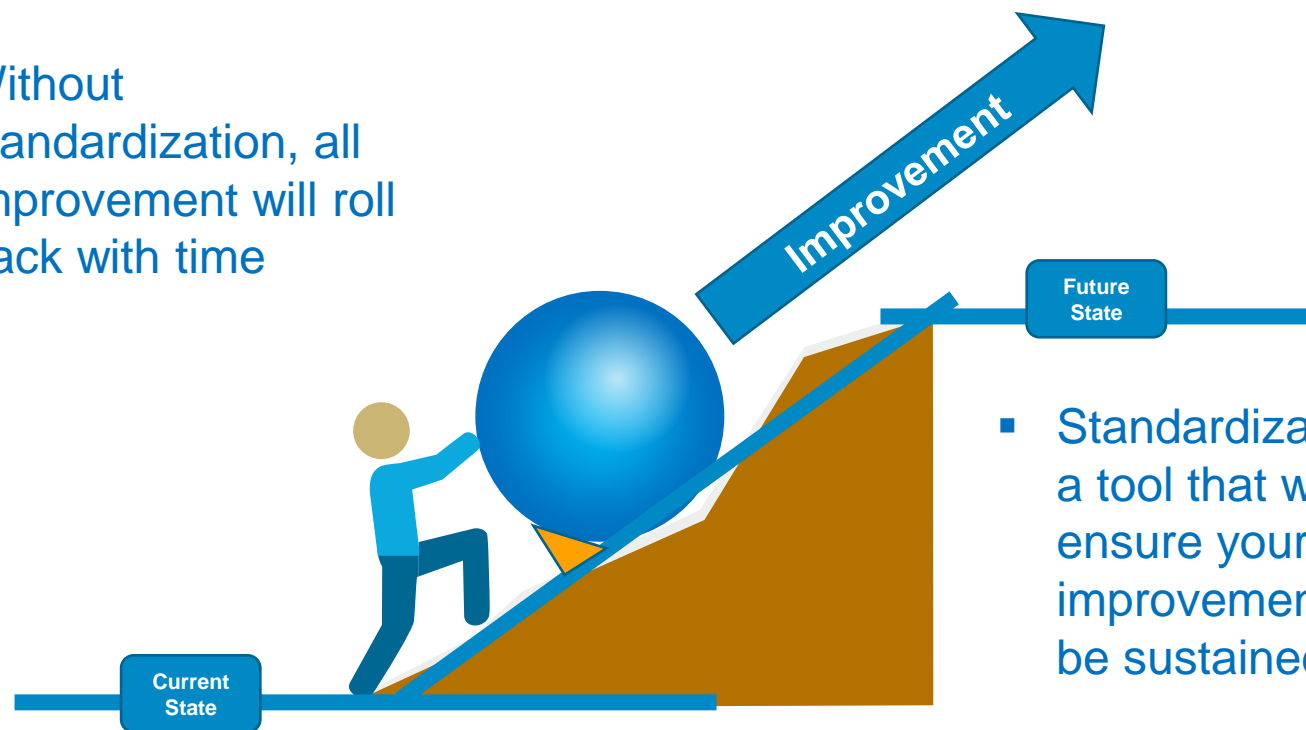
## Absolute Compliance to Standards

- ❖ Think process thinking
- ❖ Follow the standards
- ❖ Always ask “What is the standard?”

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Absolute Compliance to Standards

- Without standardization, all improvement will roll back with time



- Standardization is a tool that will ensure your improvements will be sustained

# Lean Leadership Behaviors



## Data Lead Decisions

- ❖ Visualize the plan and performance
- ❖ Use data to make decisions
- ❖ Ask “What is the standard?”

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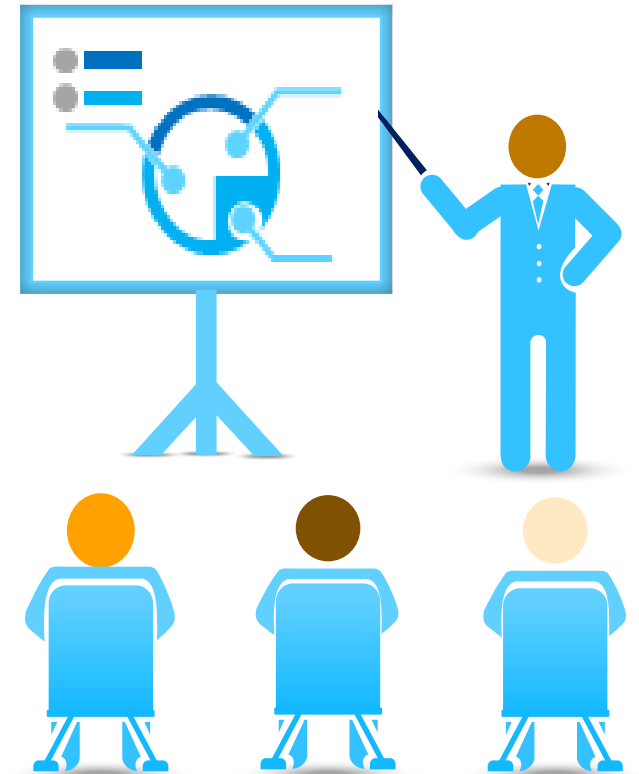
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Data Lead  
Decisions

- Information is golden.
- Visualizing performance to goal enables faster decision making.
- It tells the story about how your business is or is not performing.
- Just as fitness trackers measure heartbeats, capturing your business’s data takes the pulse and enables you to track the impact of actions.
- Remember that it’s what gets measured, that gets improved.



# Lean Leadership Behaviors



## Challenge

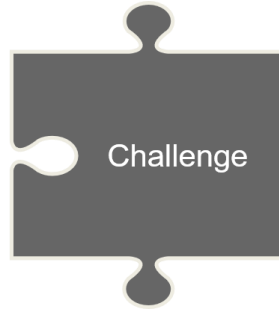
- ❖ Challenge what you are told
- ❖ Challenge what you see
- ❖ Challenge initial understandings

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## Understand their Thinking Way

Ask a lot of questions

Ask questions to challenge the status quo

- Why are we doing this in the first place?
- Is there a better way of doing things?
- How could we make it easy for the workers to do their job?
- How can we make it easier for our customers to buy our products?
- What if we try a pilot to introduce a new work process?





# Lean Leadership Behaviors



## Coach

- ❖ Respect, value, engage, and partner
- ❖ Coach ... don't tell
- ❖ Be curious and ask Socratic questions
  - ❖ How do you think that went?
  - ❖ What is your biggest problem?
  - ❖ What actions have you taken so far?
  - ❖ What is the standard?

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## Self Reflection

In the reflection process, the emphasis is on what went wrong and on creating clear plans for ensuring that it does not recur; this is done constantly and consistently.

## Socratic Questioning

The Socratic method is a form of inquiry and debate between individuals based on asking and answering questions to **stimulate critical thinking** and to generate logical ideas.

The 4 Basic Plays



Resources



**1<sup>st</sup> Play Visual Management**

**2<sup>nd</sup> Operating Reviews**

**3<sup>rd</sup> Problem Solving**

**4<sup>th</sup> Play Standard Work**

# The 4 Basic Plays

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# 1<sup>st</sup> Play Visual Management

**Visual Management**

**KPI Tree Example**

**Tactical Implementation  
Plan**

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# Visual Management (VM)



What is it?

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How to Guide

Visual Management

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What is it?

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# What is it?

Provides clear visibility into the company's Key Performance Indicators (KPIs) across safety, delivery, quality, cost, and morale.

Good Visual Management can be understood by anyone, quickly!

Effective visual management uses visual cues to communicate key information 'at a glance'.

Visual management is a way to communicate, display information about expectations, performance, standards and warnings.



# Visual Management (VM)



## Why Use it?

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How to Guide

- Makes performance visual
- Drives us to Action
- Helps us understand when we have problems
- Provides an opportunity to adjust when we are off target
- Helps stakeholders understand the status of performance.
- Brings problems to the surface and ensures transparency.
- Enables a pro-active response to problems impacting performance.

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# Visual Management (VM)



## Who is Responsible?

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How to Guide

- **Leaders** - Management/leadership responsible for setting targets and cascading targets with their organization through the Business Planning Process.
- **Coworkers** - Individuals responsible for managing work that impacts business results.

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# Visual Management (VM)



## Expectations

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How to Guide

- Accessible to the team
- Clear (1:3:10 Rule)
- Target Driven
- Controllable by the Team
- Metrics that support business targets are prioritized.
- Metric and targets are cascaded using the BPD process
- Information is regularly updated and reviewed.



# Visual Management (VM)



## Requirements

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How to Guide

- It is visual and easy to understand
- It tells a story
- It is transparent & shows problems
- Clearly defined metrics.
- Metrics cascaded to the right level to control outcomes.
- Follows the 1:3:10 second way of thinking
- Issues are visual and transparent.
- Issues are being proactively identified and solved.

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# Visual Management (VM)



## Actions & Behaviors to Practice

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How to Guide

### Leaders

- KPI Trees are developed with established targets.
- KPI's are cascaded using the Business Planning Development process
- Set expectations for team members
- Listen to the team
- Remove barriers that impact business results

### Coworkers

- Provide input on target setting.
- Perform standard work.
- Track results.
- Problem solve as needed.
- Escalate as needed.

# Visual Management (VM)



What is it?

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How to Guide

Preparation

VM Board Layout Example

1-3-10 Second Rule

Implementation Steps

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# Visual Management (VM)



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**Getting Started**

How to Guide

## Preparation



- Start at the top of the Key Performance Indicator Tree – organizational annual goals
- Start at the top of the Key Performance Indicator Tree – organizational annual goals
- Cascade those goals and KPIs to the right level
- Create performance boards – physical or virtual

# Visual Management (VM)



What is it?

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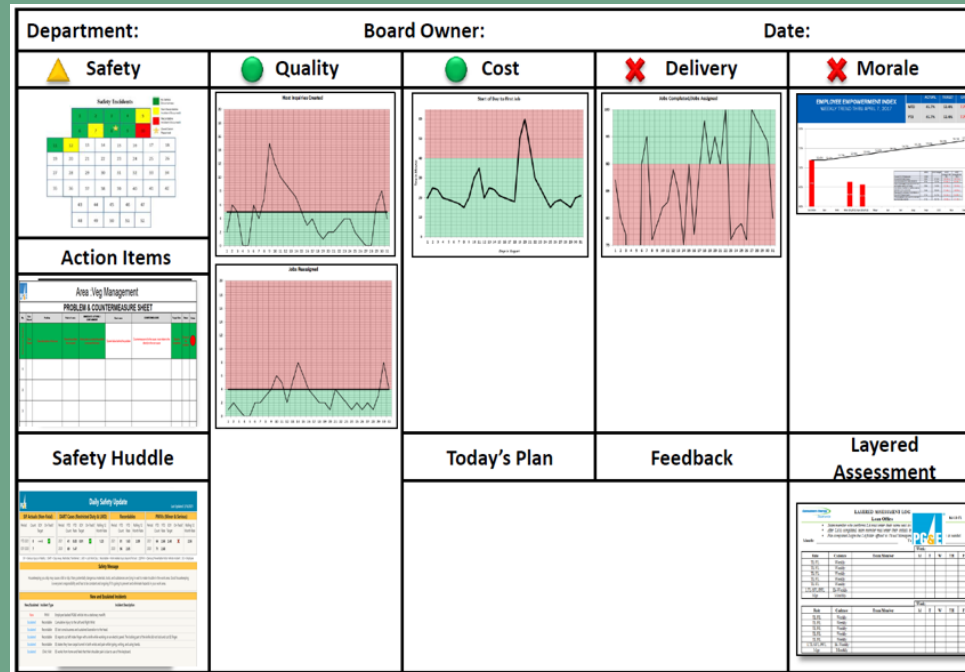
Requirements

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How to Guide

## VM Board Layout Example



On Target



Off Target with Plan to get back to Target



Off Target with NO Plan to get back to Target

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# Visual Management (VM)



## 1-3-10 Second Rule

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What is it?	Why Use it	Who is Responsible?	Expectations	Requirements	Actions & Behaviors	<b>Getting Started</b>	How to Guide
-------------	------------	---------------------	--------------	--------------	---------------------	------------------------	--------------

### Seconds What to look for?

1	Status	Is the performance on target? <ul style="list-style-type: none"><li>On Target</li><li>Off-track with plan</li><li>Off-track and no plan</li></ul>
3	Trends	<ul style="list-style-type: none"><li>Expected vs. Actual performance</li><li>All KPIs will have a target condition enabling us to understand changes in performance.</li><li>When did it start?</li><li>How often is the off-track occurring? To what degree and for how long?</li></ul>
10	Reason & Action	<ul style="list-style-type: none"><li>Why did we miss the target?</li><li>What is the problem?</li><li>What is the reason(s)? Identify the issues. Pareto Chart Analysis</li><li>What is the plan to get back to Green? Catch-back Plan table. Set actions to resolve / understand the impact [PDCA]</li></ul>

# Visual Management (VM)



## Implementation Steps

- ❖ Implementation steps can be adjusted based on capabilities

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-------------	------------	---------------------	--------------	--------------	---------------------	------------------------	--------------

	Actions	Behaviors
Week 1	<ul style="list-style-type: none"> <li>Establish location for Visual Management Performance Boards</li> <li>Facility set up and ready to go.</li> <li>The right Key Performance Indicator (KPI) have been defined, measurement / targets defined , frequency defined.</li> </ul>	<ul style="list-style-type: none"> <li>Discipline (have the meeting and start on-time)</li> <li>Engaged ( leader is leading)</li> </ul>
Week 2	<p>All previous week(s) +</p> <ul style="list-style-type: none"> <li>KPI's are clear [Actual condition is up to date]</li> <li>Meeting attendance appropriate and timely.</li> <li>Meeting flows in line with standardized agenda.</li> <li>1, 3, 10 Second rules evident</li> </ul>	<p>All of previous week(s) +</p> <ul style="list-style-type: none"> <li>Reporting by exceptions only</li> <li>Appreciate people for raising issues</li> <li>When physically presenting, point to the graph / chart you are referring to.</li> </ul>
Week 3-6	<p>All previous weeks +</p> <ul style="list-style-type: none"> <li>Targets and trends on performance metrics are clear.</li> <li>Plans make next steps clear.</li> <li>TIP's or plans are up to date to 1,3,10 second rules.</li> </ul>	<ul style="list-style-type: none"> <li>Conditions are questioned appropriately and driven towards resolution</li> <li>Actions are stimulated and captured during the meeting, including responsibility and due date.</li> </ul>
Week 6-10	<p>All previous weeks +</p> <ul style="list-style-type: none"> <li>Delays on plans are clear with follow up actions identified</li> <li>There is a logical flow and storyline to the headline KPI.</li> </ul>	<ul style="list-style-type: none"> <li>Overdue actions not tolerated and driven to conclusion.</li> <li>Closure dates are challenged.</li> <li>Disciplines are strongly enforced</li> <li>Key points summarized to close the review</li> </ul>

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# Visual Management (VM)



## How to Guide

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-------------	------------	---------------------	--------------	--------------	---------------------	-----------------	---------------------

#	Major Steps [What]	Key Points / Detailed Steps [Who / How]	Reasons for Key Points / Detailed Steps [why]
1	Understand The metrics	<b>Leaders:</b> <ul style="list-style-type: none"> <li>Develop the KPI Tree and Set Targets</li> <li>Use the Business Planning Process to cascade metrics to the right level (i.e. the employees that can control the outcomes)</li> </ul>	Ensure that efforts are prioritized and communicated to the right players
2	Make it Visual	<b>Team:</b> <ul style="list-style-type: none"> <li>Understand what needs to be visual</li> <li>Determine the best approach and build it.</li> <li>Visuals are designed to follow the 1,3,10 second rule</li> </ul>	Builds the tools that will help stakeholders visualise performance. Leads to quick clarity of the business status.
3	Perform Standard work and track results	<b>Leaders:</b> <ul style="list-style-type: none"> <li>Perform Leader Standard Work</li> </ul> <b>Team:</b> <ul style="list-style-type: none"> <li>Perform Standard Work and document performance</li> </ul>	Ensure work is performed to the standards and that results are tracked
4	Review the results	<b>Leaders:</b> <ul style="list-style-type: none"> <li>Identify the exceptions to targets</li> <li>Use Socratic Questioning</li> </ul> <b>Team:</b> <ul style="list-style-type: none"> <li>Report the results by exception</li> </ul>	Brings problems to the surface so they can be proactively addressed
5	Address Problems as needed	<b>Leaders:</b> <ul style="list-style-type: none"> <li>Remove barriers and obstacles</li> </ul> <b>Team:</b> <ul style="list-style-type: none"> <li>Problem solve and /or escalate issues as needed</li> <li>Issues are being proactively identified and solved</li> </ul>	Allow the people closest to the work to solve problems (give them autonomy and span of control). Proactively fix problems impacting on business results

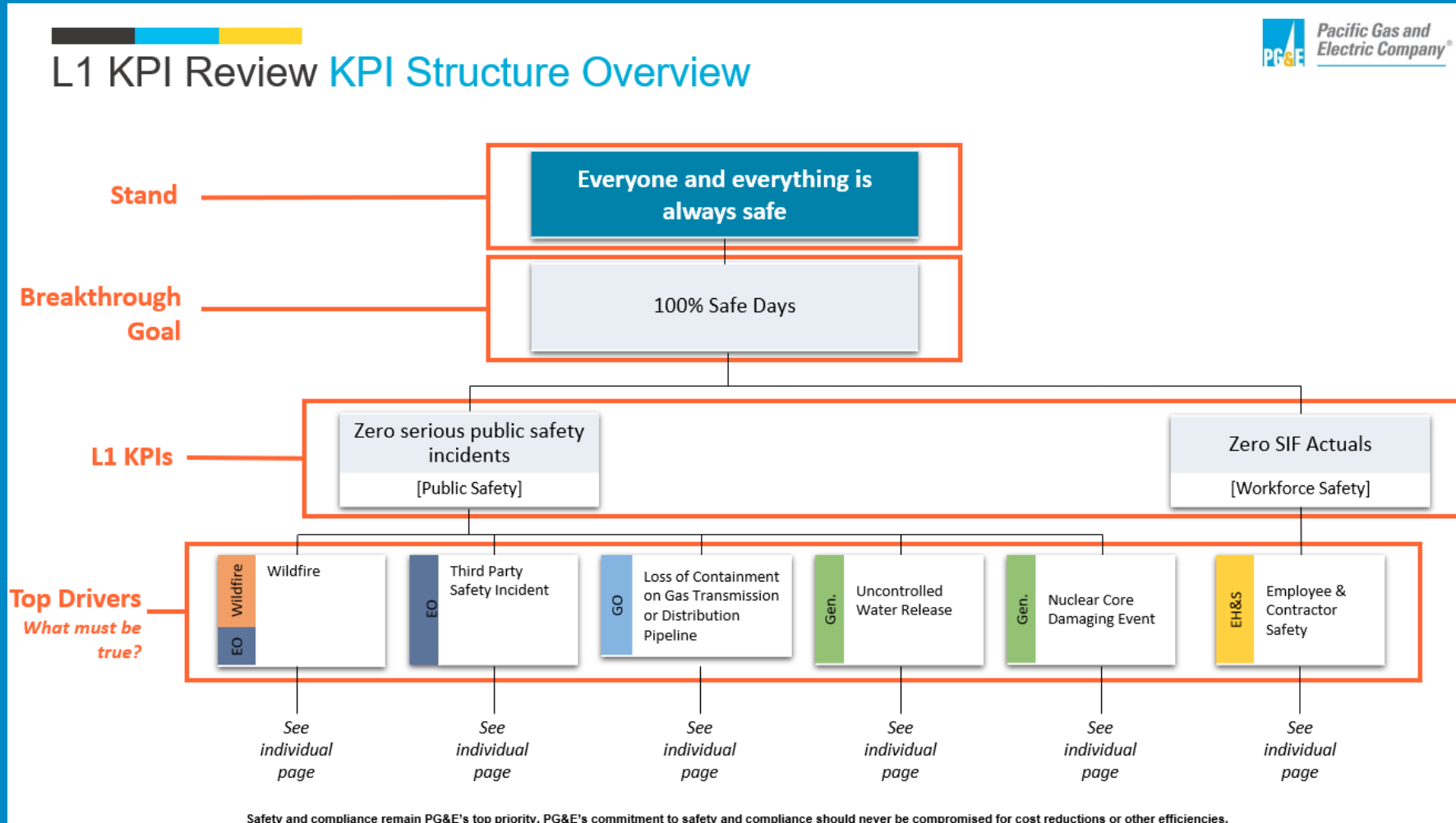
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# KPI Tree Example



# Tactical Implementation Plan (TIP)



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TIP Sheet in Detail

TIP Management

TIP Project Completion

Tactical Implementation Plan (TIP)

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# Tactical Implementation Plan (TIP)



The TIP (Tactical Implementation Plan) is a planning tool designed to help people in the process, or supporting the process, to deliver the required outcome on time.

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Its use can be varied: from regular, or annual planning, through delivering a specific project or initiative implementation. In various forms, it can also be used from the very top of an organisation right through to the workplace.

All the elements of the process are designed to be visual and user friendly to support an open and transparent transfer and communication of information.

It supports the 1:3:10 second thinking way.

LBS Elements				LBS / PG&E Lean Implementation TIP for Phase 2 - Level 0																											
Task	Start	End	Dependencies	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End		
Lean Implementation	Define the vision and mission statement	2023-01-01	2023-01-31	2023-01-01	2023-01-31																										
	Identify the current state	2023-02-01	2023-02-28	2023-01-01	2023-01-31																										
	Design the future state	2023-03-01	2023-03-31	2023-02-01	2023-02-28																										
	Implement the future state	2023-04-01	2023-04-30	2023-03-01	2023-03-31																										

# Tactical Implementation Plan (TIP)



## Why Use it?

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What is it?

**Why Use it**

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How to Guide

- Is a visual schedule of the tasks necessary to achieve business goals and targets.
- Sets direction identifying specific goals to be achieved
- Documents all steps, activity owners, associated project milestones, and timescales
- Brings visibility into the most important milestones
- Tracks actions and milestones

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# Tactical Implementation Plan (TIP)



## Who is Responsible?

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- **Leaders** - Management/leadership responsible for setting targets, confirming assignment ownership, track performance through the lifecycle of the project, program, or planning process.
- **Coworkers** - Individuals responsible for managing work assignments that impacts business results.

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# Tactical Implementation Plan (TIP)



## Expectations

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How to Guide

- Structured work schedule that shows work content, owners and timelines
- Content comprised of actions required to achieve KPI targets and actions to countermeasure problems.
- Formally signed-off by relevant managers



# Tactical Implementation Plan (TIP)



## Requirements

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- Structured work schedule that shows work content, owners and timelines
- Content comprised of actions required to achieve KPI targets and actions to countermeasure problems.
- Formally signed-off by relevant managers

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# Tactical Implementation Plan (TIP)



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## Actions & Behaviors to Practice

### Leaders

- KPI are developed with established targets.
- Set expectations for team members
- Listen to the team
- Remove barriers that impact business results

### Coworkers

- Provide input on actions for target setting.
- Perform steps required to achieve tasks and milestones
- Track results.
- Problem solve as needed.
- Escalate as needed.

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# Tactical Implementation Plan (TIP)

In Detail  
&  
Management

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**TIP Structure**

**TIP Details**

**TIP Status**

**Cascading**

**Cascading Examples**

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# Tactical Implementation Plan (TIP)



## Details

- ❖ TIPs are structured work schedules that show work content, owners and timelines
- ❖ The content is comprised of actions required to achieve KPI targets and actions to countermeasure problems
- ❖ Each TIP is agreed formally by sign off by relevant managers

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Work Packages, what objective is the TIP delivering

Area's of activity that will deliver the objectives

Detailed activities

Time frame for delivering activity

Work Packages	Main Areas	Activities	Resp	Review process	May																														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Senior leadership team	301 & 401 basic training	Complete initial assessments of extended SLT team (13)	MH	Each SLT leader to have an assessment Each SLT leader to be re-assessed quarterly 3 Benchmark trips by end of 2021	[Timeline grid with milestones]																														
		Develop coaching plan	MH																																
		Highlight items for self development	MH																																
		1/4 assessments to confirm progress	MH																																
		Confirm behaviors in SLT and staff meetings	MH																																
The Playbook	301 & 401 basic training	Agree & set the target for the training	MH & RC	Deliver a 2 day training session for all Senior Directors and Directors enterprise wide 301. (Focus on socratic questioning) Support the handover to 401 (PG&E)	[Timeline grid with milestones]																														
		Review relevant LBS and PG&E lean material	VS & RJ & BJ																																
		Develop the content specific to Snr Dir - Dir level @ PG&E	VS & RJ & BJ																																
		Agree the content	VS & RJ & BJ																																
		Set the dates for training	RC																																
Command centers	301 & 401 basic training	Follow up on All officer 101 training	MH & RC	Support the handover to 401 (PG&E)	[Timeline grid with milestones]																														
		Support where required	MH																																
		Handover plan	MH																																
		Set up regular reviews of each play (4 plays)	RJ & BJ/LE																																
		Review standard	RJ & BJ/LE																																
Lean Implementation (Leadership Push)	Command centers	Update as required through lessons learnt rolling out enterprise wide	RJ & BJ/LE	Deliver a playbook which details the 4 plays (change as required throughout the year). (CI)	[Timeline grid with milestones]																														
		Update with specific PG&E examples	RJ & BJ/LE																																
		Communicate updates	RJ & BJ/LE																																
		Continue to set up a Wildfire command center in San Roman	VS & RJ/LE																																
		Transition the Wildfire command center to the main command ctr (15 KPIs)	VS & RJ/LE																																
		Set up command centers in 5 regions	VS & RJ/LE																																
		Set up a command center in Region 1 (Pilot with 15 KPI trees)	VS & RJ/LE																																
		Set up a command center in Region 2	VS & RJ/LE																																
		Set up a command center in Region 3	VS & RJ/LE																																
		Set up a command center in Region 4	VS & RJ/LE																																
Set up a command center in Region 5	VS & RJ/LE																																		
Define Roles and responsibilities for Command centers	VS & RJ/LE																																		
Continue to develop and refine the KPI trees	RJ & HB & LE																																		
Develop a reporting structure from region to main command center	RJ & LE																																		

Responsible persons

Specific deliverable

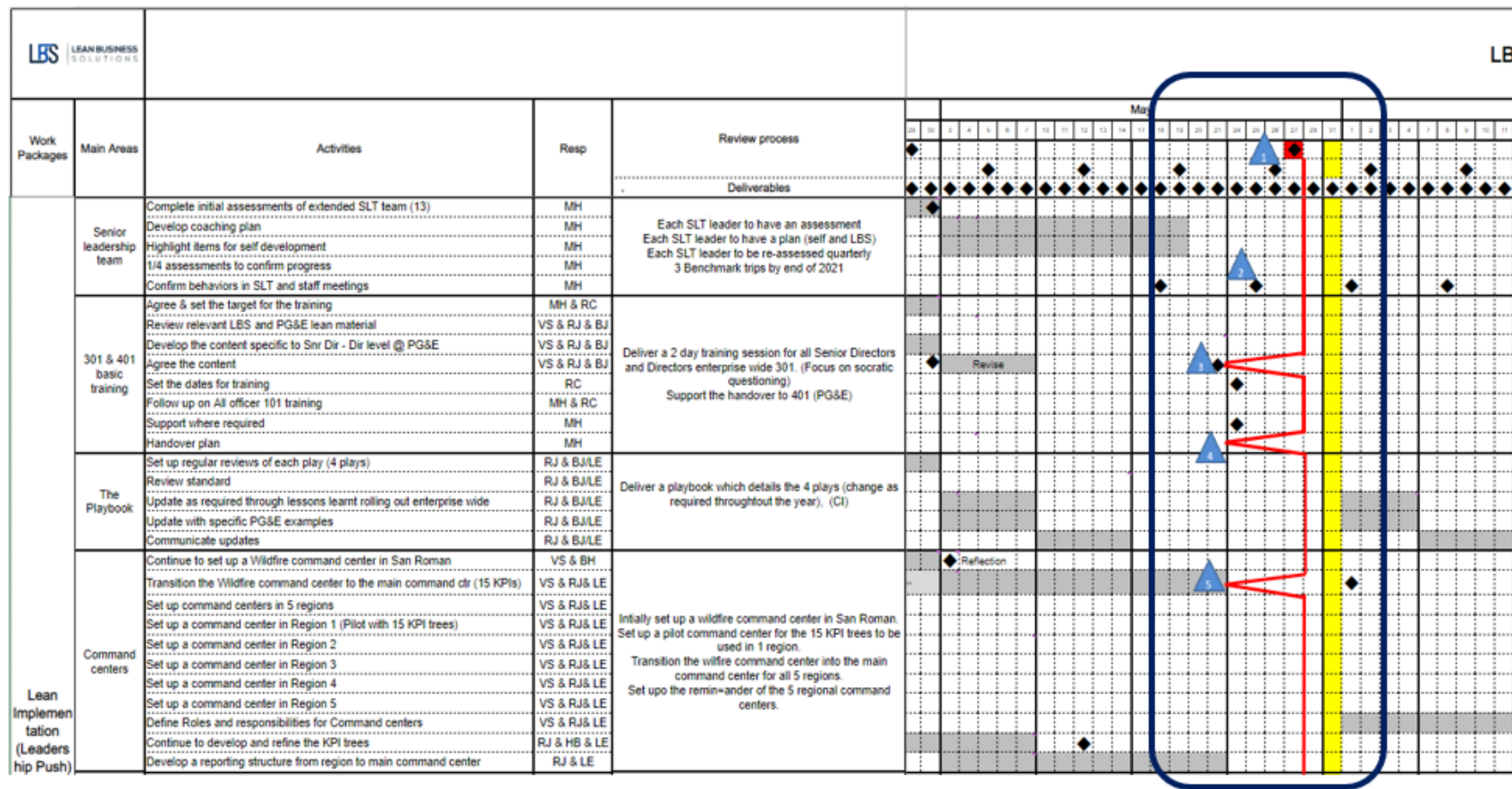
Meeting or a milestone

# Tactical Implementation Plan (TIP)



## Status

- ❖ Status line, straight drawn from today's date down TIP.
- ❖ If it remains a straight line as it passes through an activity that activity is "on" plan.
- ❖ If line deviated to left then activity is off track



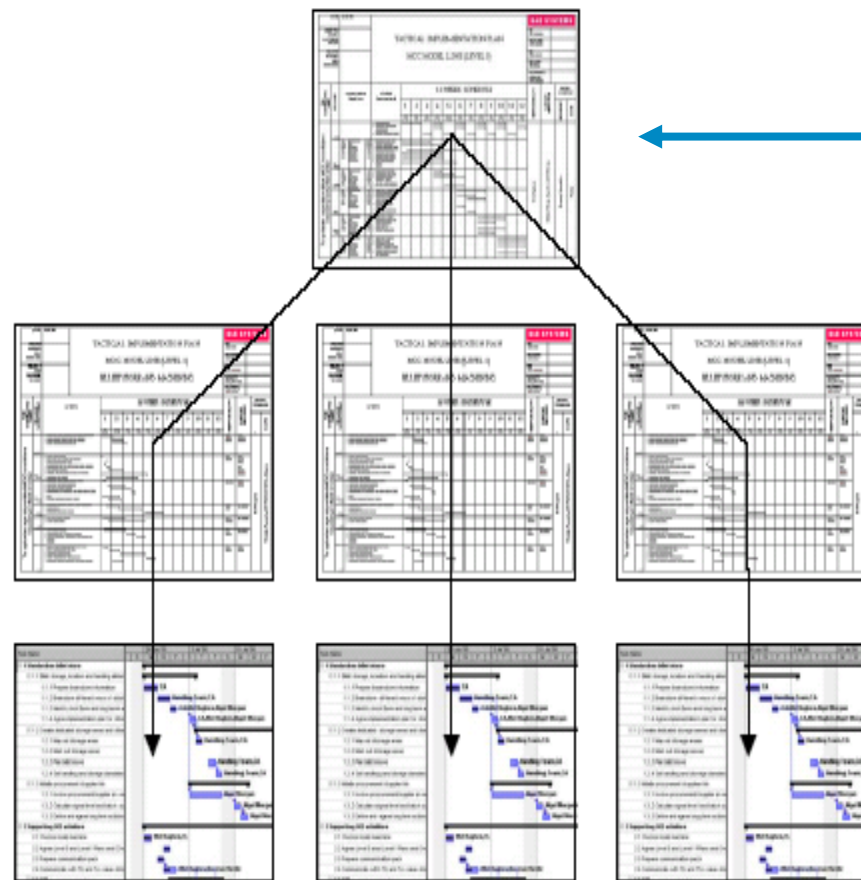
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# Tactical Implementation Plan (TIP)



## Cascading

- ❖ TIPs can have a varying amount of levels



Typically the process will start with a series of targets from director level, plant manager or Plant wide projects

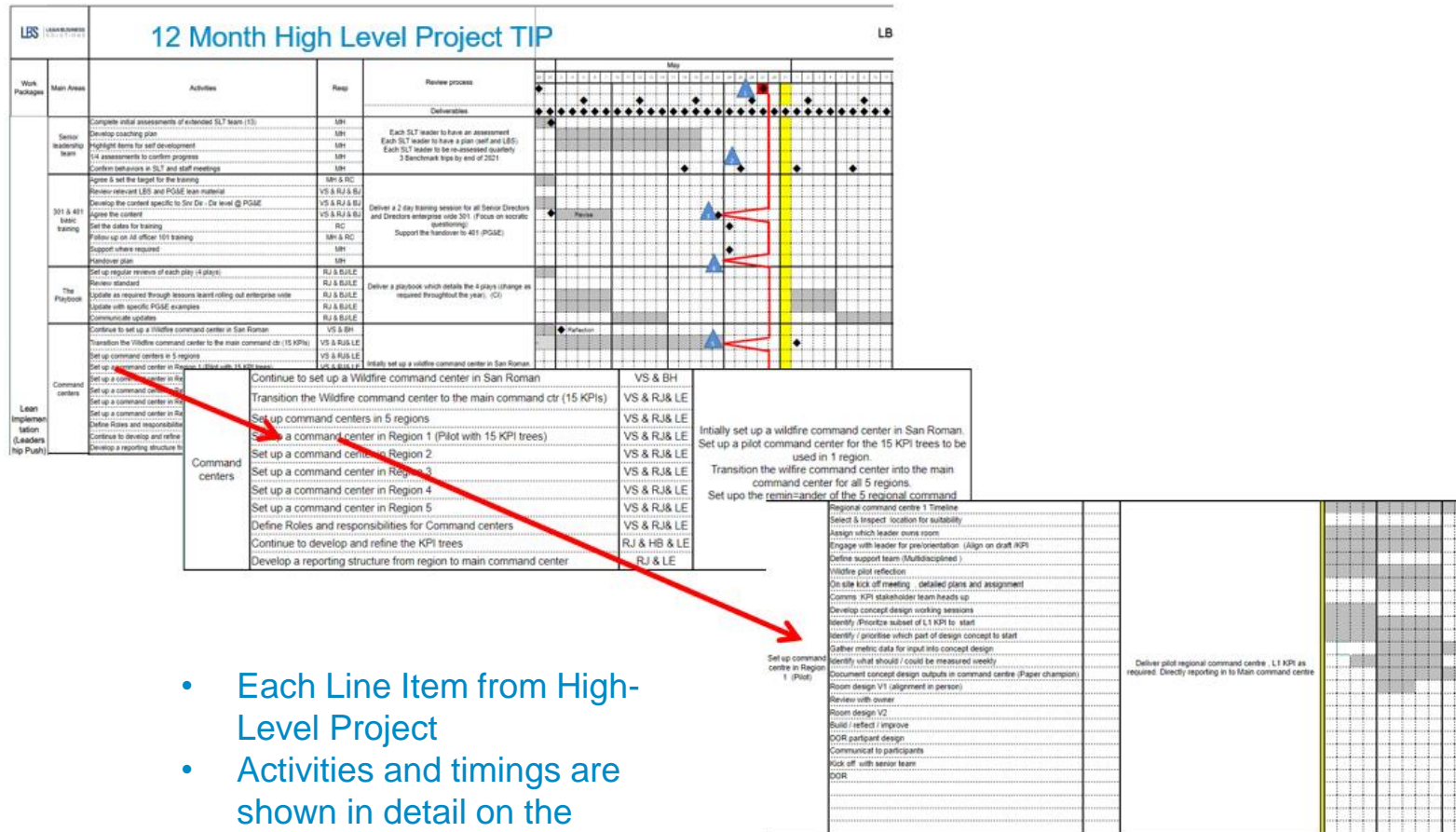
Managers individual areas will take this information and show in more detail how their area will support the activities

This can then be given to area managers who will input specific detail of action their individual lines will work on

# Tactical Implementation Plan (TIP)



## Cascade Example



- Each Line Item from High-Level Project
- Activities and timings are shown in detail on the Individual project TIP

# Tactical Implementation Plan (TIP)



What is it?

Why Use it

Who is Responsible?

Expectations

Requirements

Actions & Behaviors

**Getting Started**

How to Guide

## Getting Started



- Determine who is involved, consider the overall deliverables – Arrange a TIP generating meeting
- Starting with a Blank TIP & using a Pencil write out the Steps required to complete the activity
- Estimate the timings, are they achievable
- There should be a logic to the timings one step cannot start until the other has finished
- Who is the owner of the activity?
- Consider Plan Do Check Act (PDCA) confirmation and follow-up should be included as an activity review points steering coms etc.
- Aim is to create a Balanced Tip, not front or back loaded, or it will not be achievable.
- Consider Vacations and Holidays

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# Tactical Implementation Plan (TIP)



## Management

❖ At the agreed review schedule (Daily, Weekly) a red line is drawn down in line with either the current date, or the end of the previous week/month to show status at that point.

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Task	Responsible	Start	End	Status
Senior leadership team	M4			
301 & 401 lead training	M4 & M5			
The Playbook	M4 & M5			
Command centers	M4 & M5			



#	CATEGORY	DATE RAISED	CONCERN	COUNTERMEASURE / CONTAINMENT	OWNER(S)	DUE DATE	Status
1	Schedule	May 27, 2021	Monthly TIP review not planned	Plan for w/c June 1st, whole LBS team	Rob James	04-Jun	●
2	Leadership coaching/TIP	May 27, 2021	Level 1 TIP requires update	Updated with dates	Maryn Holmes	03-Jun	●
3	301 Training	May 27, 2021	Content of WBT training requires agreement	All feedback on content by 8pm PST 27/5	All	27-May	●
4	301 Training	May 27, 2021	TIP detail for 401 and handover not planned	To be updated with detail going forward	Bob Jungel	05-Jun	●
5	Command Center	May 27, 2021	Items behind plan on Level 1-What data is available weekly	Follow up with LCB from Margaret 1st draft	Lourdes S	21-Jun	●
5	Command Center	May 27, 2021	Items behind plan on Level 1-Planning for participants in DOR (yeh)	Make schedule for WORMOR	Lourdes S	25-Jun	●
5	Command Center	May 27, 2021	Items behind plan on Level 1-Contact DOR participants	Make schedule for WORMOR	Lourdes S	25-Jun	●
6	DOR	May 27, 2021	Maturity assessment behind plan	Assessment decided, start w/c 7/6	Yoki S	09-Jun	●

- Where the line crosses a task, we decide where the implementation is:
  - On Target
  - Behind
  - Ahead
- Draw the redline to the status, forward or backward, called 'Forward or Back-spikes'



# Tactical Implementation Plan (TIP)



## Review the TIP

- Learn from the Back-spikes & Front spikes
- Understand the reasons for Back-spikes and build into the next TIP to prevent reoccurrence
- Include items that we think will benefit
- Remove items that were of no value.

## TIP Project Conclusion

LBS LEAN BUSINESS SOLUTIONS					LB																											
Work Packages	Main Areas	Activities	Resp	Review process	May																											
					Deliverables																											
Senior leadership team		Complete initial assessments of extended SLT team (13)	MH	Each SLT leader to have an assessment Each SLT leader to have a plan (self and LBS) Each SLT leader to be re-assessed quarterly 3 Benchmark trips by end of 2021	[Gantt chart showing activity progress]																											
		Develop coaching plan	MH																													
		Highlight items for self development	MH																													
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301 & 401 basic training		Agree & set the target for the training	MH & RC	Deliver a 2 day training session for all Senior Directors and Directors enterprise wide 301. (Focus on socratic questioning) Support the handover to 401 (PG&E)	[Gantt chart showing activity progress]																											
		Review relevant LBS and PG&E lean material	VS & RJ & BJ																													
		Develop the content specific to Snr Dir - Dir level @ PG&E	VS & RJ & BJ																													
		Agree the content	VS & RJ & BJ																													
		Set the dates for training	RC																													
		Follow up on All officer 101 training	MH & RC																													
		Support where required	MH																													
Handover plan	MH																															
The Playbook		Set up regular reviews of each play (4 plays)	RJ & BJ/LE	Deliver a playbook which details the 4 plays (change as required throughout the year). (C1)	[Gantt chart showing activity progress]																											
		Review standard	RJ & BJ/LE																													
		Update as required through lessons learnt rolling out enterprise wide	RJ & BJ/LE																													
		Update with specific PG&E examples	RJ & BJ/LE																													
Command centers		Continue to set up a Wildfire command center in San Roman	VS & BH	Initially set up a wildfire command center in San Roman. Set up a pilot command center for the 15 KPI trees to be used in 1 region. Transition the wildfire command center into the main command center for all 5 regions. Set up the remain-ander of the 5 regional command centers.	[Gantt chart showing activity progress]																											
		Transition the Wildfire command center to the main command ctr (15 KPIs)	VS & RJ& LE																													
		Set up command centers in 5 regions	VS & RJ& LE																													
		Set up a command center in Region 1 (Pilot with 15 KPI trees)	VS & RJ& LE																													
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		Define Roles and responsibilities for Command centers	VS & RJ& LE																													
		Continue to develop and refine the KPI trees	RJ & HB & LE																													
Develop a reporting structure from region to main command center	RJ & LE																															

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# 2<sup>nd</sup> Play Operating Reviews

What is it?

Operating Review  
Architecture

Why Use it?

Daily Operating Review

Who is Responsible

Expectations

Requirements

Actions & Behaviors

Getting Started

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# Operating Reviews (ORs)



## What is it?

- ❖ Operating Reviews are a regular review of visual management to understand the status of performance, drive actions, and confirm effective countermeasures. The **Heartbeat** of the company.

Operating Reviews are accelerated meetings conducted through the organization to identify, address, or escalate local issues. Operating Reviews are the heartbeat of company putting decision-making where it belongs: closest to the customer.

Operating Reviews are brief, focused, collaborative reviews to identify and address issues and barriers to getting the right work done. Operating Reviews are intended to involve the people closest to the work in decision-making. These are done daily, weekly, and monthly.



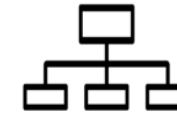
### Daily

- Last 24 hours
- Next 24 hours
- Engage employees



### Weekly/Monthly

- Higher level KPIs
- Confirm actions are effective



### Cross Functional

- Understand Interdependence

# Operating Reviews (Ors)



## Why Use it?

- Discuss key performance indicators (KPIs) to understand the status of performance, prioritize problems, drive actions, and confirm effective countermeasures.
- Process to review key performance indicators (KPI).
- Visibility and understanding of gap in performance.
- Process to collaborate and escalate to next level.
- Time to engage and recognize success of employees.

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# Operating Reviews (Ors)



## Who is Responsible?

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- **Leaders** - Responsible to facilitate DOR and encourage critical thinking.
- **Coworkers** - Individual members of functional teams (Operations, Engineering, Support Functions, HR, etc.) across all levels of the organization responsible to participate.



# Operating Reviews (ORs)



## Expectations

- Meeting starts and ends on time.
- KPI's are reviewed by exception only.
- Problem solving takes place outside of meeting.

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# Operating Reviews (Ors)



## Requirements

- Defined cadence
- Agenda
- Visual Management with exceptions highlighted
- Action Items
- Escalation process
- Confirm effectiveness of countermeasures
- Ownership & Empowerment
- Review KPIs
- Visibility of performance gaps
- Collaborate, escalate, & drive actions
- Confirm countermeasures taken are effective
- Assign Delegates

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# Operating Reviews (Ors)



## Actions & Behaviors to Practice

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### Leaders

- Ensure meetings start and end on time
- Use Visual Management to identify exceptions and key drivers
- Allow time for Coworkers to escalate action the require additional support
- Use Socratic questions to better understand the problem and encourage critical thinking
- Confirm action items are being captured

### Coworkers

- Are prepared to report out what actions are taking to close the gap for exceptions
- Use the escalation process to identify items that require support from the Leader
- Follow-up on agreed upon or assigned actions
- Refrain from multi-tasking during meetings
- Assign and prepare a backup if unable to attend



# Operating Reviews (ORs)



## Getting Started



### ❖ Preparation



- Start with a pilot area
- Defined review cadence
- Develop a consistent agenda
- Identify Key Performance Indicators (KPIs)
- Provide Visual Management to illustrate KPIs
- Review by exceptions highlighted
- Collect Action Items
- Define an escalation path

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# Operating Reviews (ORs)



## Getting Started

#	Major Steps (What)	Key Points / Detailed Steps (Who & How)	Reason for Key Points / Detailed Steps (Why)
1	Arrive and start on time.	Leaders/Facilitator: <ul style="list-style-type: none"> <li>Ensure the review is started on time per agenda.</li> </ul> Team: <ul style="list-style-type: none"> <li>Show up on time and be prepared.</li> </ul>	Respect of team member's Time
2	Review Important communications.	Leader/Facilitator: <ul style="list-style-type: none"> <li>Responsible for sharing important communications (e.g. Safety flashes).</li> </ul>	Team is appraised of high priority time sensitive communication.
3	Identify exceptions using visual management.	Leader/Facilitator: <ul style="list-style-type: none"> <li>Use VM to identify gaps between target performance. Observe if performance is trending downward or one data point if off.</li> </ul>	Review by exceptions only to ensure best use of time and resources.
4	Identify which business are did not meet the target.	Leader/Facilitator: <ul style="list-style-type: none"> <li>Lead discussion on key drivers to why target was not achieved. Potential to use VM and other lean tools (Pareto chart, trend line, scatter plot, etc.)</li> </ul>	Understand key drivers of gap in performance.
5	Key business areas (HQ, Region, function, section etc.) report out.	Team Members: <ul style="list-style-type: none"> <li>Share what is happening, why it is happening (if known) and status of previously identified action items.</li> </ul>	Understand what is happening, why it is happening and what is being done about it.
6	Socratic Questioning of issues/concerns	All Participants: <ul style="list-style-type: none"> <li>Ask Socratic questions after report out is complete.</li> </ul>	Confirm understanding of issues/concerns.

### ❖ How to Guide

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# Operating Reviews (ORs)



## OR Architecture

What is it?

Why use it?

PG&E Operating Review Cadence

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# Operating Reviews (Ors)



## OR Architecture

### ❖ Why use it?

Ownership & empowerment, review KPIs, visibility of performance gaps, collaborate, escalate & drive actions, confirm countermeasures taken are effective.

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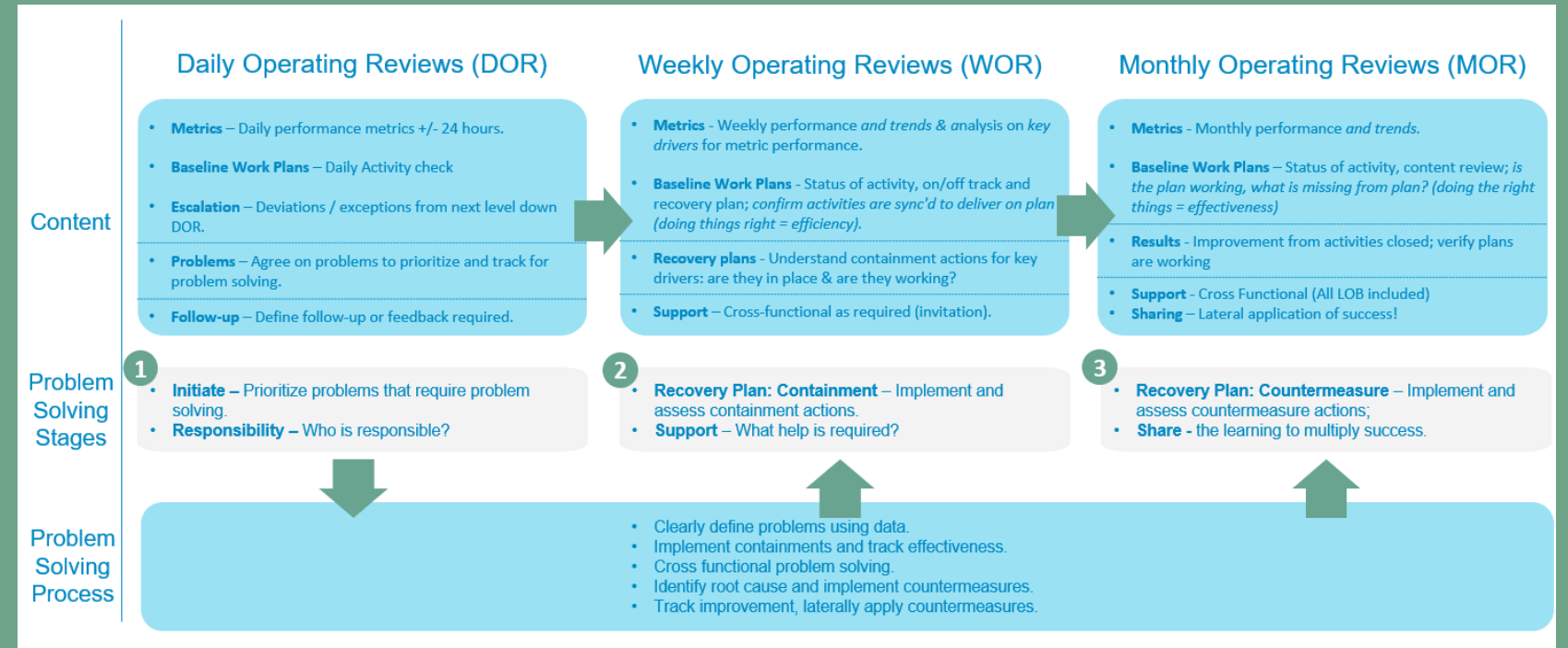


# Operating Reviews (Ors)



## OR Architecture

❖ Why use it?



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# Operating Reviews (Ors)



## OR Architecture

### ❖ PG&E Operating Review Cadence

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		Architecture to conform with		Marlene Santos	Adam Wright	Francisco Benavides	Carla Peterman	Jason Glickman	Julius Cox	Sumeet Singh	Chris Foster	Ajay Waghray	John Simon			
Start	End	Function-specific	Cross-functional (CF)	Customer and Comms	Operations	Enterprise Safety & Health	Corporate Affairs	Engineering, Planning & Strategy	People, Shared Services & Supply Chain	Wildfire Risk	Finance	IT	General Counsel, Ethics & Compliance			
10:15	10:30		<b>Cross-functional:</b> Marlene/Adam with L1s (1 mtg)	<b>Cross-functional (single meeting)</b>												
10:00	10:15		Adam/Jason with L2s	Adam/Jason with L2s				Adam/Jason with L2s	Adam/Jason with L2s	Adam/Jason with L2s	Adam/Jason with L2s		Adam/Jason with L2s			
09:45	10:00	L1 with L2s		Marlene with L2s		Francisco with L2s	Carla with L2s	Jason with L2s	Julius with L2s		Chris with L2s	Ajay with L2s				
09:30	09:45		Break										John with L2s			
09:15	09:30		<b>RVPs:</b> 5 RVPs (1 mtg)	<b>RVPs</b>	L2 with L3s (Gas)								L2 with L3s			
09:00	09:15	L2s with L3s		L2 with L3s	L2 with L3s (EO/GEN)	Option 1: L2 with L3s	L2 with L3s	L2 with L3s	L2 with L3s	Sumeet with L2s	L2 with L3s	L2 with L3s	L3 with L4s			
08:45	09:00		<b>Regional:</b> RVP with L4s (5 concurrent mtgs)	<b>Regional:</b> RVP with L4s (5 concurrent mtgs)				L3 with L4s	L3 with L4s				L4 with L5s			
08:30	08:45	L3s with L4s		L3 with L4s	Varies by EO, Gas, and Gen (each DOR is 15 mins)	Option 2: L2 with L3s		Will vary by Gas, Electric and Energy Policy & Procurement (each DOR is 15 mins)	L4 with L5s (each DOR is 15 mins)	L2 with L3s		L3 with L4s	L3 with L4s	L5 with L6s		
08:15	08:30					Fed team								L4 with L5s	L4 with L5s	
08:00	08:15	L4s with L5s		Some L4 with L5s		L3 with L4s								L5 with L6s	L5 with L6s*	
07:45	08:00					DART DOR									L6 with L7s*	
07:30	07:45	L5s with L6s				Option 1: L4 with L4s									IT Operations	
07:15	07:30															
07:00	07:15	L6s with L7s										L5 with L6s				
06:45	07:00	L7 with L8s														
06:30	06:45	L8 with L9s														
06:15	06:30	Varies														
06:00	06:15	Varies														

# Operating Reviews (ORs)



## Daily Operating Reviews (DORs)

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Framework for DOR

DORs and PDCA

DOR Pillars Detailed

Actions & Behaviors to Practice

What does Good Look Like?

DOR Maturity Matrix

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# Daily Operating Reviews (DORs)



## DOR Framework

- ❖ Performance VM
- ❖ Process - 3 Pillars
- ❖ Culture – The Thinking Way & Behavior
- ❖ Using PDCA methodology

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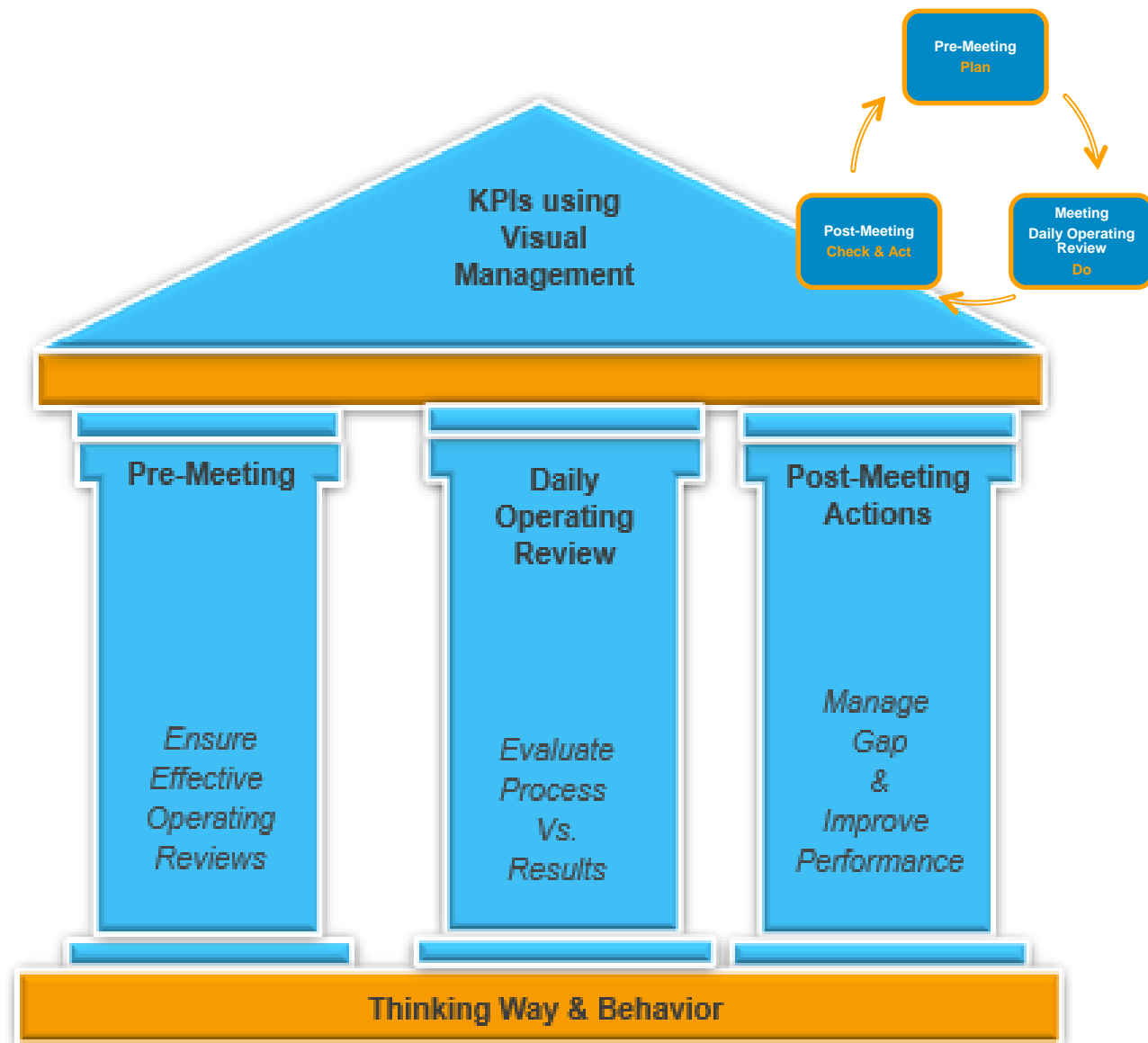
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Daily Operating Review Performance

Daily Operating Review Process

Daily Operating Review Culture

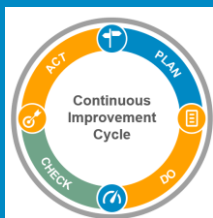




# Daily Operating Reviews (DORs)



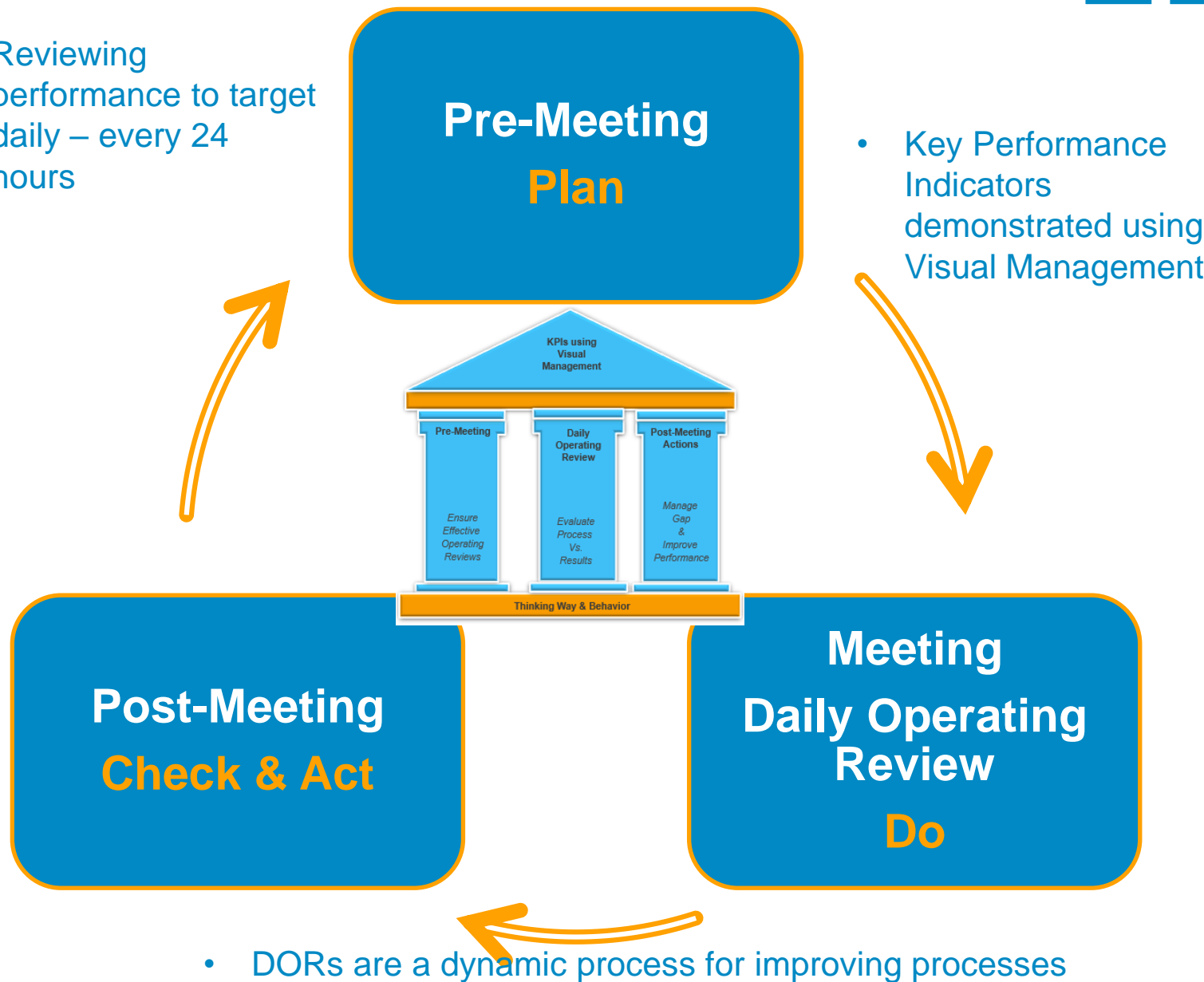
## PDCA



- ❖ Plan-Do-Check-Act (PDCA) is an iterative, four-stage approach for continually improving processes

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- Reviewing performance to target daily – every 24 hours



# Daily Operating Reviews (DORs)

## The 3 Pillars

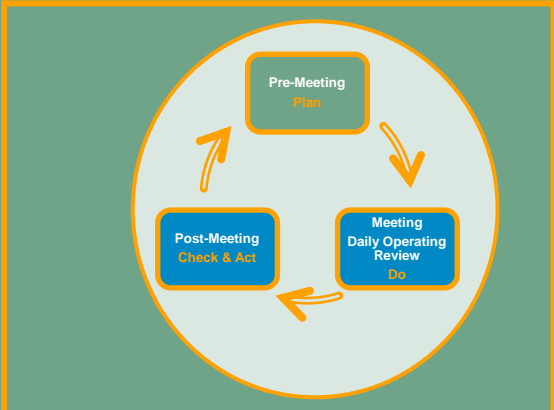
- ❖ Detailed Steps by Pillars
  - ❖ Pre-Meeting
  - ❖ Meeting
  - ❖ Post-Meeting

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### Pillar 1

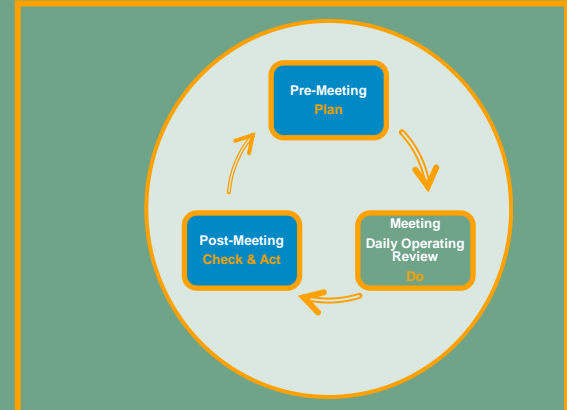
#### Pre-Meeting



- Review performance board before meeting – plan/block time to review prior to meeting on a consistent basis
- Identify key issues
- Early communication of issues to relevant support function(s)
- Information center data is complete
- Information center is to standard
- Expectations of participants

### Pillar 2

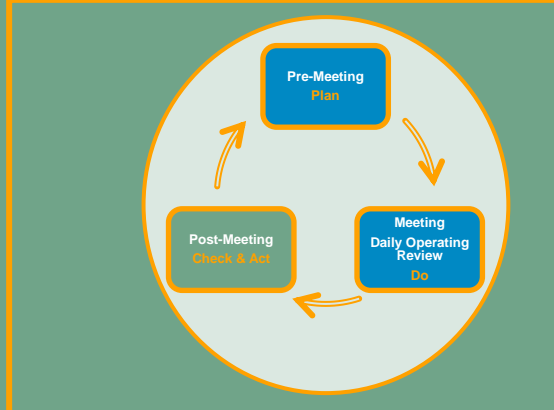
#### Meeting



- Welcome & attendance
- Following agenda
- Moderation of meeting
- Responsible person(s) feedback on issues
- Challenging and supporting
- Open issues are recorded and addressed

### Pillar 3

#### Post-Meeting



- Top issue(s) selected for 'go & see'
- Go & See activity
- Agreement of actions and follow-up review



# Daily Operating Reviews (DORs)



## Actions & Behaviors to Practice

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### Leaders

- Confirm results
- Ensure correctness of KPI breakdown and activities
- Coach for improvement
- Follow the process
- Promote two-way communication
- Listen
- Continuous encouragement/ support
- Take responsibility for problems that are outside the participants' control (escalate if needed)
- Responsible for the process
- Assure the agenda is followed
- Keep discussion moving along
- Capture actions (what, who, when) – can be delegated

### Coworkers

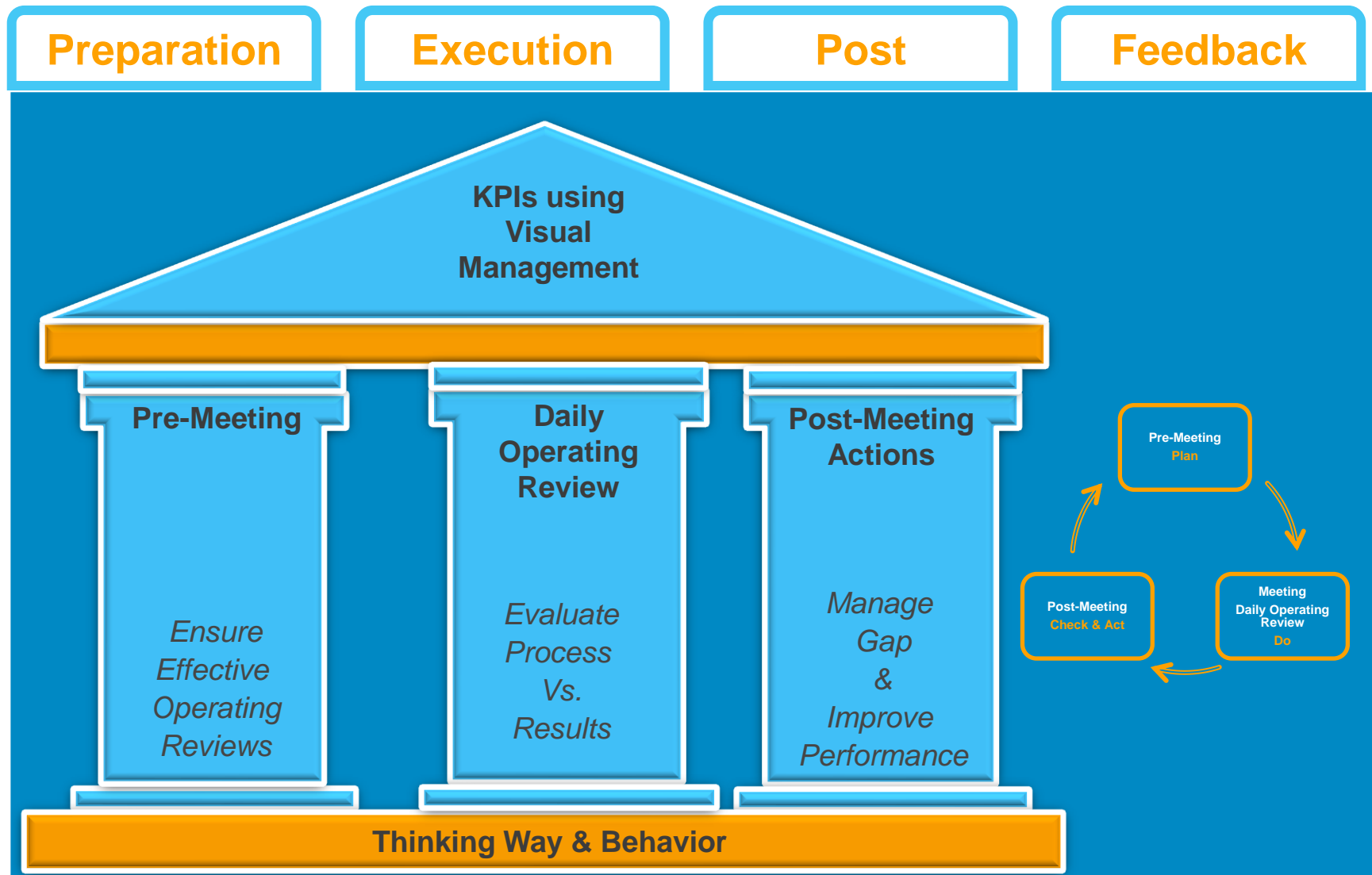
- Establish activities to achieve the KPI
- Provide input to prioritize improvement activities
- Report any problems where target not met
- Report any follow-up items
- Identify problems or concerns that require additional support

# Daily Operating Reviews (DORs)



What does good look like?

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# Daily Operating Reviews (DORs)



## What Does Good Look Like?

### Pre - Meeting

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#### Pre-Meeting

Process Steps		Usually/Always
1.1	Allows time to review information center before meeting	<ul style="list-style-type: none"> <li>• Time planned in diary.</li> <li>• Consistently reviews information prior to meeting</li> </ul>
1.2	Identification of key issues	<ul style="list-style-type: none"> <li>• Determines what is key issue by reviewing each section of information center with focus on top 3 issues</li> </ul>
1.3	Early communication of issues to relevant support function	<ul style="list-style-type: none"> <li>• Information passed in timely manner allowing good feedback in meeting</li> </ul>
1.4	Completion of information center data	<ul style="list-style-type: none"> <li>• Data updated prior to meeting.</li> <li>• Open issues &amp; PDCA up to date.</li> <li>• Information center is being lived</li> </ul>
1.5	Condition of information center	<ul style="list-style-type: none"> <li>• Board to standard. Sections clearly marked. Obsolete material removed, looks professional.</li> </ul>
1.6	Expectations of attendees	<ul style="list-style-type: none"> <li>• Attendees are prepared, delivering status, actions &amp; next steps.</li> <li>• Expectations &amp; purpose of meeting are understood</li> </ul>

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# Daily Operating Reviews (DORs)



## What Does Good Look Like?

## Execution of Meeting

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### Meeting Execution

Process Steps		Usually/Always
2.1	Welcome & attendee confirmation	<ul style="list-style-type: none"> <li>Greeting to team, roll call indicates clear start of meeting &amp; absences challenged</li> </ul>
2.2	Following flow/agenda	<ul style="list-style-type: none"> <li>Follows agenda, good flow through information center focusing only on key issues</li> </ul>
2.3	Moderation of meeting	<ul style="list-style-type: none"> <li>Stops discussion, history explanations.</li> <li>Gets to key information or requests follow-up</li> </ul>
2.4	Responsible representatives' feedback on issues	<ul style="list-style-type: none"> <li>Owner steps up, feeds back &amp; feels responsible for their issues</li> </ul>
2.5	Challenging/supporting	<ul style="list-style-type: none"> <li>Challenges where information is not sound and offers support where needed</li> </ul>
2.6	Open issues recorded/addressed	<ul style="list-style-type: none"> <li>Open issues are recorded in information center and are followed up daily</li> </ul>

# Daily Operating Reviews (DORs)

## What Does Good Look Like?

### Post - Meeting

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### Post - Meeting

Process Steps		Usually/Always
3.1	Selection of top issue for 'go & see'	<ul style="list-style-type: none"><li>• Top issue selected from meeting (including safety) &amp; expectation is 'go &amp; see' with key personnel</li></ul>
3.2	'Go & see' activity	<ul style="list-style-type: none"><li>• 'Go &amp; see' activity carried out consistently after each meeting with good questioning technique &amp; challenging of thinking way</li></ul>
3.3	Agreement of actions & follow-up review	<ul style="list-style-type: none"><li>• Actions defined; responsibilities agreed. Key activities recorded on PDCA or open issues &amp; followed in daily D.O.R. meeting</li></ul>

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# Daily Operating Reviews (DORs)



## What Does Good Look Like?

### Meeting Feedback

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#### Meeting Feedback

##### Process Steps

##### Usually/Always

4.1	Feedback method	<ul style="list-style-type: none"><li>• Direct on the job, timely feedback with clear information relating to key point</li></ul>
4.2	Topic selection for feedback	<ul style="list-style-type: none"><li>• Topic selection by monitoring meeting &amp; identifying issues with clear facts &amp; key points</li></ul>
4.3	Confirmation of feedback quality	<ul style="list-style-type: none"><li>• Socratic questioning to ensure points highlighted &amp; discussed have been understood. Reviewed in following meetings.</li></ul>
4.4	Feedback follow-up	<ul style="list-style-type: none"><li>• Periodic formal interview, with follow-up action plan for improvement where required</li></ul>



# Daily Operating Reviews (ORs)



## DOR Maturity Matrix

**DOR Actions & Behaviors**

**Start – Week 1**

**Intermediate – Weeks 2 - 4**

**Maturing > 1 Month**

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# DOR Maturity Matrix

## Actions & Behaviors

Preparation	Execution	Post	Feedback
<ol style="list-style-type: none"><li>1.Review before meeting</li><li>2.Identify key issues</li><li>3.Early communication</li><li>4.Update information</li><li>5.Condition of data</li><li>6. Expectations of attendees</li></ol>	<ol style="list-style-type: none"><li>1.Welcome and attendee check</li><li>2.Follow agenda / Flow</li><li>3.Meeting moderation</li><li>4.Responsible persons report out</li><li>5.Challenge and support</li><li>6.Identify top issues</li><li>7.Follow up / Action lists</li></ol>	<ol style="list-style-type: none"><li>1.Selection of issues for problems solving /Go &amp; See</li><li>2.Go &amp; See process</li><li>3.Action agreement &amp; follow up</li></ol>	<ol style="list-style-type: none"><li>1.Feedback method</li><li>2.Selection of feedback Topic</li><li>3.Confirmation of feedback quality</li><li>4.Follow up</li></ol>

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# DOR Maturity Matrix – Week 1 Start

## Preparation

- Does not plan any time.
- Rarely reviews information before meeting.
- Does not review data prior to meeting.
- Does not know what key issues are.
- Data filled in at start of meeting.
- Significant part of information out of date.
- No standard or not-to-standard information.
- No flow, difficult to understand.
- Not lived.
- Attendees do not know their role or responsibility & not prepared.

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## Execution

- No greeting or confirmation of attendees, not clear when meeting has started.
- No agenda or adherence to agenda. Does not follow flow of information/meeting.
- No moderation, rules not defined or adhered to. Discussion, not control.
- Lack of meeting discipline: Use of cell phone, use of laptop or phone & breaking off by talking / having a separate meeting.
- Owner not clear, feedback by other than responsible representative.
- Does not challenge when information is not clear or offer support when it may be required.
- No evidence of open issues being recorded or followed up.
- No questioning taking place.
- Cannot follow 1:3:10.
- No priorities.

## Post

- Meeting ends without review of top issues.
- No 'go & see' activity carried out or on rare occasions.
- No follow-up or agreement of further actions. No record of agreements.
- No apparent problem solving happening.
- Leader is telling & directing.

## Feedback

- No feedback given or given over a long period of time (appraisal or assessment times).
- No process for selecting feedback topic. Inappropriate subject selected

# DOR Maturity Matrix – Weeks 2 to 4

## Intermediate

### Preparation

- No formal time planning built in.
- Reviews as & when available.
- Occasionally reviews or selects issues without structure.
- Information not always shared in timely manner, not allowing support functions to give expected response in meeting
- Key data in place.
- Open issues & PDCA not consistently up to date or are not carried out in timely manner.
- Key information present, not to standard, or missing clear structure, attendees are not prepared, high level of moderation during meeting.

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### Execution

- Meeting starts untidily with discussions ending as roll-call is being carried out or as meeting begins.
- Generally follows agenda but not a smooth flow.
- Intervenes when discussion goes too far, however no clear rules in place.
- Owner of board feeds back everything, no feedback from support function.
- Challenges but not always in consistent manner or with clear expectations. Support offer not always firm/clear.
- Issues sometimes recorded but not always followed up.
- Actions of follow up are hit and miss.

### Post

- Top issues are reviewed with owner and actions agreed, no further follow-up taken.
- ‘Go & see’ carried out but not on a regular basis. Questioning & approach needs improvement.
- Actions agreed with clear responsibilities. Left in hands of owner to action, no formal follow-up.

### Feedback

- Feedback given but not always in timely manner or with clear points, possibility is that ‘moment’ will be lost.
- Topic selected with feeling, may not be key point.
- Periodic review and discussion with next level up.
- Informal discussion on a non specific timeline.

# DOR Maturity Matrix – > Month Maturity



## Preparation

- Time planned in diary, same time daily.
- All on time, deputies if apologies
- Reviews information prior to meeting.
- Determines what is key issue by reviewing each section of information centre with focus on top 3 issues.
- Data is updated prior to meeting.
- Open issues & PDCA up to date.
- Visual Mgmt Board to standard. Sections clearly marked. Obsolete material removed, looks professional.
- Agenda is clear with expectations times and outcomes.
- Attendees are prepared, delivering status, actions & next steps.
- Expectations & purpose of meeting are understood

## Execution

- Greeting to team, roll call indicates clear start of meeting & absences challenged.
- Starts with safety, key message.
- Follows agenda, good flow through information centre focussing only on key issues.
- Maintains good meeting discipline, respects the meeting by not doing any of the following: Use of cell phone, Use of laptop or phone & breaking off by talking / having a separate meeting. Hold Others accountable for meeting discipline.
- Stops discussion, history explanations. Gets to key information or requests follow-up.
- Enables a pro-active response to problems impacting performance.
- Owner step up, feeds back & feel responsible for their issues.
- Challenges where information is not sound and offers support where needed.
- Uses a coaching style of leading, by getting employees to think and identify ways to move to the next step.
- Perseveres with a questioning way to facilitate others thinking.
- Open issues are recorded and are followed up daily.
- Checks 1:3:10 Logic.
- Has logical process for identifying top priorities.

## Post

- Top issues selected from meeting (including safety) & expectation is 'go & see' with key personnel.
- 'Go & see' activity carried out consistently after each meeting with good questioning technique & challenging of thinking way.
- Actions defined, responsibilities agreed. Key activities recorded on PDCA or open issues & followed in daily SFM meeting.
- Coaches & communicates expectations on the Escalation Process, challenges adherence and context for learning & support (Inverted Org).
- Coaches Problem Solving Methodology, is less inclined to fix and focuses on developing the Problem Solving thinking of others.
- Holds leaders accountable for taking the next step and records this.

## Feedback

- Asks for timely feedback with clear factual information relating to key point.
- Logical selection of Topic's for feedback.
- Socratic questioning to ensure points highlighted & discussed have been understood.
- Reviewed in following meetings.
- Periodic for improvement where required.
- Lessons learned sessions being held to improve the meeting.

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# 3rd Play Problem Solving

What is it?

3 Types of Problems to Solve

Gaps & Continuous  
Improvement

Why Use it?

Who is Responsible

Expectations

Requirements

Actions & Behaviors

How to Guide

PG&E Problem Solving  
Methodology

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# Problem Solving (PS)

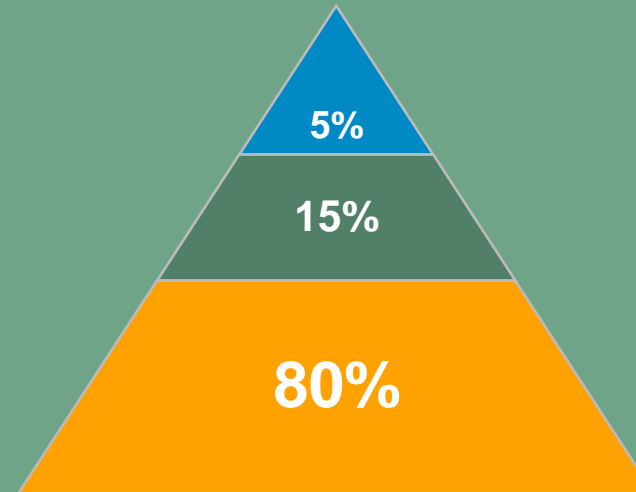


## What is it?

- ❖ A standardized approach to fixing systematic issues that impact performance.

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## 3 Types of Problems



Percentage  
Breakdown

Problem Type

Solving Type

5%

High Complexity & Risk

Design or Redesign

15%

Medium Complexity & Risk

Process Improvement

80%

Low Complexity & Risk

Process Management – Find it & Fix it

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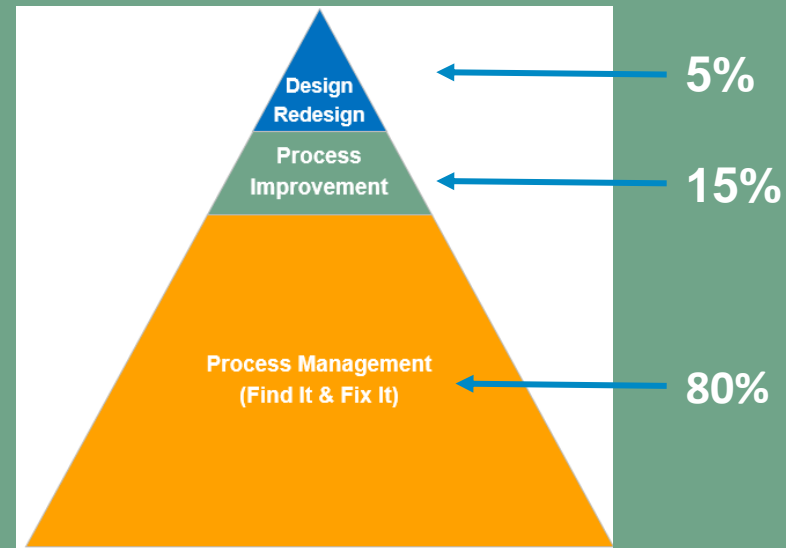
# Problem Solving (PS)



## 3 Types of Problems

❖ 80% of our issues at PG&E are Find It, Fix It

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Typical %	Risk – Complexity - Difficulty - Time	Lead by	Methodology Applied
5	High	Technical specialists (e.g., MBB, BB)	Scientific (e.g., DMADV)
15	Medium	Trained problems Solvers (e.g., BB, GB)	Data & Fact driven (e.g., 8-Step problem solving, DMAIC)
80	Low	Everyone	Find It, Fix It

MBB – Master Black Belt \* BB – Black Belt \* GB – Green Belt \* DMADV – Define – Measure – Analyze – Design – Verify \* DMAIC – Define – Measure – Analyze – Improve - Control

Process Management Basics: Does the process have:

1. A Process Owner
2. Stakeholders (customer(s), providers to the process, participants in the process)
3. Process map of the current process (as-is), procedure, job-aid
4. Process metrics (the measure of standard of performance)

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# Problem Solving (PS)



## Gaps & Continuous Improvement

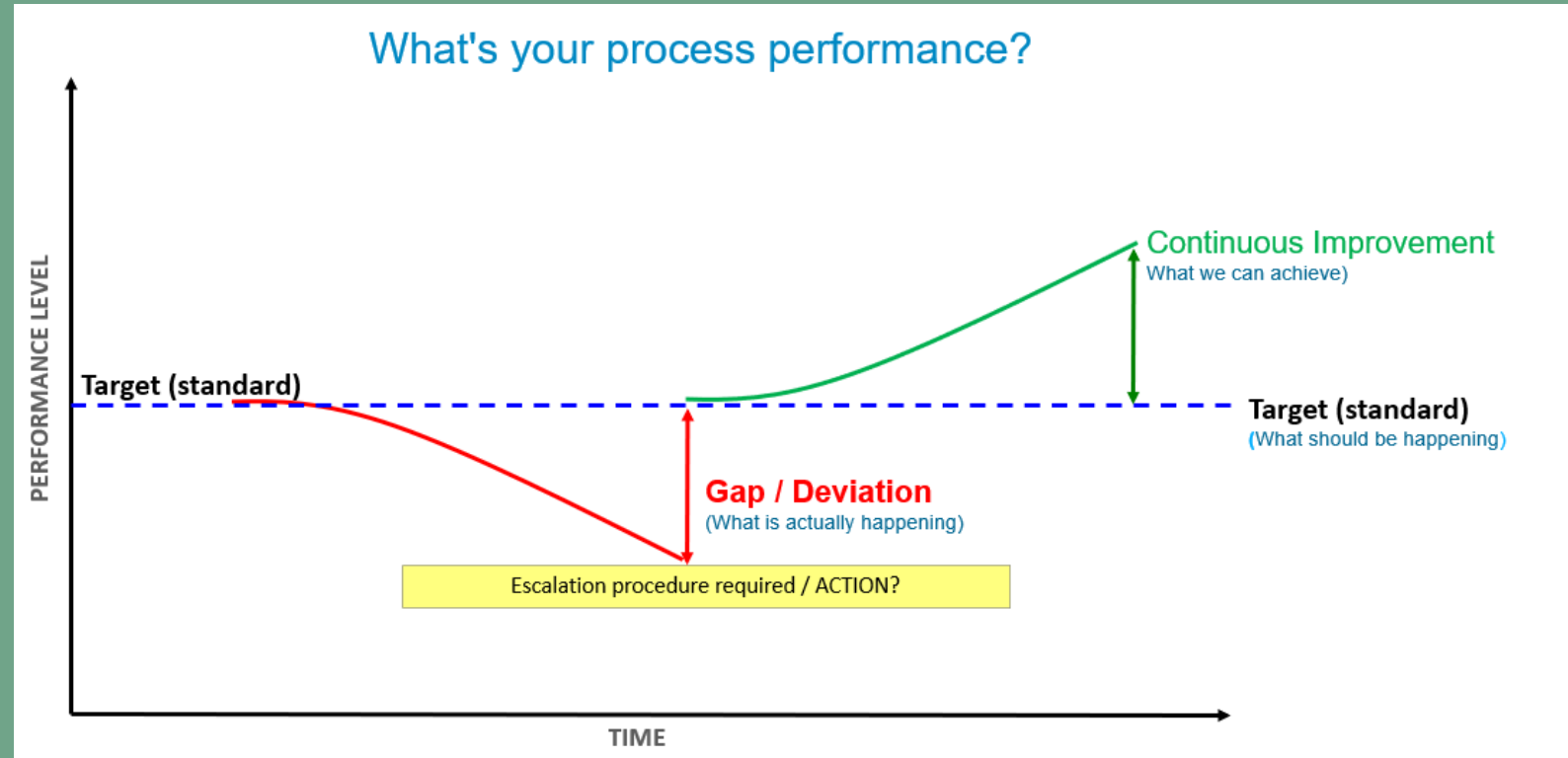
- ❖ Most of our issues at PG&E are Find It & Fix It

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- Watch for trends and anticipate problems. Is it a positive or negative trend?
- Observe the problem for yourself (Go, Look, See & Understand)
- Evaluate the problem (Seriousness, Urgency, Growth) & Priorities

# Problem Solving (PS)



## Why Use it?

- To solve problems that are impacting a group of individuals or several job functions and cannot be resolved through standard operating functions.
- Use a scientific and systematic approach to problem solve
- Resolve problems so they don't happen again
- Closes Performance Gap
- To ensure employees closest to the work solve problems in their work area
- Empowers employees
- Shares lessons learned

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# Problem Solving (PS)



## Who is Responsible?

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- **Leaders** - Lead discussion, support Problem Solving activities and perform escalation activities.
- **Coworkers** - Participate and perform the majority of problem-solving activities

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# Problem Solving (PS)



## Expectations

- Blame-free environment
- Fact-based Problem Solving
- Close performance gaps
- Address the priorities that will have the greatest impact on business
- Ensure coworkers closest to the work solve their problems
- All levels of Coworkers are engaged and take ownership
- Cross-functional collaboration and information sharing

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# Problem Solving (PS)



## Requirements

- Conduct regularly scheduled Problem-Solving sessions – cadence
- Create environment to ensure transparency in Problems Solving – an action tracking sheet
- Problem Solving activities occur and are tracked
- Share Lessons Learned from Problem Solving activities
- Activities are tracked on a Visual Management Board

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# Problem Solving (PS)

## Actions & Behaviors to Practice

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### Leaders

- Recognize, prioritize, and make Problem Solving activities transparent
- Perform regular process confirmation to identify problem areas
- Empower and encourage team members to be part of problem-solving solutions
- Provide adequate resources (i.e., people, time, and leadership support) for team members to accomplish activities
- Coach and develop team members through Problem solving method and activities
- Perform process confirmation after problem resolution
- Share learnings with team and cross-functional peers

### Coworkers

- Highlight problems/concerns to leader
- Take ownership for Problem Solving actions
- Resolve problems within areas of responsibility
- Follow Problem Solving method
- Be open-minded to Problem Solving coaching and method to learn

# Problem Solving (PS)



## Getting Started



### ❖ How to Guide

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#	Major Steps (What)	Key Points / Detailed Steps (Who & How)	Reason for Key Points / Detailed Steps (Why)
1	Follow Problem Solving method to resolve problems.	<p><u>Rule of Thumb:</u> 80% of problems are “Find-it-Fix-it,” 20% typically require a formal problem-solving process, and of the 20%, only 5% require advanced tools.</p> <p>Leaders/Facilitator:</p> <ul style="list-style-type: none"> <li>Understand when to use the Problem-Solving method.</li> <li>Lead Problem Solving by using the method, working sessions, tracking system and applicable tools.</li> </ul> <p>Team Members:</p> <ul style="list-style-type: none"> <li>Bring issues, concerns &amp; problems to leader’s attention and work with peers and leader(s) to work through problem solving activities.</li> </ul>	To reduce the likelihood of problems occurring.
2	Facilitate Problem Solving working session(s)	<p>Leader/Facilitator:</p> <ul style="list-style-type: none"> <li>Plan agenda, cadence, attendees and location where the session will be held.</li> <li>Identify addition resources needed, such as Problem Solving coach or cross-functional team members.</li> </ul> <p>Team Members:</p> <ul style="list-style-type: none"> <li>Attend regular Problem Solving sessions and provide supporting data, evidence or update to Problem Solving activities.</li> <li>Are responsible for owning part of the Problem Solving activities.</li> </ul>	To provide a standard process and cadence to review and perform Problem Solving activities.
3	Implement and Validate	<p>Leader:</p> <ul style="list-style-type: none"> <li>Approve implementation plan and ensure team has adequate resources</li> <li>Assess results and recommend other PDCA cycles if needed</li> </ul> <p>Team Members:</p> <ul style="list-style-type: none"> <li>Recommend implementation plan</li> <li>Report to leader implementation progress and results</li> </ul>	Provide resources and guidance for a successful implementation

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# Problem Solving (PS)



## PG&E Problem Solving Methodology

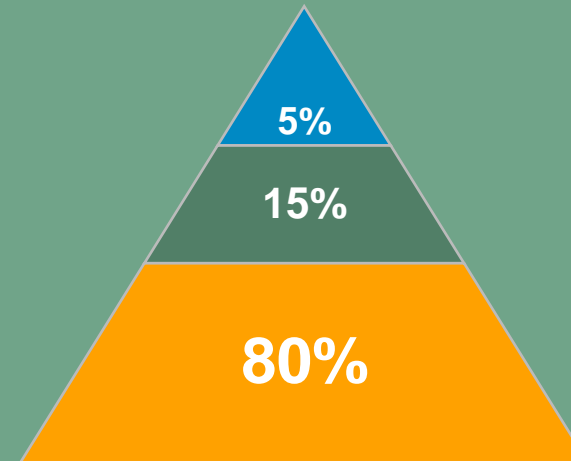


Overview

Problem Solving  
Process

A3 Problem Solving  
Sheet

Managing  
Problem Solving



Percentage  
Breakdown

Problem Type

Solving Type

5%

High Complexity & Risk

Design or Redesign

15%

Medium Complexity & Risk

Process Improvement

80%

Low Complexity & Risk

Process Management – Find it & Fix it

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# Problem Solving (PS)



## PG&E Problem Solving Methodology

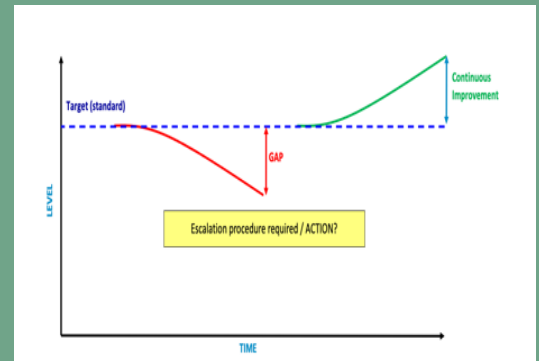
### ❖ Overview

- ❖ PS process - Is it a gap or a continuous improvement effort?
- ❖ A3 – Tool captures and illustrates the PS approach on a single page – *tells the story*
- ❖ PS Meetings to manage the process

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Overview	<b>Problem Solving Process</b>	A3 Problem Solving Sheet	Managing Problem Solving
----------	--------------------------------	--------------------------	--------------------------

### Problem Solving Process



### A3 Problem Solving Sheet

Problem Solving Sheet - xxxxx		Owner
Date:		
Step 1: Initial Problem Perception		
Champion:	Team:	
Step 2: Clarify the Problem		
Step 3: Locate Point of Cause - Where is the Problem Happening?		
Step 4: Containment (i): Temporary Solution to stay in Control		
Step 5: Root Cause Analysis		
Step 6: Countermeasure (ii): The Permanent Solution		
Step 7: Follow-Up & Check/ Confirm Results		
Step 8: Standardize and Share Best practice		

### Problem Solving Meeting Management



Three key components of problem solving

# Problem Solving (PS)



**Framework**

**Problem Solving  
Funnel**

**PG&E Lean  
Problem Solving**

Problem Solving Process (PS)

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# Problem Solving (PS)



## PS Framework

- ❖ Determine the problem type
- ❖ Properties
- ❖ Analysis Required
- ❖ Approach
- ❖ Who is best suited to work the problem solving









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Framework

Problem Solving Funnel

PG&E Lean Problem Solving

### Problem Solving Framework

Types Methods	Problem Properties		Analysis Required		Approach	Who
	Quantity	Difficulty	Time	Depth		
Advanced	Few 	Hard 	Long 	Deep 	Scientific	Technical Specialists
Practical					Data & Fact Driven	Trained problem solvers
React	Many	Easy	Short	Shallow	Fix It	Everyone

80% of problems are "Find It & Fix It"

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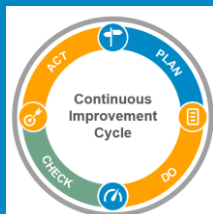
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# Problem Solving (PS)

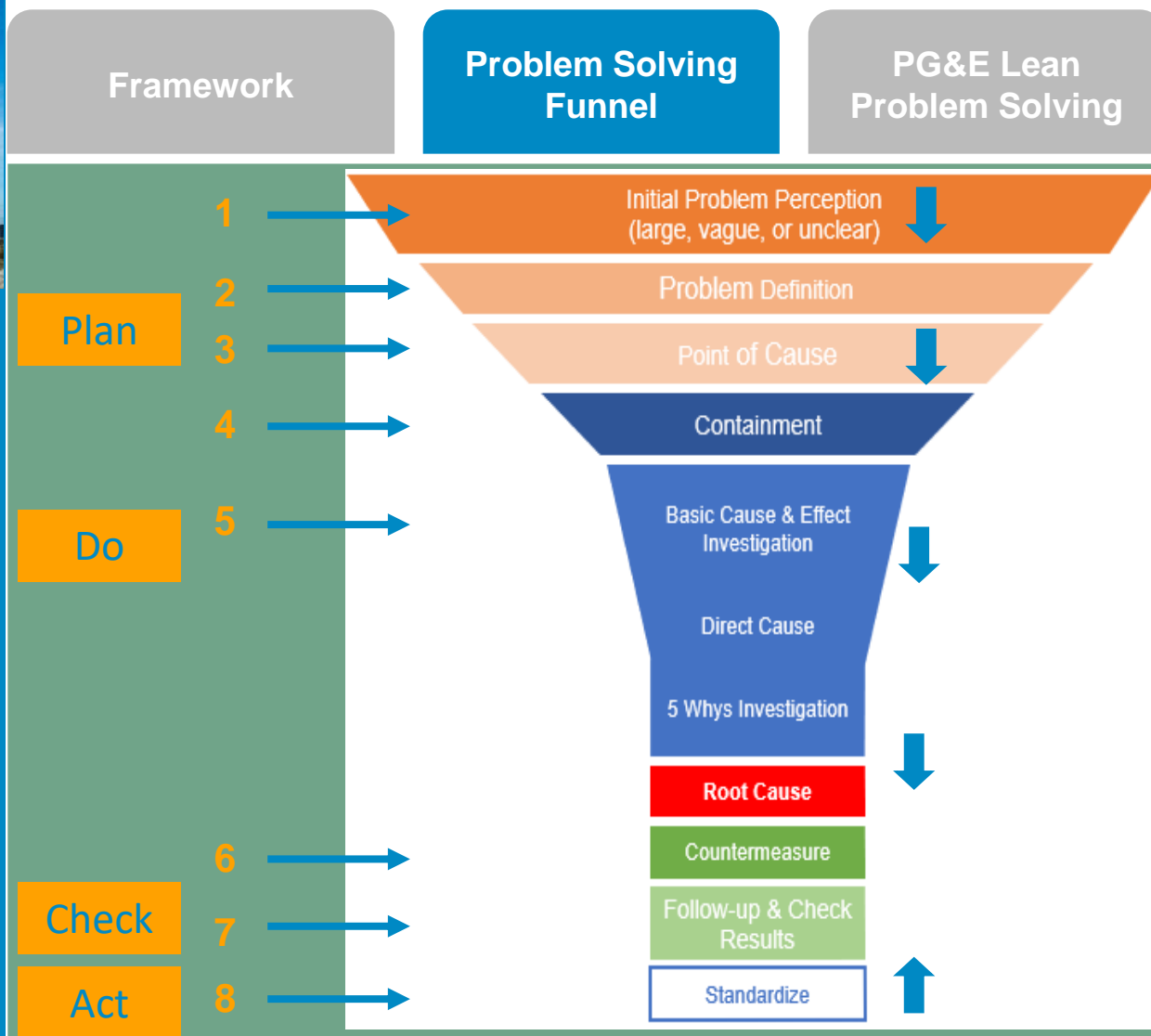


## Problem Solving Funnel

- ❖ 'Funnel' a large problem down to find Root Cause(s)
- ❖ Follow through on all steps
- ❖ Maintain containment throughout



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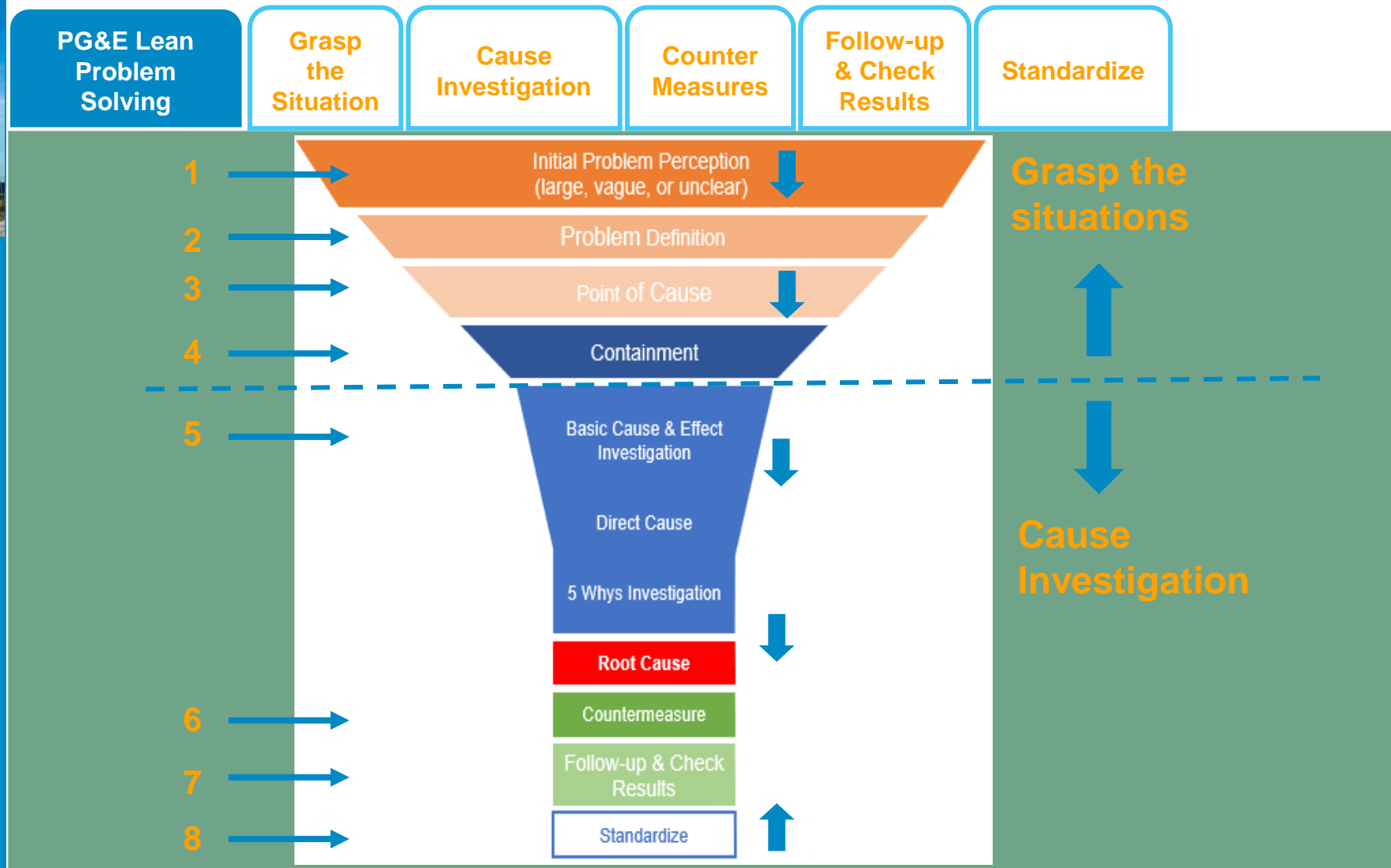


# Problem Solving (PS)



## PG&E Lean Problem Solving

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# Problem Solving (PS)



## Grasp the Situation

Step 1

Initial Problem Perception

Grasp the Situation

1

2

3

4

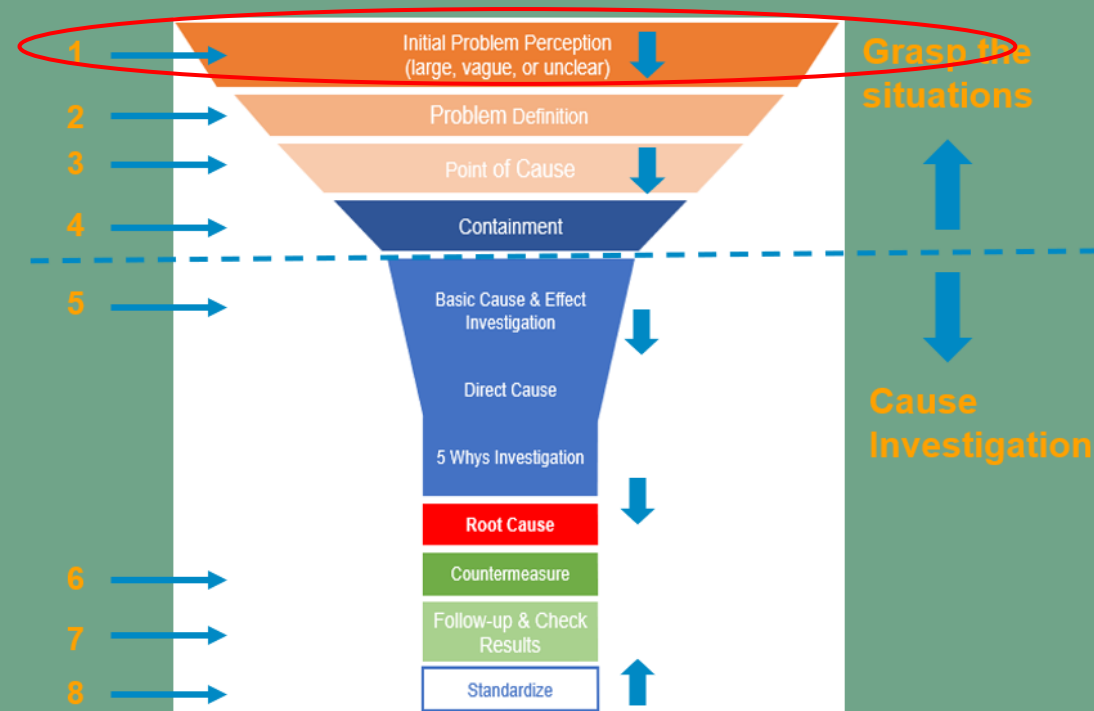
Cause Investigation

Counter Measures

Follow-up & Check Results

Standardize

- Recognize the problem or opportunity
- Take a known problem and further define it so that it becomes actionable
- Are the following statements helpful?
  - “It’s not working”
  - “Something is wrong with this”
  - “It’s making a funny noise”
  - “The customer doesn’t like it”



# Problem Solving (PS)

## PS Process

### Step 2 Problem Definition

Grasp the Situation

1

2

3

4

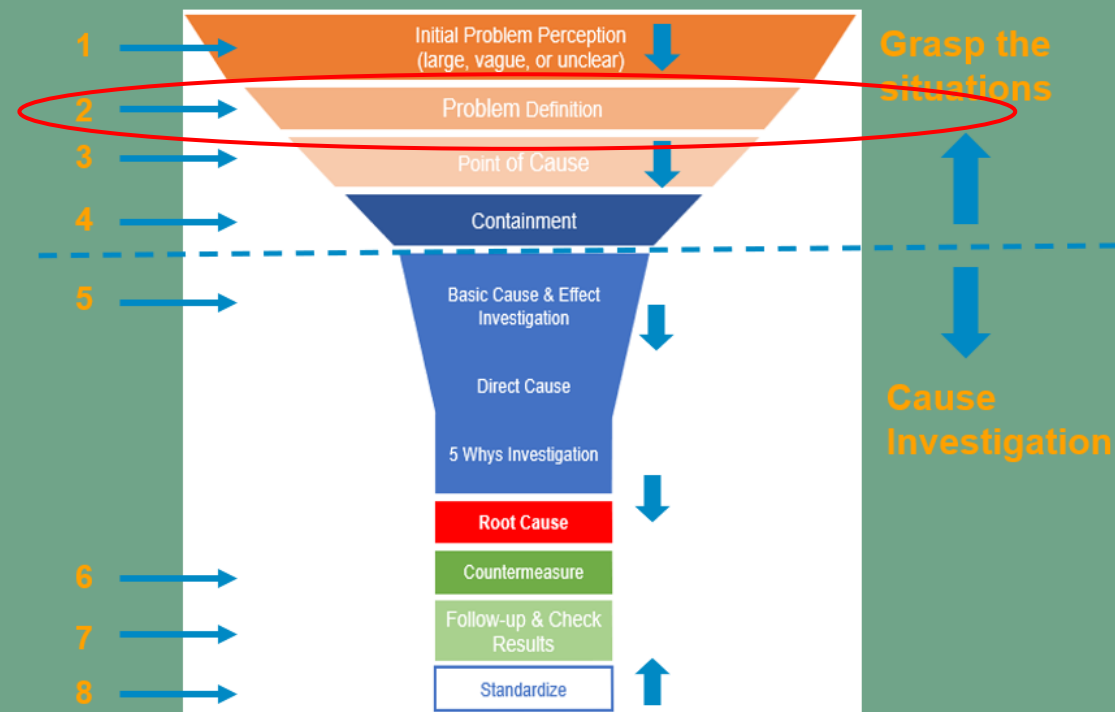
Cause Investigation

Counter Measures

Follow-up & Check Results

Standardize

- What is the problem?
- What is happening?
- What should be happening?
- How and when did you find the problem?
- How is the problem affecting your group or the company?
- Once you start to ask these questions you are already starting to "Define the Problem Statement"



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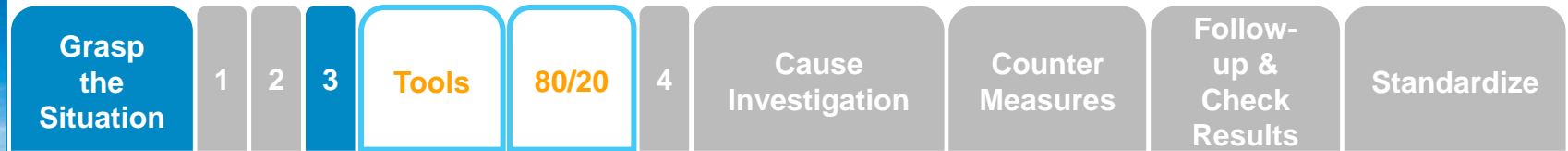
# Problem Solving (PS)

## Grasp the Situation

Step 3

Point of Cause

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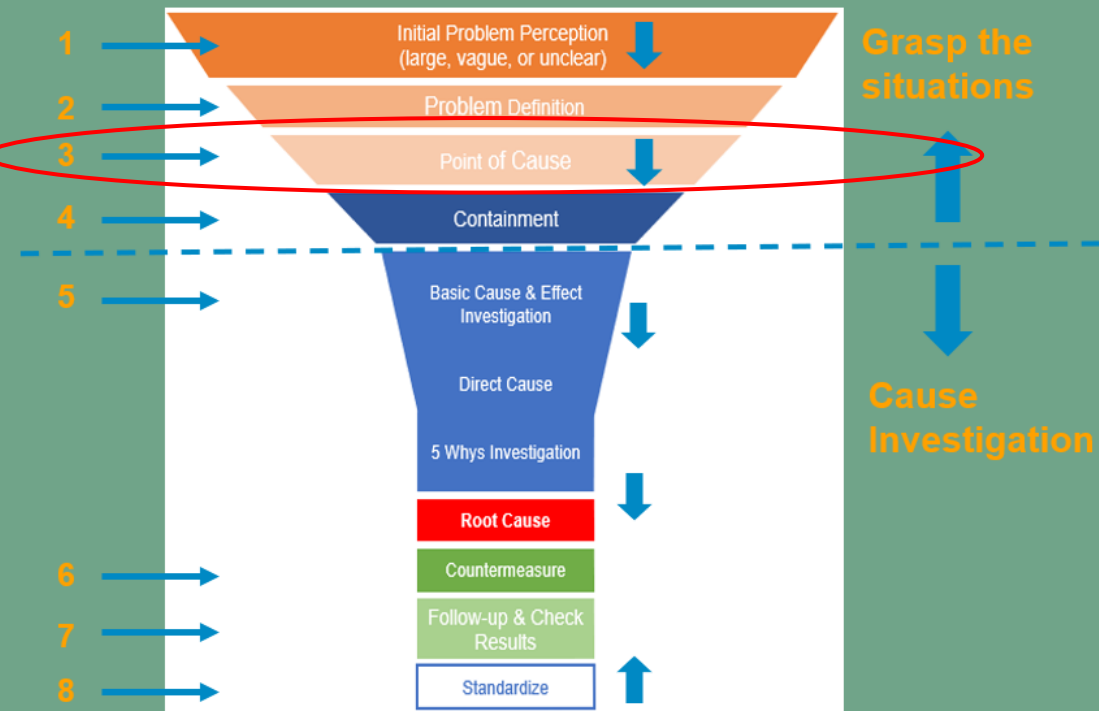


### Purpose:

To further narrow down the problem by identifying the specific process, geographic area, LOB, where the problem is initiated or exists.

### The tools you use:

- Process map
- Standards
- First level Pareto Analysis or bar chart





# Problem Solving (PS)



## Grasp the Situation

Step 3

Point of Cause Tools

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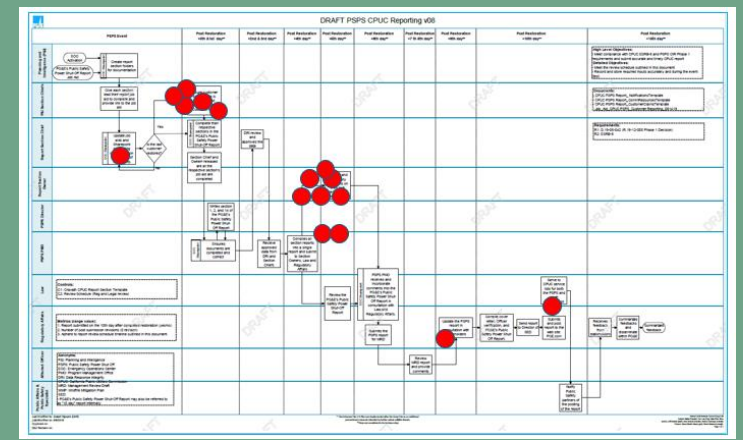


**Tools:**  
Using process and data to identify the point of cause of the problem

Use a variety of tools to perform analysis and demonstrate your findings visually.

**Process Map:** Visual tool used to qualitatively document points of problem, or opportunity

**Team Activity:** Multi-dot voting to figure out where the most pain is experienced by process users



# Problem Solving (PS)



## Grasp the Situation

Step 3

Point of Cause  
80/20 Rule

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Grasp  
the  
Situation

1

2

3

Tools

80/20

4

Cause  
Investigation

Counter  
Measures

Follow-  
up &  
Check  
Results

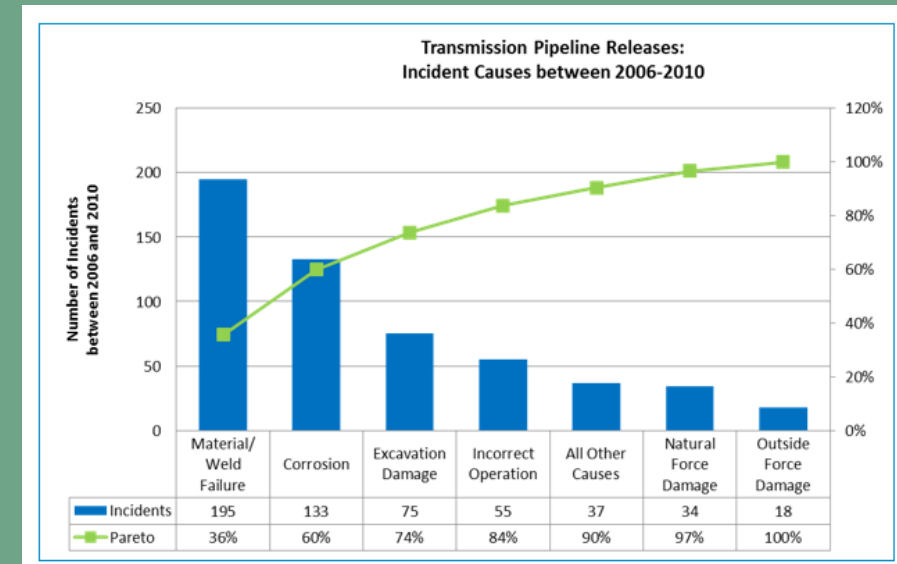
Standardize

Principle: 80-20 rule

Definition: Visual tool used to quantify the key drivers of a gap, problem, or opportunity by level of significance

Chart: (Pareto Analysis)

- Vertical bar chart with values in descending order from left to right
- Separates the “vital few” from the “trivial many”
- Contains the percentages from total



# Problem Solving (PS)



## PS Process

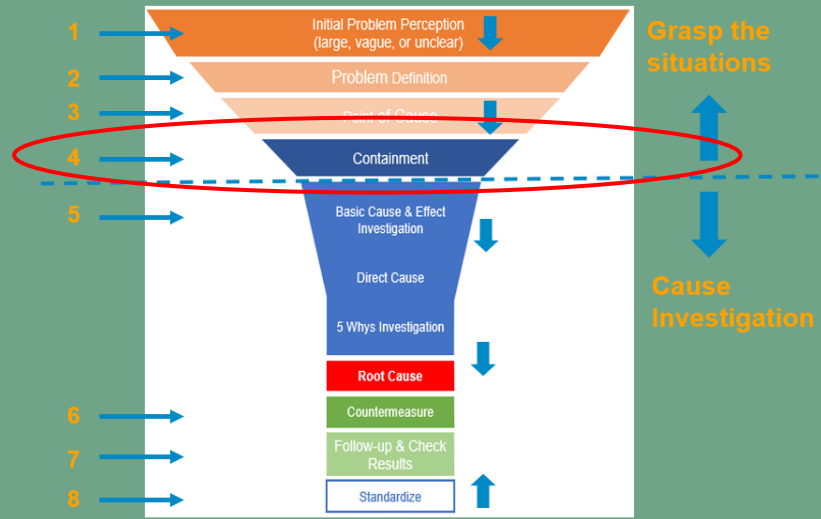
### Step 4 Containment

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During analysis you may identify Short-term Countermeasures (known as Containment)

Once the Point of Cause is identified, you then implement short-term containment measures successfully (case by case)



Short-Term Countermeasure	Person	When	Status
Added employee to perform Site Readiness Check	Field Ops	2/1/2021	Complete



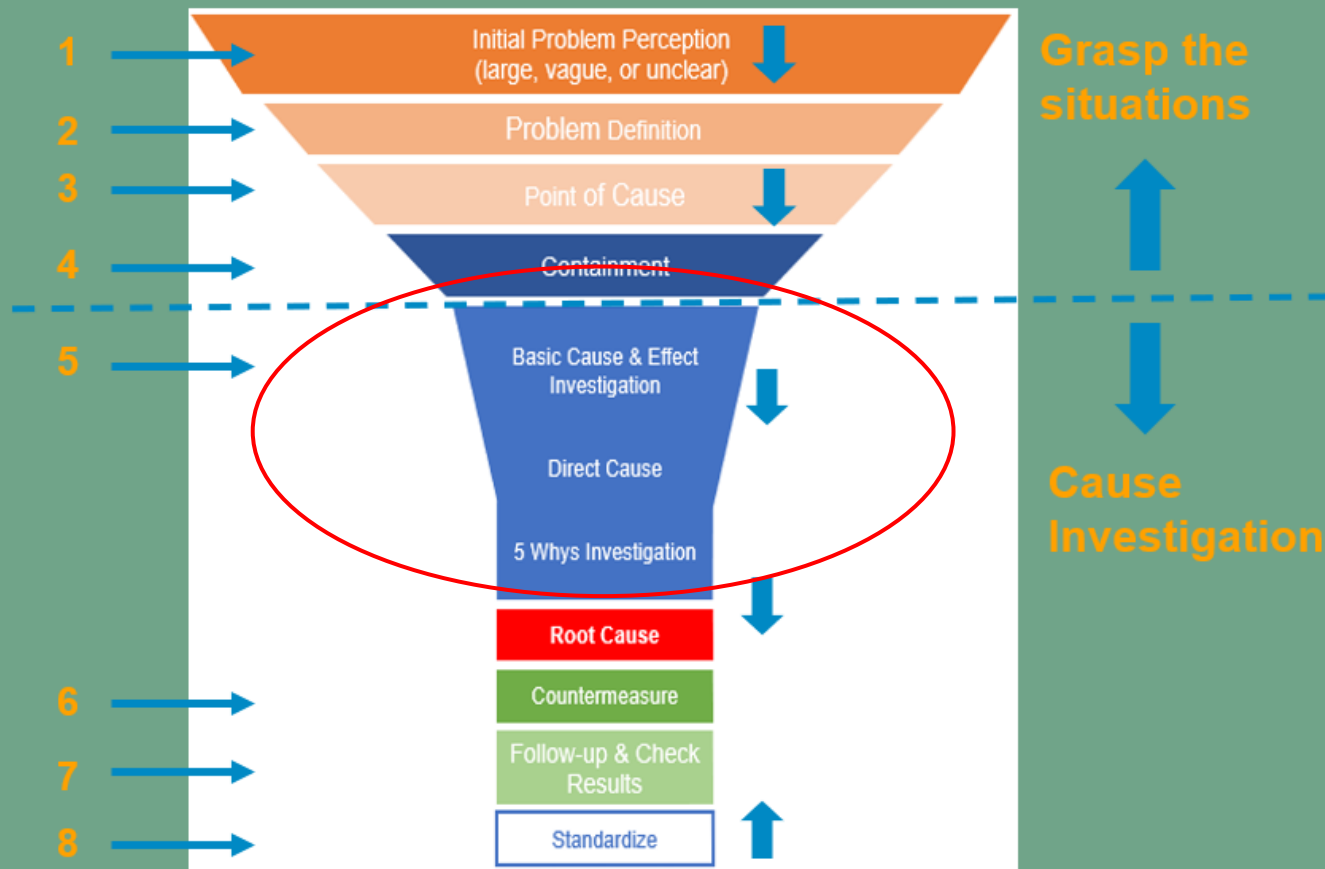
# Problem Solving (PS)



## PS Process

### Step 5 Cause Investigation

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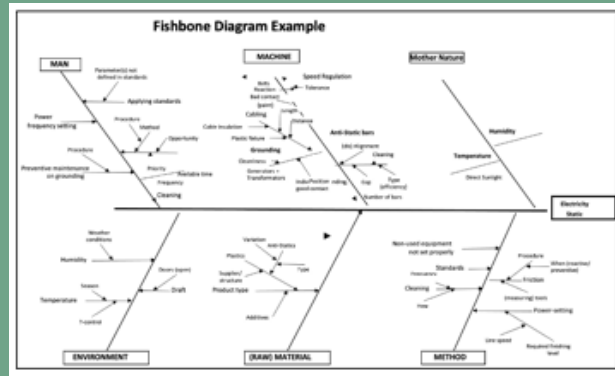
# Problem Solving (PS)



## PS Process



Use the Fish-bone / Ishikawa diagram to establish potential direct cause.



Enter the defined Problem Here

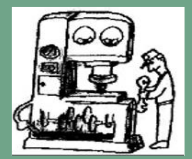
## Step 5 Cause Investigation

1. Why has the machine stopped?



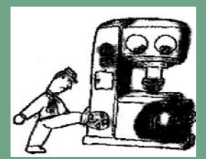
The overload fuse has blown

2. Why did the overload fuse blow?



There was not enough oil on the shaft

3. Why wasn't there enough oil?



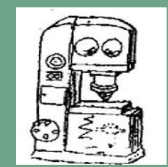
The oil pump doesn't pump enough oil

4. Why doesn't the oil pump work properly?



Because the shaft has worn

5. Why has the shaft worn?



Because the oil strainer is blocked with metal swarf  
**ROOT CAUSE?**

**Root Cause:**  
Ask the 5 whys to drill down to root cause

# Problem Solving (PS)



## PS Process

### ❖ Counter Measures

#### Step 6

#### Long-Term Improvements

Counter Measures

6

Prioritization Tool

Implement

Follow-up & Check Results

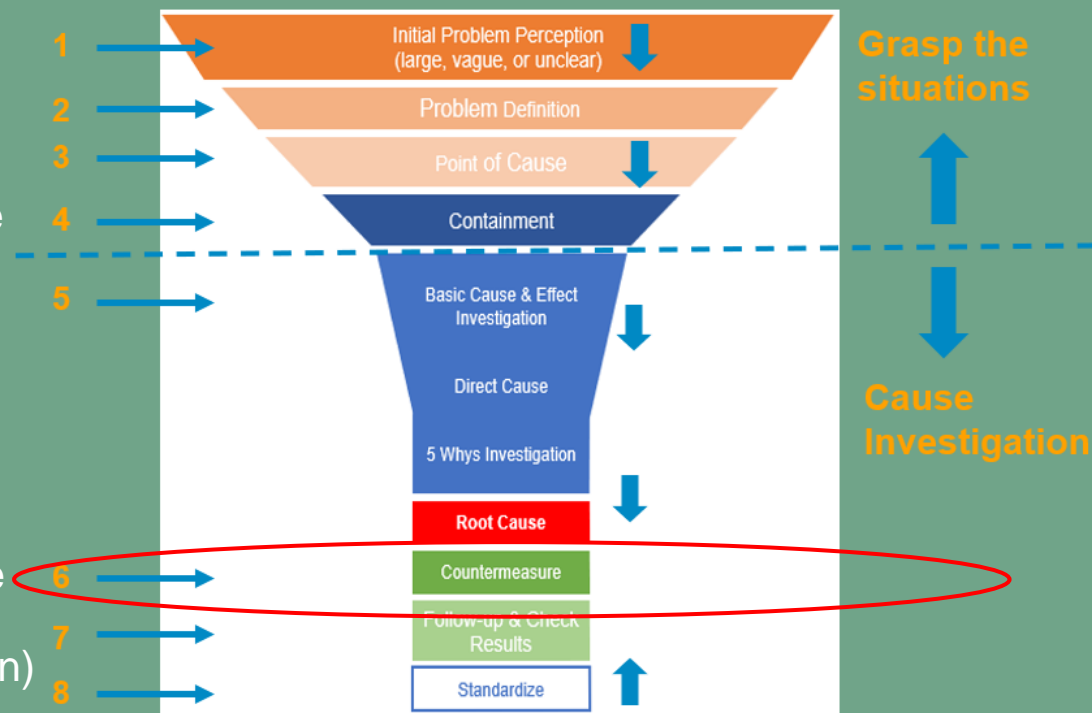
Go Back to the Start

### Long-Term Improvements

Share the potential Long-term Countermeasures to eradicate or reduce root cause. Prioritize and recommend solutions to management.

#### Tools used include:

1. List of potential solutions
2. Objective prioritization method (this may include the financial analysis or business case for solution)
3. Action plan for implementation



# Problem Solving (PS)



## PS Process

### ❖ Counter Measures

Step 6

### Prioritization Tools

10.07.21 - Version 2.1

Counter Measures

6

Prioritization Tool

Implement

Follow-up & Check Results

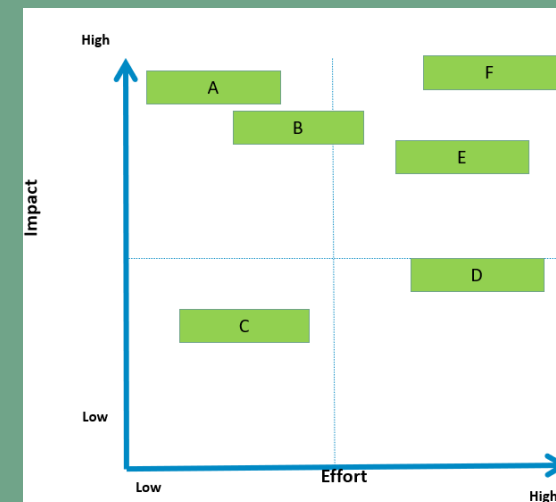
Go Back to the Start

- List and Describe Solutions
- Develop Rating
- List of potential solutions
- Prioritize
- Rank Solutions by
  - Effort & Impact
  - Cost & Time

Key	Description	
A	New integrated system	
B	Route calls to a smaller dedicated group	
C	Update Standard Work	
D	Provide account balance to CSR	
E	Eliminate verification step	
F	Podcast to explain end to end process	

Rating	Effort: hours to train	Impact: reduction of follow-up calls
H	>8 hours	>20% reduction
M	4-8 hours	10%-20% reduction
L	<4 hours	<10% reduction



# Problem Solving (PS)



## PS Process

Step 6

Implement

10.07.21 - Version 2.1

Counter Measures

6

Prioritization Tool

Implement

Follow-up & Check Results

Go Back to the Start

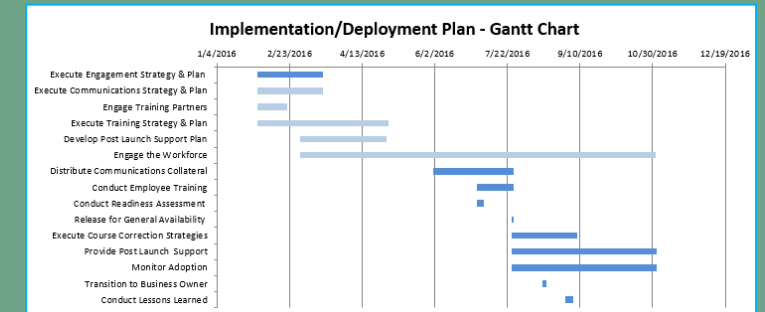
Provide what is necessary to implement improvement, such as a roadmap for implementing the countermeasures and tracking effectiveness.

### Tools used include:

1. Timelines
2. RACI
3. Budget tracker

### Caution:

1. Use pilot to standardize the process and then replicate across the enterprise
2. Do not put multiple countermeasures in play all at once





# Problem Solving (PS)



## Counter Measures

Step 6

Follow-up & Check Results

Counter Measures

Prioritization Tool

Implement

Follow-up & Check Results

Go Back to the Start

Using data, validate that the correct root cause was identified, eradicated or reduced

### Tools:

1. Result validation plan (who's responsible for validating the results? What data will be used? For what time period?)
2. Line chart, bar chart and/or pareto

### Caution:

If expected results cannot be validated, team should be asked to go back to analysis step.

# Problem Solving (PS)



## Counter Measures

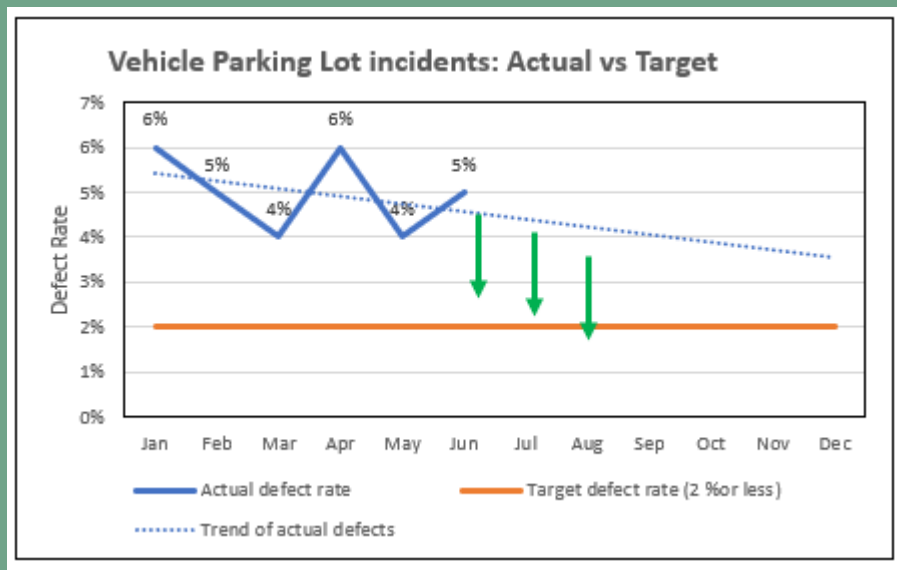
Step 6

Go Back to the Start

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Did you meet the expected target? If the answer is *No* Go back to the start. What was missed?



# Problem Solving (PS)



## Counter Measures

Step 7

Follow-up & Check Results

Grasp  
the  
Situation

Cause  
Investigation

Counter  
Measures

Follow-up &  
Check  
Results

7

Standardize

Using data, validate that the correct root cause was identified, eradicated or reduced.

### Tools:

1. Result validation plan (who's responsible for validating the results? What data will be used? For what time period?)
2. Line chart, bar chart and/or pareto

### Caution:

If expected results cannot be validated, team should be asked to go back to analysis step.



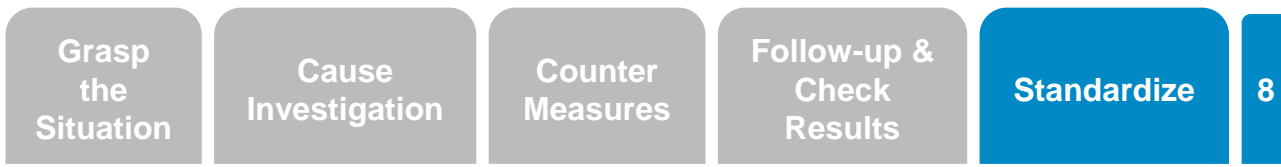
# Problem Solving (PS)



## Standardize

Step 8

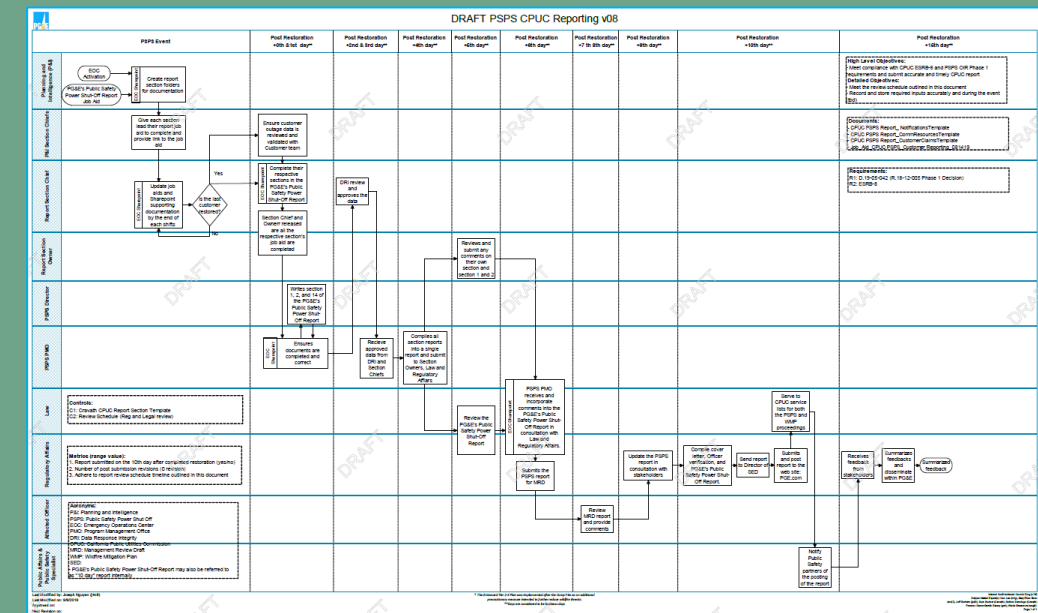
Standardize & Share



To implement results of a successful pilot across the entire enterprise.

### Tools:

1. Action Plan
2. Process Map
3. Procedure / job-aid



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# Problem Solving (PS)



## A3 Problem Solving Sheet

### The 8-Step Process & the A3 Sheet

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Overview

Problem Solving Process

**A3 Problem Solving Sheet**

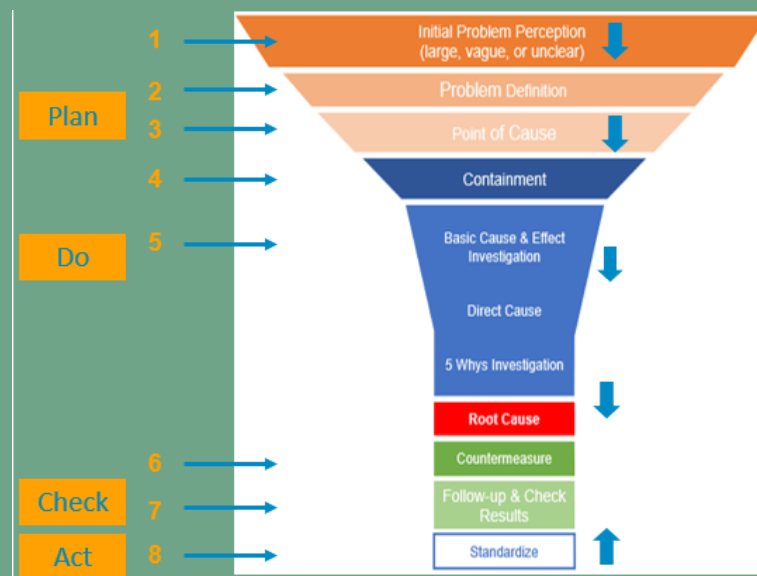
Steps 1 - 4

Steps 5 - 8

Why is it important?

Managing Problem Solving

Eight-Step problem solving process:  
A guide through the steps required to solve a problem



“A3” Problem Solving Sheet  
Template to work through the problem following the 8 steps

Date	Problem Solving Sheet - xxxxx			Owner																																			
Area:-																																							
Step 1: Initial Problem Perception		Step 5: Root Cause Analysis																																					
Chairperson: Team:																																							
Step 2: Clarify the Problem		<table border="1"> <thead> <tr> <th>Direct Cause</th> <th>5 Whys</th> </tr> </thead> <tbody> <tr><td></td><td>Why?</td></tr> <tr><td></td><td>Why?</td></tr> <tr><td></td><td>Why?</td></tr> <tr><td></td><td>Why?</td></tr> <tr><td></td><td>Why?</td></tr> <tr><td></td><td>Root Cause</td></tr> </tbody> </table>			Direct Cause	5 Whys		Why?		Why?		Why?		Why?		Why?		Root Cause																					
Direct Cause	5 Whys																																						
	Why?																																						
	Why?																																						
	Why?																																						
	Why?																																						
	Why?																																						
	Root Cause																																						
Step 3: Locate Point of Cause - Where is the Problem Happening		Step 6: Countermeasure (s) The Permanent Solution																																					
Step 4: Containment (s) - Temporary Solution to stay in Control		Countermeasure Action Plan																																					
<table border="1"> <thead> <tr> <th>Containment Action Plan</th> <th>Who</th> <th>When</th> <th>Status</th> </tr> </thead> <tbody> <tr><td></td><td></td><td></td><td>⊕</td></tr> <tr><td></td><td></td><td></td><td>⊕</td></tr> <tr><td></td><td></td><td></td><td>⊕</td></tr> <tr><td></td><td></td><td></td><td>⊕</td></tr> </tbody> </table>		Containment Action Plan	Who	When	Status				⊕				⊕				⊕				⊕	<table border="1"> <thead> <tr> <th>Who</th> <th>When</th> <th>Status</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>⊕</td></tr> <tr><td></td><td></td><td>⊕</td></tr> <tr><td></td><td></td><td>⊕</td></tr> <tr><td></td><td></td><td>⊕</td></tr> </tbody> </table>			Who	When	Status			⊕			⊕			⊕			⊕
Containment Action Plan	Who	When	Status																																				
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Who	When	Status																																					
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		⊕																																					
Step 7: Follow-Up & Check/ Confirm Results		Step 8: Standardize and Share Best practice																																					
<p>⊕ 25% Complete   ⊕ 50% Complete   ⊕ 75% Complete   ● Action Closed</p>																																							









# Problem Solving (PS)



## Managing the Problem-Solving Process

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Overview

Problem Solving Process

A3 Problem Solving Sheet

Managing Problem Solving

### Managing the Overall Process

- Set the Cadence, agenda and attendees for the PS meeting
  - Ensure a balanced cross section within the team
  - Include an SME from the area concerned
  - Include a scribe to ensure all actions are taken and send out updates
- Ensure the overall A3 PS process is followed step by step
- Manage the meeting
  - Treat it like a DOR
  - Establish ground rules - Everyone has a voice
  - Ensure focus on the problem – avoid scope creep
  - Confirm support as required



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# 4th Play Standard Work

**Standard Work**

**Leadership Standard Work**

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# Standard Work (SW)



What  
is it?

Why  
Use it

Who is  
Responsible?

Expectations

Requirements

Actions &  
Behaviors

Getting  
Started

How  
to  
Guide

Standard Work  
(SW)

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# Standard Work (SW)



What  
is it?

Why  
Use it

Who is  
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Started

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to  
Guide

## What is it?

A document that outlines the sequence of activities needed to consistently complete a specific type of work.

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# Standard Work (SW)



## Why Use it?

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What is it?

**Why Use it**

Who is Responsible?

Expectations

Requirements

Actions & Behaviors

Getting Started

How to Guide

- Ensures a standard company-wide method for documenting work instructions and job aids
- Documents best practices to achieve a repeatable outcome
- Provide a dbase for Problem Solving / Continuous Improvement
- Confirms process leaders



# Standard Work (SW)



## Who is Responsible?

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What is it?

Why Use it

Who is Responsible?

Expectations

Requirements

Actions & Behaviors

Getting Started

How to Guide

- **Leaders** - Responsible to ensure Work Instructions and Job Aids are in place and being followed.
- **Coworkers** - Help develop, follow, and continuously improve Work Instructions and Job Aids

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# Standard Work (SW)



## Expectations

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What is it?

Why Use it

Who is Responsible?

**Expectations**

Requirements

Actions & Behaviors

Getting Started

How to Guide

- Reduce cost, increase productivity
- Stabilizes waste, simplifies processes
- Improves morale with fair and objective standards
- Creates the basis for Continuous Improvement



# Standard Work (SW)



## Requirements

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What is it?

Why Use it

Who is Responsible?

Expectations

**Requirements**

Actions & Behaviors

Getting Started

How to Guide

- Sequence (Process Steps)
- Time





# Standard Work (SW)



## Actions & Behaviors to Practice

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What is it?

Why Use it

Who is Responsible?

Expectations

Requirements

Actions & Behaviors

Getting Started

How to Guide

### Leaders

- Define the scope of the Work Instructions and Job Aids
- Ensure the coworkers making up the Standard Work is comprised of people who do the work, plus possible supplies and customers
- Confirm the Work Instructions and Job Aids can be followed to achieve the expected results
- Empower employees to develop the standard
- Train and Support
- Confirm why the standard is not being followed.

### Coworkers

- Create the standards
- Follow the standards
- Make recommendations for improvement
- Utilize templates to capture risks to performance gaps
- Rely on the expertise of the person(s) who perform the work

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# Standard Work (SW)



## Getting Started

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What is it?

Why Use it

Who is Responsible?

Expectations

Requirements

Actions & Behaviors

**Getting Started**

How to Guide



- List key or critical to business areas within the organization
- Inventory and create a list of standards by critical to business areas within the organization
- Where none exist, determine method of standard, and create
- Review on a regular cadence

# Standard Work (SW)



## How to Guide

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What is it?	Why Use it	Who is Responsible?	Expectations	Requirements	Actions & Behaviors	Getting Started	How to Guide
#	Major Steps (What)	Key Points / Detailed Steps (Who & How)				Reason for Key Points / Detailed Steps (Why)	
1	Identify the need for Working Instructions or Job Element to be developed or updated	<b>Leader</b> <ul style="list-style-type: none"> <li>As a process demonstrated the need to have repeatable, predictable results, the Leader/Coworker should confirm standard work (job aid, standard, annual-quarterly-monthly-weekly business reporting cycle) exists. If a standard does not exist, the team needs to develop standard work for the given process.</li> <li>The leader should prioritize which process(es) should have drafted standard work first based need.</li> </ul>				Establish the action that standard work for a process needs to be updated or created.	
2	Determine Scope of Work Instruction or Job Aid	<b>Leader/Coworker:</b> <ul style="list-style-type: none"> <li>Determine start and end of the given process. Go see the process as necessary.</li> <li>Consult and work with dependent stakeholders to the given process to meet desired target condition for all related parties.</li> <li>Determine if the standard processes should be written specific to a geographical location, department, or job function.</li> <li>Assign documentation ownership and process ownership.</li> </ul>				To understand the starting and ending point of the process.	
3	Determine Process Steps for Macro level for Work Instruction or Micro level for Job-Aid	<b>Leader:</b> <ul style="list-style-type: none"> <li>May facilitate process mapping session with team to determine steps. Consult and work with department stakeholders to the given process to meet desired target condition for all related parties.</li> </ul> <b>Team Members:</b> <ul style="list-style-type: none"> <li>Observe the work being done and make notes as to what is currently happening in the process. For Job-aid, take pictures of the activity or make note of any visual aids used to assist coworker performing the task. Look for opportunities to eliminate waste in the standard process.</li> </ul>				Outline the main steps of the Standard Work.  To Outline a particular job function.	

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# Leadership Standard Work (LSW)



What is it?

Why Use it

Who is Responsible?

Expectations

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Actions & Behaviors

Getting Started

How to Guide

## Leadership Standard Work (LSW)

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# Leadership Standard Work (LSW)



What is it?

Why Use it

Who is Responsible?

Expectations

Requirements

Actions & Behaviors

Getting Started

How to Guide

## What is it?

A document that standardizes tasks for leaders and helps ensure standard work is being used by their coworkers.

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# Leadership Standard Work (LSW)



## Why Use it?

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Why Use it

Who is Responsible?

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Actions & Behaviors

Getting Started

How to Guide

- Establish a defined cadence for communication, confirmation, problem solving, and sustaining
- Reduce ambiguity and set clear expectations
- Confirms that processes are running as intended
- Help minimizes daily firefighting

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# Leadership Standard Work (LSW)



## Who is Responsible?

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What  
is it?

Why  
Use it

Who is  
Responsible?

Expectations

Requirements

Actions &  
Behaviors

Getting  
Started

How  
to  
Guide

- **Leaders** - All leaders throughout the organization are responsible to develop and follow leader standard work.

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# Leadership Standard Work (LSW)



What  
is it?

Why  
Use it

Who is  
Responsible?

**Expectations**

Requirements

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Behaviors

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Started

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to  
Guide

## Expectations

- Ensures time is spent on the highest priorities
- Reflection of planned to actual is used to improve effectiveness
- Connects to upper levels of leadership to the coworkers you serve

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# Leadership Standard Work (LSW)



## Requirements

What is it?

Why Use it

Who is Responsible?

Expectations

**Requirements**

Actions & Behaviors

Getting Started

How to Guide

- Go-Look-See
- Conduct Operating Reviews
- Conduct Problem Solving Reviews
- Use the Plan-Do-Act (PDCA)
- Development and Training Confirmation

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# Leadership Standard Work (LSW)



## Actions & Behaviors to Practice

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What  
is it?

Why  
Use it

Who is  
Responsible?

Expectations

Requirements

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Behaviors

Getting  
Started

How  
to  
Guide

### Leaders

- Ensure your Leaders Standard Work is aligned with organizational goals and objectives
- Responsible to ensure Work instructions and Job Aids are in place and being followed - Process confirmation
- Confirm *Why* the standard is NOT being followed – find the problem
- Empower employees to develop the standard
- Train and support
- Remove barriers
- Model the PG&E Way

### Coworkers

- Communicate openly
- Identify gaps in performance
- Assist in removing barriers
- Model the PG&E approach

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# Leadership Standard Work (LSW)



What  
is it?

Why  
Use it

Who is  
Responsible?

Expectations

Requirements

Actions &  
Behaviors

**Getting  
Started**

How  
to  
Guide



## Establish

- A defined cadence for communication, confirmation, problem solving, and sustaining
- Operational Reviews
- Go-See
- Problem Solving

## Development & Training confirmation

## Align

- Standard Work using organizational goals and KPIs

## Model the PG&E Way

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# Leadership Standard Work (LSW)



## How to Guide

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What is it?	Why Use it	Who is Responsible?	Expectations	Requirements	Actions & Behaviors	Getting Started	How to Guide
-------------	------------	---------------------	--------------	--------------	---------------------	-----------------	--------------

#	Major Steps (What)	Key Points / Detailed Steps (Who & How)	Reason for Key Points / Detailed Steps (Why)
1	Clear your schedule	<b>Leader</b> <ul style="list-style-type: none"> <li>Reduce schedule to value added activities only.</li> </ul>	Leaders need to free up time for Daily Operating Reviews, weekly meetings, and confirmation activities.
2	Schedule Daily Operating Reviews (DORs) with your team and supervisor	<b>Leader:</b> <ul style="list-style-type: none"> <li>Ask/answer three questions: 1) What was accomplished yesterday, 2) What are the plans for today, and 3) Do you foresee any roadblocks that you need assistance with/</li> </ul>	Create and maintain a routine cadence to ensure daily work activities are achieving targeted conditions
3	Schedule standard weekly meetings	<b>Leader:</b> Engage weekly 1-on-1 with each team member, weekly 1-on-1 with your manager, and Weekly Operating Reviews (WORs) with your team	Ensure process confirmation of daily and weekly work activities are going to plan. Weekly Operating Reviews (WORs) ensure timely and robust communication, confirmation, and Problem-Solving activities.
4	Determine confirmation activities	<b>Leader:</b> <ul style="list-style-type: none"> <li>Determine what it is you need to Go-Look-See every day to focus attention on critical processes.</li> </ul>	Confirmation work is being done as required by Standard Work. Periodically review your Visual Management and the associated Problem-Solving activities
5	Determine other Standard Work	<b>Leaders</b> Identify coaching and mentoring opportunities, escalation responses, preventive and corrective actions, reflection and lessons learned.	To ensure thorough approach for driving process adherence and continuous improvement activities.

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# Resources

## Get more information

❖ Clear Sky Playbook is the Enterprise Lean Operating System Standard

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Introduction

Questions about Lean? | Learn more [here](#) or contact us @ [LeanTeam@pge.com](mailto:LeanTeam@pge.com)

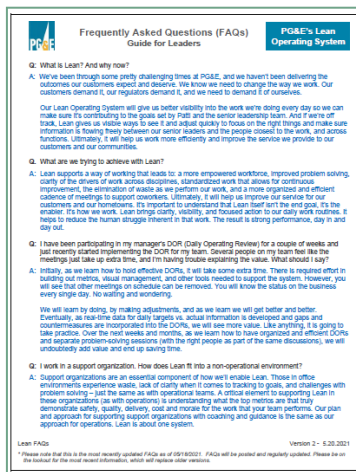


Available resources include:



PG&E Homepage

Quick access to Enterprise Lean website



FAQs

A living document that is continuously updated with new questions, based on feedback received from our coworkers

The 4 Basic Plays



Lean Reading List

Suggested books for those interested in learning the history and benefits of Lean



Videos & Articles

Videos of Operating Review and Articles on various Lean topics



“How To” Guides

Quick start guides to help you get started implementing the 4 Basic Plays with your team

Resources

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**Date:** October 6, 2021 **File #:** 21-054

**To:** SUMEET SINGH, SENIOR VICE PRESIDENT AND CHIEF RISK OFFICER

**From:** INTERNAL AUDITING

**Subject:** System Hardening Decision Tree – Validation – Third Quarter of 2021

**Audit Objective and Scope**

At your request, we assessed the Utility's use of a Decision Tree to provide guidance on the type of mitigation to be used for system hardening-related projects. Representatives from Emergency Preparedness and Response, Project Management, Asset Strategy, and Wildfire Risk Management created the system hardening decision tree for selecting the type of mitigation to address wildfire risk. In January 2021, the Wildfire Governance Steering Committee (WGSC) reviewed and approved the decision tree and now uses it to facilitate the scope discussion and decision-making process for system hardening projects.<sup>1</sup> The decision tree is also used for projects where the selected mitigation is not specifically approved by the WGSC, but still provided to the WGSC for informational purposes.

We focused our review on the Utility's processes and controls to (1) consistently evaluate system hardening-related projects using the decision tree, and (2) retain sufficient data and documentation to substantiate the answer to each question in the decision tree. For this review, we focused on projects that were evaluated during the third quarter of 2021 and that were provided to the WGSC for informational purposes.

**Audit Approach**

To perform our work, we interviewed Electric Distribution Engineers and selected a sample of 25 system hardening projects from July and August of 2021 to verify the use of the decision tree and reviewed the documentation that supported the answers to the listed questions and related outcomes.

The specific projects reviewed were:

---

<sup>1</sup> In the first quarter of 2021, we performed a review of the system hardening decision tree methodology, which included review of each question in the decision tree and the factors being evaluated (Audit Report 21-033, issued April 20, 2021). Based on that audit work, we identified two issues related to questions in the tree. The Utility completed its actions to address these issues at the end of July.

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Sumeet Singh  
October 6, 2021  
Page 2

## July 2021

- Inform CWSP – PM# 35243453 – Volta 1101 – 1596 PH 1
- Inform CWSP – PM# 35241072 – Deschutes 1104 – 1370 PH1
- Inform CWSP – PM# 35243447 – Deschutes 1104 – 1370 PH2
- Inform CWSP – PM# 35241073 – Deschutes 1104 – 49024 PH1
- Inform CWSP – PM# 35243448 – Deschutes 1104 – 49024 PH2
- Inform CWSP – PM# 35241071 – Deschutes 1104 – 1582 PH1
- Inform Remote Grid – PM# 35243441 – Challenge 1102 – 5462
- Inform CWSP – 2023 PM# 35240224 – Santa Ynez 1104 – 77098
- Inform CWSP – 2022 PM# 35240220 – Santa Ynez 1104 – Y04 PH1
- Inform CWSP – 2022 PM# 35240221 – Santa Ynez 1104 – Y04 PH2
- Inform CWSP – 2022 PM# 35240179 – Santa Ynez 1104 CB
- Inform CWSP – 2023 PM# 35240222 – Santa Ynez 1104 – Y66 PH1
- Inform CWSP – 2023 PM# 35264186 – Santa Ynez 1104 – Y66 PH1 REMG
- Inform CWSP – 2022 PM# 35240223 – Santa Ynez 1104 – Y66 PH2
- Inform CWSP – 2022 PM# 35246501 – Fulton 1107 – 604
- Inform CWSP PM# 35240173 – Putah Creek 1102 – LR 8352 PH1
- Inform CWSP PM# 35240174 – Putah Creek 1102 – LR 8352 PH2
- Inform CWSP PM# 35240175 – Putah Creek 1102 – 67858 PH1
- Inform CWSP PM# 35240176 – Putah Creek 1102 – 64044 PH1
- Inform CWSP PM# 35240177 – Putah Creek 1102 – 64044 PH2
- Inform CWSP PM# 35240178 – Putah Creek 1102 – 710384 PH1

## August 2021

- Inform Remote Grid – PM# 35243443 – Tivy Valley 1107869946
- Inform Remote Grid – PM# 35243442 – Pike City 1102 CB
- Inform CWSP – PM# 35243445 – Olema 1102 602 Murphy Ranch
- Inform CWSP – PM# 35243446 – Olema 1101 LR50396 Mt Vision

**Conclusion**

Overall, we conclude that the Utility's processes and controls over the use of the system hardening decision tree are adequate.<sup>2</sup> We found that the Distribution Strategy team utilized and adhered to the decision tree in evaluating the projects we sampled and in selecting the type of mitigation to address wildfire risk. We also noted that appropriate evidence to support the

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<sup>2</sup> Internal Auditing uses the classifications of "adequate," "needs strengthening," and "not adequate" in assessing controls.

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Sumeet Singh  
October 6, 2021  
Page 3

decision was accessible and that recommended solutions were well documented. Lastly, we confirmed that the two issues from our April 2021 audit report on the system hardening decision tree methodology (Report 21-033) had been appropriately addressed.

Rob Saunders and Anna Yu performed this review. We appreciate the cooperation and assistance they received from everyone they contacted. If you have any questions, please contact Karen at 415-279-3716, Chris at 415-264-3258, or call me at 415-516-5490.

  
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Alex Vallejo  
Adam Wright  
Deloitte & Touche LLP



### Attachment 2, Wildfire Risk Checklist

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Person in Charge (PIC) Name: \_\_\_\_\_

Work Description: \_\_\_\_\_ Person in Charge (PIC) Signature: \_\_\_\_\_  
(Align with activity # in the Work Mitigation Matrix)

#### WORK LOCATION

Nearest Address: \_\_\_\_\_  
Cross Street: \_\_\_\_\_  
Latitude: N \_\_\_\_\_ Longitude: W \_\_\_\_\_  
Local Fire Agency: \_\_\_\_\_

Communications Confirmation: Radio:  Y  N Satellite Phone:  Y  N Cellular:  Y  N Nearest Cell Site Location: \_\_\_\_\_

#### ENVIRONMENTAL CONDITIONS

PG&E Fire Index Area: \_\_\_\_\_ Fire Potential Index Rating: \_\_\_\_\_ Red Flag Warning:  Y  N  
Evacuation Route and Location: \_\_\_\_\_

#### FIRE RISK MITIGATIONS – Check based on Fire Potential Index Rating

- Vehicles are safely parked, and vegetation cleared underneath them
- Vegetation Clearance of 10 ft surrounding the work area
- Additional Vegetation Fuel Modifications (e.g., mowing, wetting down the fuel at jobsite and parking area)
- Fire Blanket, Welding Blanket, or tent are being used on the jobsite
- Working Fire Watch is assigned on the jobsite
- Dedicated Fire Watch is assigned on the jobsite
- Fire extinguisher located within 25 ft of jobsite
- Water delivery system with 40 lbs. psi at the nozzle & 200 ft of 1-inch diameter hose on the jobsite, tested and readily available
- Additional: \_\_\_\_\_

#### FIRE SUPPRESSION TOOL INVENTORY

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Backpack-style water extinguisher                               | <input type="checkbox"/> Shovel              | <input type="checkbox"/> Water Buffalo |
| <input type="checkbox"/> Pressurized water extinguisher with foam                        | <input type="checkbox"/> Pulaski             | <input type="checkbox"/> Other: _____  |
| <input type="checkbox"/> 2A10BC Fire Extinguisher(s)                                     | <input type="checkbox"/> McLeod              |  |
| <input type="checkbox"/> Fire Extinguishers charged and current certification from CASFM | <input type="checkbox"/> Sealed box of tools |  |

## Attachment 2, Wildfire Risk Checklist

### Fire Mitigations

#### For Fire Danger Ratings R1, R2, and R3:

##### General Requirements listed in Section 1 of [Utility Standard TD-1464S](#)

1. Conduct tailboard before starting work – use this checklist to review all fire mitigation requirements.
2. Review the [Fire Potential Index](#) before starting work.
3. Review the Fire Mitigation Matrix.
4. Evaluate weather conditions throughout the day to ensure it is safe to work. Update mitigations or stop work, when necessary.

##### Tools

1. Jobsite must have enough tools to outfit all crew members.
2. Major work operations must have a sealed box of tools, as described in Section 2.8 of [Utility Standard TD-1464S](#), including a serviceable chainsaw.
3. Tools and equipment must be located at the immediate work location.
4. When traveling on unimproved roadways, vehicles must carry the following items:
  - **All vehicles:** One dry chemical ABC fire extinguisher in good working order.
  - **Passenger vehicles:** One shovel.
  - **Trucks/4-wheel drive vehicles (1/2 ton or larger) and all-terrain vehicles (ATVs):**
    - One shovel or McLeod fire tool
    - One 5-gallon backpack-style water extinguisher

**NOTE:** Compressed Air Foam System (CAFS) may be used as a supplemental extinguishing agent; however, CAFS cannot be a substitute for a 5-gallon backpack-style water extinguisher.

- **Heavy machinery or equipment:**

- One shovel
- One 5-gallon backpack-style water extinguisher

**NOTE:** CAFS may be used as a supplemental extinguishing agent; however, CAFS cannot be a substitute for a 5-gallon backpack-style water extinguisher.

##### Travel and Vehicles

1. Maintain situational awareness when driving on an unimproved roadway.
2. Park unoccupied vehicles on paved, gravel, or bare mineral soil.

IF not feasible, THEN take the following steps:

- a. Turn off the vehicle.
- b. Verify that the proper fire extinguishing tools are available.
- c. Clear all vegetation to a maximum height of 4 inches.
- d. Park in such a manner that the tailpipe is not within 36 inches of any standing vegetation.
- e. Use a fire watch until the exhaust is cool.

## Attachment 2, Wildfire Risk Checklist

### Work and Ignitions While Working

1. When performing stationary work that can produce a spark OR when using machinery with an internal combustion engine, personnel **must** take the following steps:
  - a. Clear a 10-foot radius down to bare mineral soil.  
IF not feasible OR IF above ground,  
THEN wet down the area OR use fire blankets.
  - b. Based on FPI rating:
    - R1–R3 – A working fire watch must be assigned.
    - R4 and R5: 120 gallons of water with 200 feet of hose with 40 pounds per square inch (psi) at the nozzle on site.
2. IF there is an ignition at the jobsite,  
THEN report it to emergency services (9-1-1) AND then call the Hazard Awareness and Warning Center (HAWC) at (800) 255-7593 with the location, source, and impacted assets.
3. Do not smoke, unless there is a 3-foot cleared area (down to bare mineral soil), an extinguishing agent, and a receptacle with water in the smoking area.

### For Fire Danger Ratings R4:

1. Ensure that there are at least 120 gallons of water with not less than 200 feet of hose, not less than 1 inch in diameter and a minimum of 40 psi at the nozzle. This water delivery system **must** be able to reach the immediate work location.
2. Assign a **Working** Fire Watch **EXCEPT** when working with energized equipment (refer to [Attachment 1, "Wildfire Mitigation Matrix,"](#) which requires **Dedicated** Fire Watch).

### For Fire Danger Ratings R5 & R5-Plus:

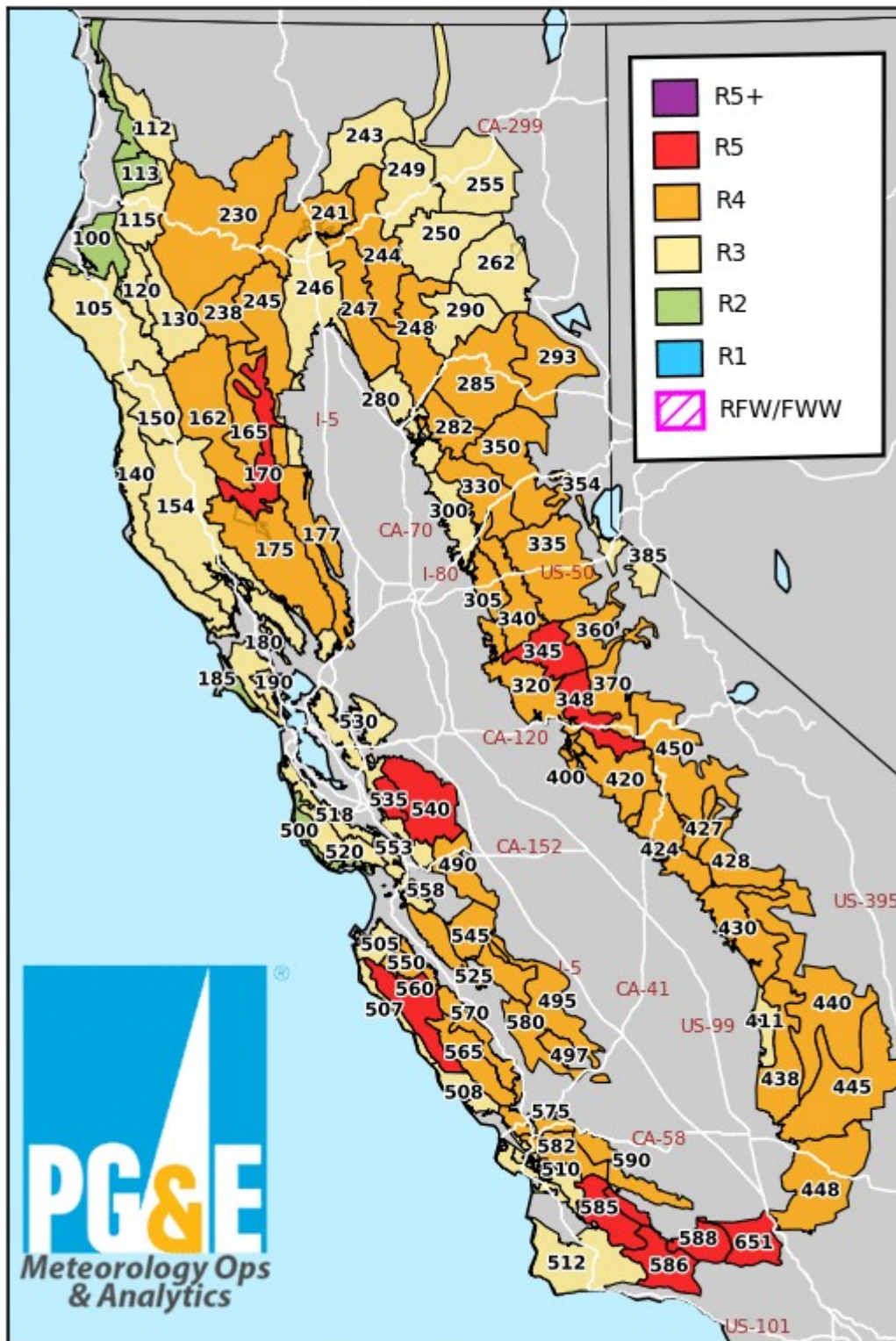
1. Have a **Dedicated** Fire Watch with an extinguishing agent and a hose long enough to reach the work being performed.
2. Consider additional fuel modifications surrounding the jobsite.
3. Suspend all planned work during **R5-Plus**.
4. All emergency work performed during **R5-Plus** must have a standby SIPT crew or 300-gallon water tender on site.

### Attachment 2, Wildfire Risk Checklist

#### REVISION NOTES

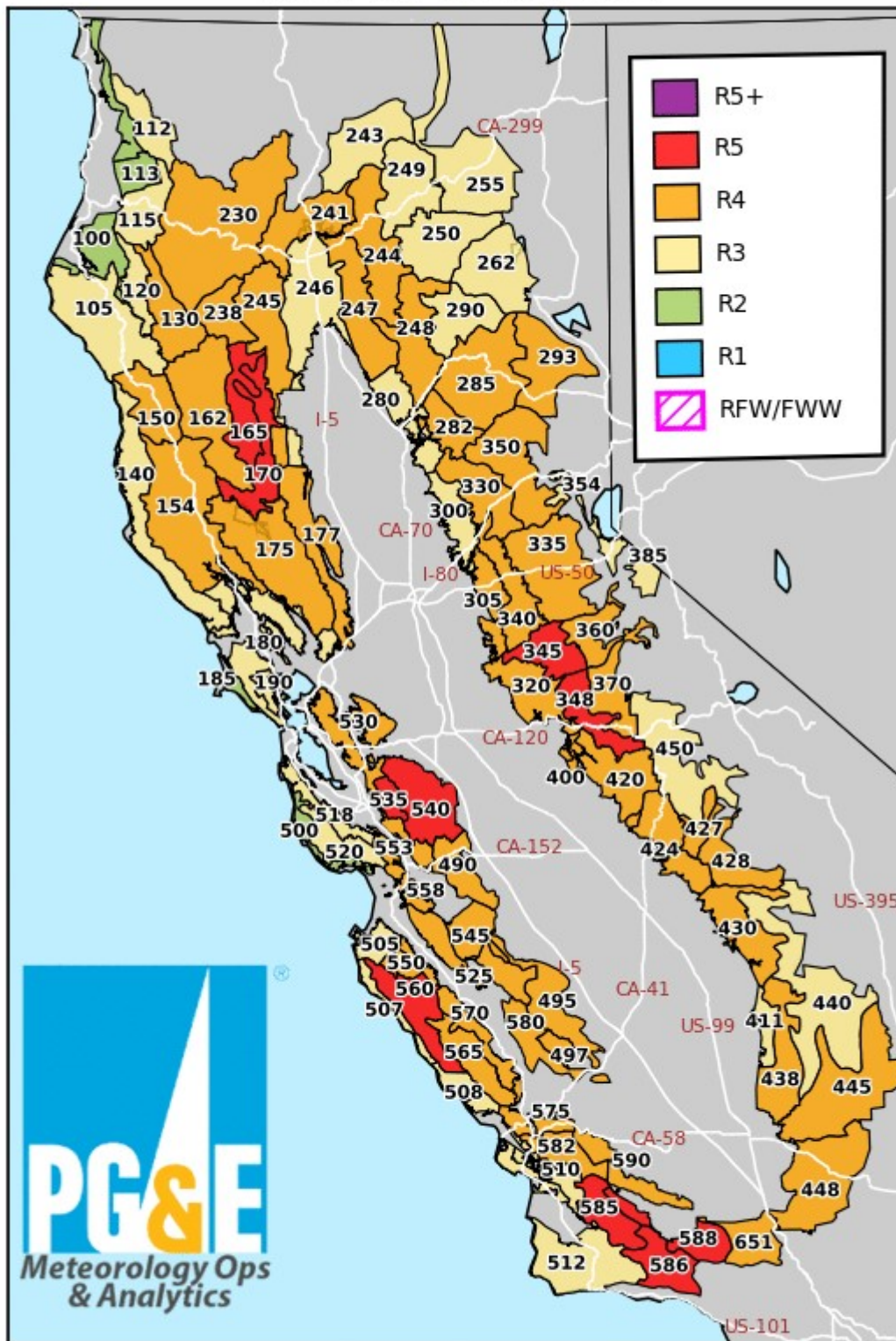
Where?	What Changed?
Page 2 (Fire Mitigations)	Under Tools, added clarifying location of tools and equipment to Item 3.
Page 3 (Fire Mitigations)	For Fire Rating R4: <ul style="list-style-type: none"> <li>• Item 1: Clarified water delivery system reach.</li> <li>• Item 2: Changed language to add exception for dedicated fire watch in R4 conditions for work activity involving energized equipment.</li> </ul>

Valid for 08/15/2022

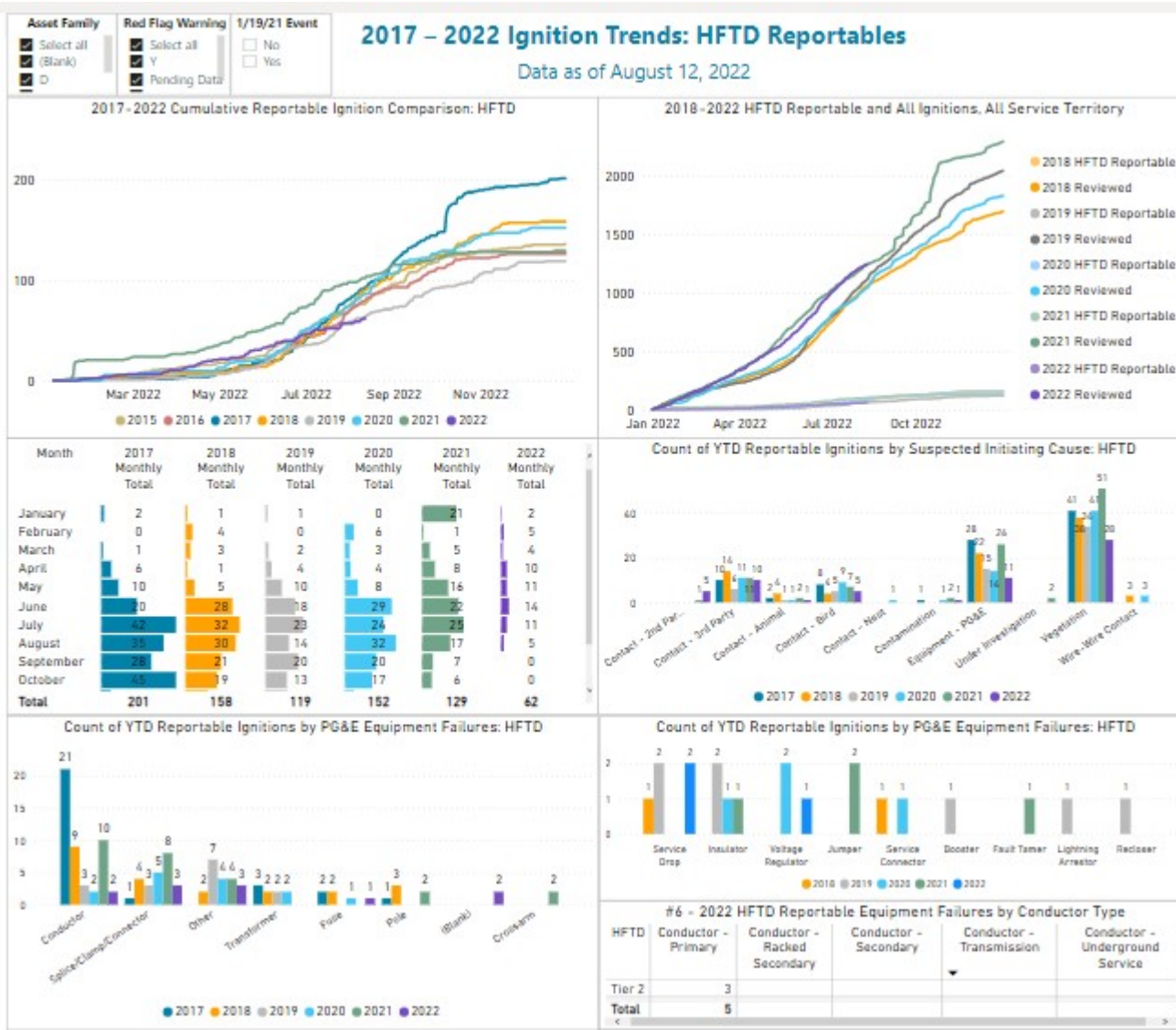


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**8. Determine Corrective Action(s)**

1. This section documents all the corrective actions necessary to address the problem. Corrective actions should target and address each identified cause and contributing cause. One corrective action may address more than one cause.
2. For RCEs, Corrective Actions to Preclude Recurrence (CAPR) must address the stated root cause and are implemented to preclude recurrence of the problem for the root cause(s).
3. For ACEs, CCEs, and WGEs, Corrective Actions attempt to reduce the likelihood of recurrence. The possibility exists that the corrective actions may not preclude recurrence however the likelihood of occurrence is reduced.
4. Corrective actions to address Contributing Causes (CC) are for improvement and implemented to mitigate the identified problems. These actions may not preclude recurrence of the event but they can help decrease the likelihood of a problem/cause.
5. Establish a direct tie between the corrective action and the associated cause in the report.
6. Corrective actions should be listed in order of priority and should be parenthetically referenced to the appropriate cause(s). Develop Corrective Actions considering the "Hierarchy of Control" to determine the most effective feasible method to eliminate, substitute, or control the risks associated with the exposure. The different hierarchy action levels listed from most effective to least effective are:
  - A. Elimination
    1. Completely redesign the system to remove the exposure
    2. Exposure eliminated
  - B. Substitution
    1. Switch out a process step with a less hazardous step; use a low voltage system rather than a high voltage; replace a toxic material with a non-toxic material
    2. Exposure significantly reduced
  - C. Engineering Controls
    1. Isolate hazard; install guards and/or interlocks; build barriers; use light curtain; develop new tool
    2. Exposure possible during maintenance operations and emergencies
  - D. Administrative Controls
    1. Post signs and warnings; write procedures and rules; train employees
    2. Exposure controlled IF employees rigorously comply and IF culture supports compliance and IF leadership maintains commitment to oversight
  - E. Personal Protective Equipment
    1. Provide protective equipment for employees (e.g., hard hats, respirators)
    2. Use when hazard is unpredictable or pervasive; control is dependent on proper



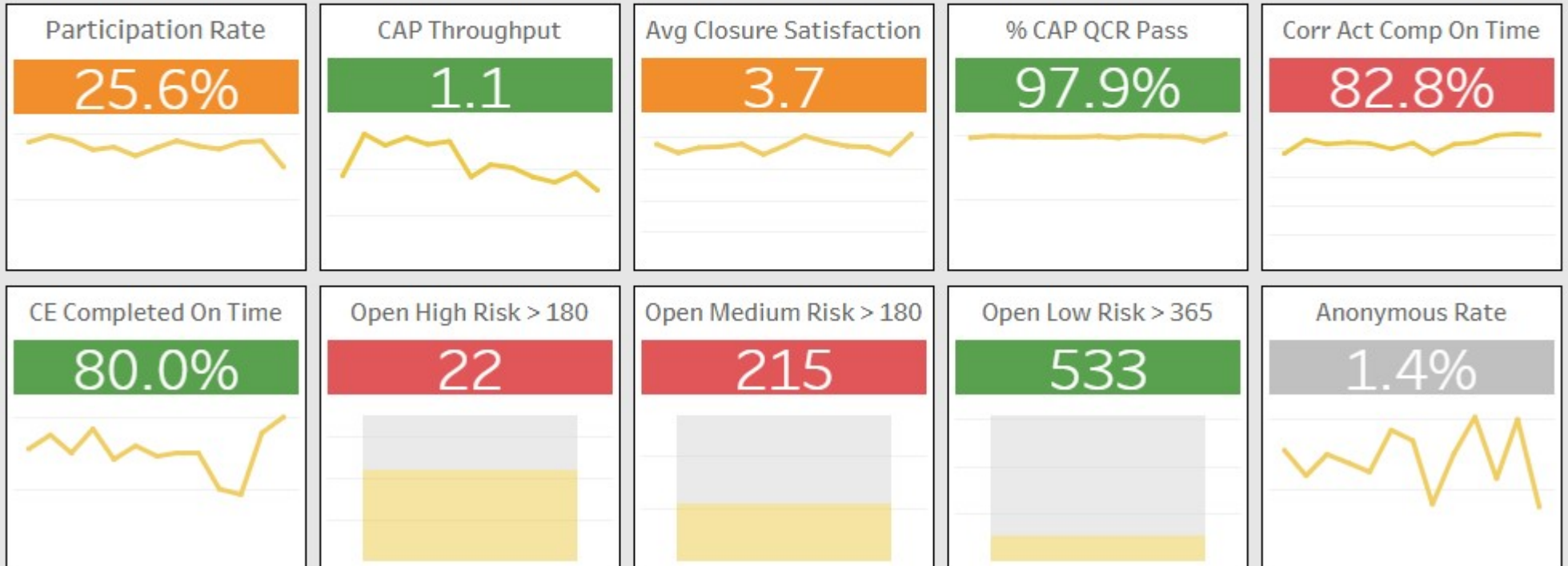


# CAP Monitoring Dashboard

Last Refresh: 8/13/2022 5:03:17 AM

[Help Text](#)

Organization	Reporting Group	Department	Department Description
(All) ▼	Enterprise ▼	(All) ▼	(All) ▼



## Preventing and Mitigating Fires While Performing PG&E Work

### SUMMARY

This utility standard establishes precautions for PG&E employees and contract partners to follow when traveling to, performing work, or operating outdoors on any forest-, brush-, or grass-covered land.

The information in the standard supplements the instructions contained in local, state, and federal fire regulations and permits. However, if a local or state fire regulation or permit contains provisions more stringent than those in this document, the more stringent provisions **must** be followed.

### TARGET AUDIENCE

The standard targets all PG&E employees and contract partners working on or near facilities located on any forest, brush, or grass-covered lands using equipment, tools, and/or vehicles whose use could result in the ignition of a fire. This includes areas that may seem urban or suburban but have vegetation that can aid in the spread of an ignition.

PG&E’s workforce, including our contract partners, will be further defined as “work personnel” throughout the standard.

Training (SAFE-1503WBT, “Fire Danger Precautions”) targets work personnel working on any forest-, brush-, or grass-covered lands. This training is profiled to the target audience as mandatory, generally to be completed annually between January 1 and April 1.

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## Preventing and Mitigating Fires While Performing PG&E Work

### REQUIREMENTS

#### 1 Safety

- 1.1 Performing utility work on any forest-, brush-, or grass-covered lands presents a danger of fire, in addition to the hazards inherent to utility work.
- 1.2 Following the directives in this standard is essential to mitigating fire danger and protecting the environment, the utility system, work personnel, and the public.
- 1.3 Perform all operations or action within hazardous fire areas in accordance with [Utility Standard SAFE-1001S, "PG&E Injury & Illness Prevention Plan \(IIPP\),"](#) and the [Code of Safe Practices](#).

#### 2 General Requirements

- 2.1 When performing work that could produce a spark, fire, or flame on or near any forest-, brush-, or grass-covered lands, follow the requirements laid out in this section, **regardless** of the daily [Utility Fire Potential Index \(FPI\) Forecast](#).
- 2.2 During R1–R2 conditions, when vegetation cannot sustain combustion permitting the spread of a fire due to snow, rain, dense fog, or wet vegetation, the requirements of this standard do not apply.
- 2.3 The work supervisor/local superintendent and managers must ensure that the following actions are taken:
  1. Identify and comply with the local, state, and federal fire authority permits and/or restrictions in the area where the work is to be performed, including Federal Energy Regulatory Commission (FERC) project requirements.
- 2.4 Any person in charge (PIC) of work personnel must follow locally changing meteorological conditions, as well as be aware of the possibility of increased fire danger during the time work is in progress.
- 2.5 When fire suppression tools and extinguishers are required, they must be available in the immediate area from which a spark, fire, or flame may originate.
- 2.6 When traveling to the jobsite, or when operating on unimproved roadways, all work personnel must take the following actions:
  1. **Do not drive** off unimproved roadways (through fields, forests, etc.), except when performing required work, or during an emergency.
  2. Ensure that required tools, at a minimum, are available on vehicles.

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.6 (continued)

3. All vehicles are required to have one dry chemical fire extinguisher (rated ABC – multi-purpose use) in good working order. Supplement the fire extinguisher with the following tools, as required below:
  - a. Passenger vehicle:
    - One shovel
  - b. Trucks (1/2 ton or larger) and all-terrain vehicles (ATVs):
    - One shovel
    - One 5-gallon backpack pump
    - Compressed Air Foam Systems (CAFS) may be used as a supplemental extinguishing agent. However, CAFS cannot be a substitute for a 5-gallon backpack pump.
  - c. Heavy machinery or equipment (e.g., tractors, tub grinders, whole tree chippers, excavators, bulldozers):
    - One shovel
    - One 5-gallon backpack pump
    - CAFS may be used as a supplemental extinguishing agent. However, CAFS cannot be a substitute for a 5-gallon backpack pump.

#### NOTE

When multiple vehicles are traveling to a jobsite, a full set of tools is not required for all vehicles. This situation includes heavy machinery that cannot accommodate the tools. However, the required tools must be available for work personnel at the jobsite to extinguish a fire. Tractors **must** have at least one shovel on them while operating.

4. While driving off, or parking off, paved roadways (i.e., gravel or dirt roadways), maintain situational awareness. Look for potential ignitions that could occur when driving or parked in the vicinity of dry brush, grass, or other vegetation.
5. Ensure that vehicles are parked in an area cleared of vegetation (e.g., paved, gravel or cleared to bare mineral soil).

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.6 (continued)

- a. IF unable to park in a cleared area,  
THEN take the following steps:
  - (1) Park on vegetation that has been mowed or cut to a maximum height of 4 inches.
  - (2) Park in such a manner that the tailpipe is not within 36 inches of any standing vegetation.
  - (3) Use a Working Fire Watch until the vehicle exhaust system has cooled, and there is no chance of an ignition.
  - (4) Ensure that the proper fire extinguishing tools are easily accessible.
  - (5) Consider wetting down parking area.
6. Turn off the motors of unoccupied vehicles when parking them off road, **unless** the vehicle and the motor need to remain running for work purposes. Maintain situational awareness for potential ignitions.
7. When **idling**, the vehicle **must** be parked on a cleared area defined as paved or gravel, or on dirt cleared down to bare mineral soil.
  - a. IF idling and unable to park in a cleared area,  
THEN take the following steps:
    - (1) Park on vegetation that has been mowed or cut to a maximum height of 4 inches.
    - (2) Park in such a manner that the tailpipe is not within 36 inches of any standing vegetation.
    - (3) Use a Working Fire Watch while the vehicle is idling.
    - (4) Ensure that the proper fire extinguishing tools are easily accessible.
    - (5) Wet down the area under the vehicle before beginning work, and as needed, to prevent an ignition.
8. When operating a vehicle with a Diesel Particulate Filter (DPF) system, **always** park on a paved, gravel or bare mineral soil surface, or where vegetation has been mowed or cut to a maximum height of 4 inches. The exhaust system remains extremely hot before, during, and after the regeneration process. An ignition can occur even while the vehicle is off.

## Preventing and Mitigating Fires While Performing PG&E Work

2.7 **Before starting work** on or near any forest-, brush-, or grass-covered lands, all work personnel **must** review and understand the following requirements:

1. Daily [Utility Fire Potential Index \(FPI\) Forecast](#)
  - a. If working in a location without an FPI rating, and the area contains flammable vegetation forest, brush, or grass-covered lands, the following guidelines apply:
    - (1) For areas located within a 5-mile distance of the closest Fire Index Area (FIA) with an FPI rating, use the FPI rating of the closest FIA.
    - (2) For work areas located farther than 5 miles from an FIA with an FPI rating, follow all R1–R3 general mitigations outlined in this standard.
2. Job Site Tailboard Requirements
  - a. As part of the jobsite safety tailboard, assess and proactively address wildfire risks.
  - b. During the tailboard, review all work being performed, review [Attachment 1, “Wildfire Mitigation Matrix,”](#) and complete [Attachment 2, “Wildfire Risk Checklist,”](#) **before** starting work.

### NOTE

Organizations can use other suitable means to review and document their Wildfire Risk tailboard (e.g., online app, incorporation into Line of Business [LOB] procedures), as long as the minimum requirements in [Attachment 2](#) are covered.

- (1) [Attachment 1](#) is set up with work activities and activity descriptions on the left, and the required mitigations dependent on the Fire Potential Index ratings across the top. Activities requiring additional mitigations are referenced in the corresponding box in blue text.
  - Red Flag Warnings require the use of R5 Fire Mitigations outlined in [Attachment 1](#).
- (2) [Attachment 2](#) – At a minimum, review the following information:
  - Work description
  - Work location
  - Environmental conditions (e.g., FIA, Fire Danger Rating, Red Flag Warning status)
  - Fire risk mitigations (e.g., required actions)
  - Emergency response (e.g., evacuation plan, communications availability, local fire agency, fire agency dispatch)

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.7 (continued)

- c. Before starting any work, it is recommended to wet down the work area to a minimum of 10 feet.

### 3. Firefighting Tools, Equipment Availability and Readiness

To assure quick response to an ignition, firefighting tools and equipment must be at the immediate work location and readily accessible.

#### a. Water Buffaloes

- (1) It is recommended to always have a water buffalo on a job site.
- (2) At the beginning of the day, before starting work, start and test the water buffalo to ensure it is in good working order.
- (3) When required, the water buffalo or equivalent, must be as close to the worksite as practical, and have the required 200 feet of hose to extinguish any possible ignition.
  - Ensure that the hose is at least 1 inch in diameter AND is a minimum of 40 pounds per square inch (psi) at the nozzle.
  - The hose on the water buffalo must be extended, ready for use, and capable of reaching the work location.
  - As part of the tailboard, a person must be assigned to start the pump, if needed.
- (4) Position all vehicles and equipment to ensure safe egress in the event the crew must evacuate the location quickly. Park vehicles facing the evacuation route.
- (5) At no time will any work personnel be asked to fight any fire beyond their experience or training.
- (6) IF the conditions do not allow water buffalo access to the worksite,  
THEN take the following actions:
  1. Consider adding additional hose to extend the reach of water buffalo.
  2. When the number of workers exceeds two, have a minimum of three 5-gallon backpacks and enough firefighting hand tools, including shovels, McLeods, or axes for each worker at the jobsite. The required tools must be accessible within 25 feet of the immediate work location.

## Preventing and Mitigating Fires While Performing PG&E Work

### 2.7 (continued)

3. Postpone work activity to a day with an FPI rating of R3 or below.
4. Electric operations organizations should consider performing work de-energized.

#### b. Fire Extinguishers

- (1) All vehicles must have a dry chemical fire extinguisher (rated ABC).
- (2) Use dry chemical fire extinguishers (rated ABC) for flammable liquids, vehicle, or equipment fires; they have limited effectiveness on vegetation fires.
- (3) Use backpack pumps and other water-based extinguishers for controlling vegetation fires.

### 2.8 Major work operations require a sealed box with firefighting tools at the jobsite.

1. These specific firefighting tools must meet state law requirements and provide an option for work personnel or first responders to have additional tools onsite.
2. The sealed box must be easily accessible for fire-suppression purposes AND must contain the following items:
  - One backpack-type fire extinguisher filled with water
  - Two axes
  - Two McLeod fire tools
  - Enough shovels for each remaining worker at the operation not already equipped with provided tools in sealed box
  - One or more serviceable chainsaw(s) with at least 3 ½ horsepower, with a 20-inch cutting bar. This tool does not have to be in the sealed box but must be at the jobsite.

#### **NOTE**

All Vegetation Management Program operations on or near any forest-, brush-, or grass-covered lands must have the sealed box of tools mentioned above. The operations must also have all necessary permits, including, but not limited to, Utility Right of Way Exemption or Timberland Conversion Permits.



## Preventing and Mitigating Fires While Performing PG&E Work

- 2.9 When working at the jobsite, all work personnel **must** perform the following actions:
1. Observe all laws, rules, and regulations of local, state, and federal fire authorities having jurisdiction over areas in which they are working.
  2. Perform prevention and mitigation measures, as described in this standard during any operation or action that could result in an uncontrolled fire.
  3. Do not start any fire that could escape control through careless or negligent actions.
  4. While performing stationary ground level jobs or activities from which a spark, fire, or flame may originate (e.g., welding, cutting, grinding), remove all flammable material (e.g., grass, leaf litter, including snags) down to mineral soil, for a minimum of 10 feet around the jobsite.
    - a. IF the ground cannot be sufficiently cleared due to environmental reasons (i.e., riparian zones, sensitive plants and animals) or erosion concerns, OR IF the work is being performed above ground level (i.e., installation and removal of master grounds on a de-energized transmission line adjacent to an energized transmission line),  
  
THEN perform the following actions:
      - (1) Wet down the area around such operation for a minimum of 10 feet.  
  
**OR**
      - (2) Cover the flammable vegetation, including snags, with fire blankets, for a minimum of 10 feet around the area.  
  
**AND**
      - (3) IF the FPI rating is R1, R2, or R3,  
  
THEN assign a Working Fire Watch at the jobsite.
      - (4) IF the FPI rating is R4,  
  
THEN assign a Working Fire Watch at the jobsite, equipped with at least 120 gallons of water, with at least 200 feet of hose, not less than 1 inch in diameter, and a minimum of 40 psi at the nozzle.
      - (5) IF the FPI rating is R5,  
  
THEN assign a Dedicated Fire Watch, equipped with at least 120 gallons of water, with at least 200 feet of hose, not less than 1 inch in diameter, and a minimum of 40 psi at the nozzle.
      - (6) When responding to an emergency, follow all the requirements included in this standard, as applicable, if possible.

## Preventing and Mitigating Fires While Performing PG&E Work

- 2.10 When fires ignite on the jobsite, work personnel must perform the following actions:
1. Call emergency services (9-1-1) to report the ignition, **even if the fire has been suppressed.**
  2. Take safe, reasonable suppression actions consistent with PG&E training.
  3. If necessary, evacuate to a safe location and provide any information possible to first responders when they arrive.
  4. After contacting emergency services, the jobsite supervisor must call the Hazard Awareness and Warning Center (HAWC) at 1-800-255-7593 to report the fire. The supervisor must include the following information, at a minimum:
    - Location
    - Source of ignition
    - Impacted assets
  5. All jobsite work personnel **must** report incidents to their direct supervisors, and follow any additional reporting procedures, as required (e.g., notify Control Centers).
- 2.11 Smoking (including, but not limited to, cigarettes, cigars, vape pens, etc.) is only allowed when the FPI rating is R1, R2, or R3 AND the following mitigations haven't been taken:
1. There is a designated smoking location (cleared down to mineral soil) at the jobsite with a 3-foot radius.
  2. There is a means to extinguish any potential ignition.
  3. There is a water-filled or sand-filled receptacle (e.g., a metal bucket) to extinguish cigarettes, cigars, etc.
  4. Do NOT smoke when the utility FPI ratings are R4, R5, or R5-Plus.

### 3 Electric Operations Requirements

- 3.1 Consider performing work de-energized to minimize fire risk.
- 3.2 A Dedicated Fire Watch is required when performing work under R4 conditions while working on energized overhead equipment.
- 3.3 Apply the following restoration and testing procedures when the FPI rating is R4, R5, or R5-Plus.

## Preventing and Mitigating Fires While Performing PG&E Work

- 3.4 Before starting to replace fuses, work personnel must ensure that the following are true:
1. The overhead (OH) line is successfully patrolled, and hazards are cleared.
  2. Conditions at the base of the pole do not support ignition or the rapid spread of fire in the event of arcing or sparking.
- 3.5 Follow electric distribution and transmission overhead patrol requirements.
1. Refer to [Utility Procedure TD-1470P-01, "Enhanced Powerline Safety Setting \(EPSS\) Enablement Criteria,"](#) for information about patrolling and preventing automatic testing in [Fire Index Areas](#) with fire ratings of R4 and above.

### 4 Fire Potential Index Determination Process

- 4.1 Fire Index Areas (FIAs) are geographical areas for which fire danger ratings are determined. These areas were originally developed by the [United States Forest Service \(USFS\)](#) Pacific Southwest Research Station, and are still used by [California Department of Forestry and Fire Protection \(CAL FIRE\)](#) and federal agencies (e.g., USFS).

Over the years, these geographical areas have been modified for PG&E operations. Mapping of the FIAs is available from the [PG&E GIS department](#).

The PG&E Meteorology team operates a high-resolution combined weather and fire danger model. This model outputs granular (2 kilometers [km]) fire-weather and danger parameters.

Model outputs are leveraged to produce fire danger adjective ratings, ranging from R1 to R5-Plus for each FIA within the PG&E service territory.

Fire Weather Watches and Red Flag Warnings issued by the National Weather Service are also incorporated as R5 in the weather component of the model.

For additional information on FIAs and the relationship between High Fire Threat Districts (HFTD) and High Fire Risk Areas (HFRA), refer to [Attachment 3, "Relationship Between Fire Index Areas, High Fire Threat Districts, and High Fire Risk Areas."](#)

- 4.2 The Fire Potential Index rating predicts the most severe rating expected for each area from midnight to midnight. This information is posted and updated daily on the [Fire Potential Index](#) website.
1. Fire Potential Index ratings are effective from 6 a.m. (0600) and remain in effect for 24 hours.

#### NOTE

While intraday updates are rare, they may occur if the fire danger conditions or other circumstances warrant the update.

## Preventing and Mitigating Fires While Performing PG&E Work

### 4.2 (continued)

2. The [Fire Potential Index](#) website allows work personnel to perform the following actions:
  - a. Filter information by Grid Control Center Area, Distribution Control Center Area, or [Fire Index Area](#).
  - b. Subscribe to receive, either by email or E-page, the daily “Fire Adjective Index” summary (issued at 6:15 a.m.).

## 5 Mitigations

- 5.1 The mitigations outlined in this standard are minimum requirements. Implement additional mitigations if the PIC deems them necessary.
- 5.2 When the FPI rating is R1, R2, or R3, work personnel must follow the mitigations provided in [Section 2, “General Requirements,”](#) on Page 2, when performing work in any forest-, brush-, or grass-covered lands.
- 5.3 During R4 and R5 conditions, work personnel must always consider additional vegetative fuel modifications before starting work.
  1. Modifications include the following methods:
    - Mowing
    - Masticating
    - Disking
    - Wetting down the vegetation in the area
  2. Any vegetative fuel modifications that result in ground disturbing activity must have the appropriate environmental review.
    - a. Consult the project’s Environmental Release to Construction (ERTC) (included in the Job Construction package) to confirm if the proposed mitigation is approved.
- 5.4 When the FPI rating is R4, work personnel must take the following mitigations in addition to the mitigations listed in [Section 2](#), unless otherwise noted in [Attachment 1](#).
  1. The trailer-mounted water tank, water tender, or other water-delivery/fire-suppression must be in the immediate area where the spark, fire, or flame may occur – with a hose long enough to reach the entire jobsite, at all times, while performing normal work duties.

## Preventing and Mitigating Fires While Performing PG&E Work

### 5.4 (continued)

2. Evaluate weather conditions throughout the day to ensure that it remains safe to work, and to confirm that mitigations are appropriate based on the FPI rating.
3. Assign a **Working** Fire Watch to monitor for fire at the jobsite while performing normal work duties.
  - a. The Working Fire Watch must remain at the jobsite for 30 minutes after work ends.

### 5.5 When the FPI rating is R5 or R5-Plus, work personnel must take one or more of the following mitigations, in addition to the mitigations previously listed, unless otherwise noted in [Attachment 1](#).

1. Ensure that there is a **Dedicated** Fire Watch at the jobsite while performing normal work duties.
  - a. The Dedicated Fire Watch must remain on the jobsite for at least 30 minutes after work ends.
2. Evaluate weather conditions throughout the day to ensure that it remains safe to work.
3. The trailer-mounted water tank, water tender, or other water-delivery/fire-suppression must be in the immediate area where the spark, fire, or flame may occur – with a hose long enough to reach the entire jobsite, at all times, while performing normal work duties.
  - a. When the trailer-mounted water tank or other water-delivery device leaves the jobsite to refill, work personnel must stop work until it returns.
4. **Suspend all planned work during R5-Plus conditions**, as defined in [Attachment 1](#).
5. For any **emergency work** performed in R5-Plus conditions, work personnel **must ensure that one of the following safety measures is in place**:
  - A Safety and Infrastructure Protection Team (SIPT) **must** be at the jobsite on standby while the work is performed,

**OR**

  - A 300-gallon, trailer-mounted water tank, water tender, or other water delivery/fire suppression device **must** remain at the jobsite AND **must** be dedicated to fire suppression.

#### NOTE

Additional mitigations for R4 through R5-Plus conditions may be noted in [Attachment 1](#) within the matrix itself. Review all work activity requirements before starting work.

## Preventing and Mitigating Fires While Performing PG&E Work

### 6 Quality Reviews

- 6.1 Each organization must have a method to verify work personnel's adherence to the requirements of this standard and its attachments.
1. The Predictive Solutions SafetyNet Safety Observation Program is an enterprise-wide program that allows leaders to interact with personnel to reinforce positive safety behaviors and increase safety awareness.
  2. Organizations should use SafetyNet to conduct [Utility Standard TD-1464S](#) quality reviews.
  3. Inspectors should use SafetyNet while performing fire mitigation outlined in this standard.
    - a. Use the **Wildfire Mitigation** observation card in SafetyNet to perform fire risk mitigation observations.
    - b. Engage in dialogue with PG&E employees on best practices and gaps.
- 6.2 The regional field safety organizations perform regular, documented safety observations to identify safe and at-risk behaviors, provide immediate guidance and recommendations on how to control/mitigate potential risks, and share best practices identified during the observations with our work personnel.
- 6.3 The document owner of this standard performs enterprise-level trend analysis and develops plans to communicate best practices and address identified gaps with the respective LOBs.

### END of Requirements

### DEFINITIONS

**Dedicated Fire Watch:** A crew member whose **only** assigned job responsibility is to stand by at a jobsite to watch for possible or new fire ignitions while work is being performed. This person should have complete situational awareness, help to extinguish fires quickly, and stop work, when needed, due to safety.

**Designated Roadway:** Paved, graveled, and/or maintained dirt roads used by work personnel. These roadways are completely cleared of all ground litter or grass.

**Disking:** Using a disc-shaped tool to till soil for vegetation removal.

**Fire Index Area (FIA):** A geographical area over which fire danger determinations are produced.

## Preventing and Mitigating Fires While Performing PG&E Work

### DEFINITIONS (continued)

**Fire Potential Index (FPI) Rating:** A rating to determine the risk of fire and its likely behavior. Its calculation and scale from R1 to R5-Plus considers fuel moisture, humidity, wind speed, air temperature, and historical fire occurrence. These ratings are as follows:

- **R1:** Very little or no fire danger.
- **R2:** Moderate fire danger.
- **R3:** Fire danger is so high that care must be taken using fire-starting equipment. Local conditions may limit the use of machinery and equipment to certain hours of the day.
- **R4:** Fire danger is critical. Using equipment and open flames is limited to specific areas and times.
- **R5:** Fire danger is so critical that the use of some equipment and open flames is not permitted.
- **R5-Plus:** The greatest level of fire danger where rapidly moving, catastrophic wildfires are possible. This is, typically, when fire danger is extreme; “plus,” there are high-risk weather triggers (e.g., strong winds). PSPS triggering event is an example.

**Fire Tools:** The tools used to fight fires. Fire tools include the following equipment:

- **Shovel:** A standard, round point shovel, at least 42 inches in length.
- **McLeod:** A hand tool used for raking and scraping.
- **Pulaski:** An axe-like fire hand tool used for cutting, chopping, or grubbing.
- **Backpack pump:** A portable 5-gallon water pack with a hose and nozzle used to extinguish fires (e.g., collapsible backpacks, plastic or steel tanks).
- **Crosscut felling saw:** Two-man-operated saw, at least 6 feet long.
- **Double-bit axe:** An axe with 2 blades and a 36-inch handle.
- **Felling wedge:** A smooth wedge that is placed in a tree while cutting, to prevent the chainsaw or saw from getting stuck.

**Fire Weather Watch:** A type of watch issued by the National Weather Service to alert fire officials and firefighters of potentially dangerous fire weather conditions in the next 24 to 36 hours.

**High Fire Threat Districts (HFTD):** CPUC-approved delineated areas, where there is an elevated or extreme risk of utility-associated wildfires (including likelihood and potential impacts on people and property).

## Preventing and Mitigating Fires While Performing PG&E Work

### DEFINITIONS (continued)

**High Fire Risk Area (HFRA):** HFRA map is a purpose-built map using the same methodology as the HFTD map for scoping PSPS events. It aims to ensure that all areas of catastrophic wildfire risk are fully captured in PG&E's PSPS Program. The HFRA map is built off of the Tier 2 and Tier 3 and does not include Zone 1. This map considers catastrophic fire risk factors and utility infrastructure. It was developed by factoring in incremental changes to the HFTD map boundaries to add areas (HFRA Additions) where risk factors for the potential of catastrophic fire from utility infrastructure ignition during offshore wind events are higher.

**Major Work Operations:** A job where work activities or staging of resources is concentrated in and out of a staging area. Jobsites where people stage and conduct construction-type activities typically are large.

**Masticating:** Mechanically reducing vegetation into small chunks to assist in removing small trees (e.g., snags).

**Overland Travel:** Areas that are overgrown with grass and/or brush without a visible road.

**Red Flag Warning:** A warning issued by the National Weather Service to alert fire officials and firefighters of potentially dangerous and imminent fire weather conditions.

**Safety and Infrastructure Protection Team (SIPT):** This in-house team consists of two-person crews composed of IBEW-represented PG&E employees who are trained and certified safety infrastructure protection specialists. They provide standby protection and asset protection services in support of crews and protect critical utility infrastructure within PG&E's service territory, especially in areas at higher risk of wildfire.

**Sealed Box of Tools:** The sealed box of tools required on major work operations must be located within the operating area and must be reserved for firefighting purposes only. The box that contains the tools can be made of any material or can be in a single compartment on a vehicle, as long as the box can be closed, and it is understood that the tools must not be used for routine work. The box is not required to be locked, in accordance with California Public Resource Code.

**Stationary Work:** Work being performed in a single location for an extended period of time that is neither intended nor expected to move.

**Unimproved Roadways:** Roadways without pavement, gravel, or other surfacing that may have grass or ground litter present.

**Working Fire Watch:** A crew member who, **in addition to** normally assigned work duties, is responsible for fire detection, risk mitigation, and total situational awareness while the work is being performed. This crew member is also responsible for stopping work, when required, due to safety hazards AND for helping extinguish fires.



## Preventing and Mitigating Fires While Performing PG&E Work

### IMPLEMENTATION RESPONSIBILITIES

The vice president, PSPS Operations and Execution, is responsible for approving and distributing this standard.

The directors responsible for field and operational teams within the following organizations must ensure that their PG&E employees, whose actions could result in igniting a fire, are aware of and comply with this standard:

- Electric Operations
- Gas Operations
- Power Generation
- Information Technology
- Customer Care
- Shared Services
- Other groups not mentioned above who travel to, perform work, or operate outdoors on any forest-, brush-, or grass-covered land.

### GOVERNING DOCUMENT

NA

### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

[California Department of Forestry and Fire Protection \(CAL FIRE\)](#)

[California Health & Safety Code](#)

[California Public Resources Code – Division 4, “Forests, Forestry and Range and Forage Lands \[4001 - 4958\],” Part 2, “Protection of Forest, Range and Forage Lands \[4101 - 4789.7\],” Chapter 6, “Prohibited Activities \[4411 - 4446\],” Article 2, “Prohibited Activities \[4421 - 4446\]”](#)

[United States Forest Service](#)

#### Records and Information Management:

PG&E records are company assets that must be managed with integrity to ensure authenticity and reliability. Each Line of Business (LOB) must manage records and information in accordance with the Enterprise Records and Information Management (ERIM) policy, standards, and Enterprise Records Retention Schedule (ERRS). Each LOB is also responsible for ensuring records are complete, accurate, verifiable, and can be retrieved upon request. Refer to [GOV-7101S, “Enterprise Records and Information Management Standard,”](#) for further records management guidance or contact ERIM at [Enterprise\\_RIM@pge.com](mailto:Enterprise_RIM@pge.com).

## Preventing and Mitigating Fires While Performing PG&E Work

### REFERENCE DOCUMENTS

#### Developmental References

- [CAL FIRE: Wildfire Prevention Engineering Field Guides](#) (click “Power Line Fire Prevention Field Guide” to select the most current field guide)
- [California Public Resources Code – Division 4, “Forests, Forestry and Range and Forage Lands \[4001 - 4958\]”](#)
- [National Wildfire Coordinating Group \(NWCG\)](#)
  - [NWCG User Guide for Glossary of Wildland Fire](#)
- [Numbered Document 015225, “Cutouts, Fuses, and Disconnects for Overhead Distribution Lines”](#)
- [Safety and Health Procedure SHC-236, “Fire Prevention during Welding, Cutting and other Hot Work”](#)
- [United States Department of Agriculture \(USDA\) – Forest Service, Cibola National Forest and National Grasslands: National Fire Danger Rating System](#)
- [Utility Standard TD-1460S, “Welding Control”](#)

#### Supplemental References

- [California Department of Forestry and Fire Protection \(CAL FIRE\)](#)
- [Code of Safe Practices](#)
- [Fire Index Areas](#)
- [PG&E GIS department](#)
- [United States Department of Agriculture \(USDA\) – Forest Service](#)
- [Utility Fire Potential Index \(FPI\) Forecast](#)
- [Utility Procedure TD-4640P-01, “Hot Work Control – Fire Prevention”](#)
- [Utility Standard SAFE-1001S, “PG&E Injury & Illness Prevention Plan \(IIPP\)”](#)

### APPENDICES

NA

## Preventing and Mitigating Fires While Performing PG&E Work

### ATTACHMENTS

[Attachment 1, "Wildfire Mitigation Matrix"](#)

[Attachment 2, "Wildfire Risk Checklist"](#)

[Attachment 3, "Relationship Between Fire Index Areas, High Fire Threat District, and High Fire Risk Areas"](#)

### DOCUMENT REVISION

This utility standard cancels and supersedes Utility Standard TD-1464S, "Preventing and Mitigating Fires While Performing PG&E Work," Rev. 6, dated 1/6/2022.

### DOCUMENT APPROVER

Angie Gibson, Vice President, Emergency Preparedness & Response

### DOCUMENT OWNER

Cecile Pinto, Manager, Emergency Planning & Process Improvement

### DOCUMENT CONTACT

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### REVISION NOTES

Where?	What Changed?
Section 2.7	2.7.3: Added clarifying language to set expectations for tool and equipment availability and readiness.
	2.7.3a.(6).2: Replaced current language with minimum requirement in lieu of water tank delivery system.
Section 2.8.2	Added clarifying language on shovels.
Section 3.5	Updated link for Utility Procedure TD-1470P-01, "Enhanced Powerline Safety Setting (EPSS) Enablement Criteria."
Document Approver, Document Owner, Document Contact	Updated names and titles.

## Contractor Safety Standard

### SUMMARY

This Standard establishes the minimum requirements for contractor safety management and ensures that health and safety expectations associated with the work performed on behalf of PG&E are understood and communicated.

PG&E, as the hiring company and asset owner, has a primary interest to protect PG&E employees, contractor employees and the general public from personal injury.

This standard fulfills the compliance requirements as agreed to in California Public Utilities Commission Decision 15-07-014 July 23, 2015.

### TARGET AUDIENCE

PG&E utility employees that manage contracts and oversee the work of contractors (at any tier) as defined as “medium” and “high” risk, that perform work activities on behalf of PG&E, on either PG&E owned, or customer owned, sites and assets.

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## Contractor Safety Standard

### Requirements

#### 1 Contractor Safety Program Scope

- 1.1 Contractors defined as performing “medium” or “high” risk work types shall meet PG&E pre-qualification requirements identified in Attachment 1, Contractor Safety Pre-qualification Criteria, prior to commencing medium and high risk work activities.
- PG&E will evaluate the safety data of the contractor entity that will perform the work.
- 1.2 Agencies, entities or contractors that are NOT subject to the Contractor Safety Standard requirements, but are subject to the same safety standards applicable to employees of PG&E, include:
- Individual Augmented or contingent staffing contractors working under the direct supervision of PG&E.
  - Tribal entities that perform work as Native American Monitors for cultural resource management purposes.
  - Other utilities, governmental entities and applicant installers (or their contractors) that have the right under Commission decisions and rules, pursuant to tariffs, or under easement/license, franchise, service or other agreements to perform work on PG&E facilities (joint pole/trench agreements, Work Requested by Others (WRO) projects, franchise/Community Based Organization agreements).
- 1.3 PG&E personnel or designee responsible for overseeing contractors shall understand the risk definitions as identified in Appendix A: Risk Matrix – Definition and Examples.
- a. These definitions shall be considered as guidelines.
  - b. These definitions are not all inclusive.
  - c. Project work activities must be reviewed independently to assess risk during the project planning phase.
    - Review should include evaluation as to whether utilizing current industry best practices.
    - LOB to assess the level of risk accurately.
    - Review and update that risk assessment at least annually during the course of contract performance to ensure accuracy.
- 1.4 Contracts/Agreements shall identify PG&E’s safety expectations and applicable safety requirements for all aspects of the Scope of Work (SOW).

## Contractor Safety Standard

- 1.5 PG&E personnel or designees responsible for overseeing contracted work within the scope of this Standard shall manage all contracted work in accordance with the requirements herein and their Line of Business (LOB) specific contractor oversight procedure.
- The LOB contract owner shall ensure their procedure requirements are adhered to throughout the course of work for the contractor, even when there may be project management overlap between one or more LOBs
- 1.6 PG&E personnel or designees responsible for overseeing contracted work activities defined as “medium or “high” risk shall ensure contractors are effectively identifying, planning, eliminating and/or controlling work hazards that may impact the safety or health of Company and/or contractor employees and members of the general public.
- 1.7 Contractor safety performance must be evaluated at the conclusion of the contracted work or at least on an annual basis for multi-year contracts by the responsible Line of Business (LOB) representative.
- a Contractor performance evaluations will be completed in accordance with the enterprise established criteria, including any additional criteria established by the related LOB contractor oversight procedure.
- At a minimum, performance evaluation criteria shall include:
- Contractor work safety planning effectiveness.
  - Contractor work safety performance.
  - Contractor work safety incident and injury reporting.
  - Contractor’s effectiveness in managing the safety performance of their subcontractors, at any tier, if applicable.
- b Completed for all projects, even when contractors are shared across multiple Lines of Business.
- c Submitted into ISNetwork (ISN) for every contractor included in the program performing active work during the course of the given year.
- Prime contractors’ performance evaluations may include their subcontractor’s performance for multi-employer project sites.
- 1.8 PG&E shall evaluate the safety data for contractors that are not pre-qualified when they are being considered for PG&E work through the Request for Proposal (RFP) process.
1. In RFPs, contractors will be required to provide year-to-date safety and injury data, including data regarding Serious Safety Incidents affecting the public.

## Contractor Safety Standard

- Reference Attachment 1, Contractor Safety Pre-qualification Criteria.
- 2. Since industry-wide data regarding Serious Safety Incidents affecting the public is generally not available, PG&E will evaluate such data on a qualitative basis to evaluate where the contractor should be disqualified from consideration or if additional safety mitigation measures should be required.
- 3. Subsequent to the hiring of an independent contractor, PG&E will require the contractor to annually update employee and public safety data.
- 4. PG&E will require that bidders and contractors attest to the accuracy of safety data.
- 5. PG&E will require a contractor to become pre-qualified through ISN as a condition of any contract award for “medium” or “high” risk work.

## 2 Roles & Responsibilities

**NOTE**

The following roles and responsibilities should NOT be considered all inclusive.

### 2.1 Contractors shall:

Adhere to requirements as specified in contract terms and conditions. Refer to the [“Based on Utility Standard: SAFE-3001S, Contractor Safety Program Requirements”](#) included in all contracts for medium and high-risk work. The contract terms and conditions are also posted on [PG&E’s Purchasing Program supplier website](#) for reference.

### 2.2 LOBs shall:

1. Endorse and support enterprise-wide application of the Contractor Safety Standard.
2. Mandate compliance with Standard and the LOB contractor oversight procedure requirements.
3. Ensure clearly defined roles and responsibilities specific to organizational structure and unique operational needs are implemented to ensure compliance with this standard.
4. For work performed by a contractor, the LOB shall,
  - a. Require the contractor provide a safety plan for high risk work (and some LOB-identified medium risk work) that fully addresses the scope-specific work to be performed.

## Contractor Safety Standard

- The safety plan shall address the SOW to be performed, training qualifications necessary to perform the work and staffing plans for safety professionals that the contractor will have overseeing the project, if applicable.
  - Monitor the work, conduct and record safety observations per frequency as defined in the LOB oversight procedures. (The SafetyNet tool is available to use at LOB discretion if no other tool has been established.)
  - Ensure LOB representatives coordinate with Corporate Contractor Safety personnel on required compliance assessments being performed for their respective areas and provide all necessary documentation within the timeframe requested.
- b. Prior to commencement of work by the contractor, PG&E will:
- (1) Validate contractors and subcontractors (at any tier) performing medium and high-risk work are prequalified in ISN.
  - (2) Confirm that the contractor and subcontractor/s complies with the ISN badging and training requirements.
  - (3) Review and approve the safety plan, including contractor safety personnel qualifications as applicable.
  - (4) Establish requirements and process for LOB to perform quality assurance review and approval of contractor's safety plans.
  - (5) Establish requirements for implementing site safety controls at work sites to ensure that all visitors, contractors, sub-contractors, PG&E employees and members of the public are informed of hazards and controls required for the work location before the commencement of work.
  - (6) Perform a safety analysis to evaluate whether additional safety mitigations are required, including whether to assign PG&E onsite safety personnel.
    - Such review will be conducted by PG&E employees that are qualified to perform such work or PG&E will engage independent party experts as appropriate to perform the safety analysis.
5. PG&E LOB contractor oversight procedures will:



## Contractor Safety Standard

- a. Provide guidelines for: determining the level of contractor oversight; establishing the frequency of safety observations; and, entering observations into SafetyNet or the LOB established tool.
- b. Ensure a schedule is developed for safety observations prior to beginning medium and high-risk work activities.
- c. Ensure that contractors provide the appropriate levels of safety oversight for their work and that of their subcontractors at any tier.
- d. Ensure that PG&E will provide the appropriate level of safety observations for all contracted work including subcontracted work that is geographically remote from their primary contractor.
- e. Address when PG&E will assign its own LOB onsite safety personnel.
- f. Require periodic (at least annually) Contractor Safety Forums with their prime contractors that have active multi-year agreements. Agenda must include PG&E specific safety topics, sharing lessons learned, and performance feedback.
- g. Be approved by the respective LOB Director Sponsor for Contractor Safety and the Corporate Contractor Safety team initially and for any procedure revisions to ensure alignment with the requirements herein.
- h. Define the process for the LOB to actively monitor the ISN status of their contractors and subcontractors.
- i. Define requirements for scanning ISN badges to field-verify contractor prequalification and required employee training.
- j. Define a process for providing contractor work schedules to Corporate Contractor Safety.
- k. Identify Safety Plan Approver roles, responsibilities and qualification to meet the following requirements:
  - (1) Ensure safety plans for high-risk work are approved by PG&E and implemented that encompass review of the scope of work, identifying work hazards, and mitigate risks before the commencement of work.
  - (2) Include additional reviewers as needed for subject matter expertise input (e.g., explosives safety professional, industrial hygiene safety professionals, electrical safety experts, etc.)

## Contractor Safety Standard

- (3) Mitigation controls are selected according to a hierarchy that uses engineering solutions first, followed by safe work practices, administrative controls, and finally personal protective equipment (PPE).
- (4) Qualifications include but are not limited to; 5 years of experience with the scope of work to be performed, their hazards and controls; AND the Cal/OSHA 10-hour Construction Industry training course.

**Or:**

- (5) 3 years experience with the scope of work to be performed; AND a safety certification (e.g., CSP, ASP, CHST, CUSP, OSHA 30-hour, etc.) or a safety degree.

**NOTE**

PG&E Safety Plan Approvers that are qualified in accordance with (5.k.5) must be sponsored by the LOB safety representative and approved by the Corporate Contractor Safety Manager.

6. Ensure all Serious Safety Incidents and/or Serious Injury and Fatality (SIF) incidents are investigated using causal analysis methodologies, per GOV-6102S, Enterprise Cause Evaluation Standard.
7. Ensure corrective actions have been developed and implemented for all Serious Incidents and/or Serious Injury and Fatality (SIF) per GOV-6102S, Enterprise Cause Evaluation Standard.
  - a. Corrective actions will include,
    - Identifying PG&E and contractor persons responsible for identifying appropriate mitigations
    - Timelines and validations for ensuring implementation of corrective actions
8. Ensure lessons learned are communicated to PG&E and contractor personnel.

### 2.3 LOB Project Manager/Job Sponsor/Representative

1. Create a well-defined SOW to aid with job hazards assessments.
2. Identify and communicate PG&E specific hazards to the contractor to assist in planning their work efficiently.

## Contractor Safety Standard

3. Support Supply Chain or authorized procurement representative with the evaluation and selection of contractors based on the pre-qualification requirements of this standard.
4. Partner with the appropriate safety representative(s) or independent party expert, prior to commencing work, to determine,
  - Applicable PG&E requirements
  - Regulatory requirements
  - Appropriate control measures to eliminate or mitigate hazards specific to the SOW.
5. Verify contractors and their subcontractors (at any tier) have fully completed the pre-qualification process prior to commencing work.
  - For emergency/emergent work situations, Section 4 shall be applied.
6. Partner with Supply Chain or authorized procurement representative to formally submit a Contractor Safety Pre-qualification Variance Request, as outlined in Section 3 or an Emergent Work Request, as outlined in Section 4 of this standard, as applicable.
7. Ensure contractors develop a safety plan for all work defined as “high” risk that is reviewed and approved by PG&E personnel or designees familiar with the SOW and associated hazards and proper control methods prior to commencing work activities.
8. Ensure PG&E safety requirements and expectations have been communicated and acknowledged by the contractor prior to commencing work activities.
9. Verify contractors have performed a daily JHA specific to the SOW for identifying and communicating known or potential hazards to their employees or other potentially impacted workforces prior to commencing work.
10. Ensure personnel familiar with job hazards and safety requirements specific to the SOW are assigned to monitor contractor safety compliance.
11. Partner with Supply Chain or authorized procurement representative, Corporate Safety or other subject matter experts to ensure compliance with this standard, prior to issuing significant changes to the SOW.
12. Ensure all contractor related Serious Safety Incidents or Serious Injury and Fatality (SIF) are reported.
  - A contractor fatality, serious injury or illness, inpatient hospitalization, permanent disfigurement, loss of any bodily member, electrical contact or

## Contractor Safety Standard

flash requiring medical attention, systemic incident, serious concealed danger or use of emergency services shall be reported by the LOB representative to the Safety Helpline at company number 223-8700, Option 1.

13. Ensure all Serious Safety Incidents, Serious Injury and Fatality (SIF) incidents are investigated using causal analysis methodologies, per GOV-6102S, Enterprise Cause Evaluation Standard.
14. Ensure corrective actions are developed and implemented for all Serious Safety Incidents or Serious Injury and Fatality (SIF) incidents per GOV-6102S, Enterprise Cause Evaluation Standard
15. Complete and submit a contractor performance evaluation upon completion of the project or at least annually for multi-year contracts.
  - a. Performance evaluations are to be entered into each contractor's account within ISN and in accordance with the applicable LOB contractor oversight procedure.

### 2.4 Supply Chain or authorized procurement representative

1. Ensure applicable contractors have fully completed the pre-qualification requirement prior to contract award.
  - a. IF circumstances will not allow compliance with pre-qualification requirements, THEN follow the Contractor Safety Pre-qualification Variance Request Procedure, as outlined in Section 3 or the Emergent Work Request Procedure, as outlined in Section 4 of this standard.
2. Ensure contractual agreements include PG&E contractor safety requirements and compliance expectations.

### 2.5 LOB Operations Field Personnel

1. Provide support with identifying work hazards and control measures applicable to the SOW.
2. Assist with reviewing contractor safety plans and JHAs for accuracy and adherence.
3. Perform and document field safety observations to verify contractor compliance with PG&E and regulatory standards, rules, and codes.

## Contractor Safety Standard

- a. Field safety observation frequencies shall be determined by the LOB based on the risks associated with the SOW.

4. Support internal or external personnel with incident analysis or investigations.

### 2.6 Corporate Safety and Health Department

1. Support Supply Chain, Contract Management, or authorized procurement representative and the LOB during the contractor evaluation and selection process.
2. Partner with LOB and Supply Chain or authorized procurement representatives to formally submit Contractor Safety Pre-qualification Variance Request, as outlined in Section 3 or the Emergent Work Request Procedure, as outlined in Section 4 of this standard.
3. Assist as a subject matter expert for identifying job specific hazards and the appropriate elimination or control methods.
4. Provide subject matter expertise for interpreting applicable PG&E and regulatory standards, rules, codes or industry best practices.
5. Perform assessments on the implementation of the LOB contractor oversight procedures to validate compliance with the requirements therein, including assessing the contractor's safe work performance. The field portion of the assessments may be performed unannounced.
6. Perform assessments on contractors that have been in business less than three years and those that have a significant increase in headcount. Refer to the [Contractor Safety Management and Organization process](#) for additional information.
7. Perform additional field safety observations independent of the LOB observations as deemed appropriate between the LOB and Corporate Safety and Health.
8. Provide governance over the processes for flagging problematic contractors and sharing lessons learned from contractor related safety incidents.
9. Approve LOB contractor oversight procedures initially and whenever revisions are made to ensure alignment with the requirements herein.
10. Manage the ISN contract and govern the requirements for prequalification criteria.
11. Monitor ISN grade changes, safety data attestation, and evaluate contractor profiles as needed.

## Contractor Safety Standard

12. Review LOB work schedules and ensure they are provided monthly to Corporate Contractor Safety.
  - a. Submits Corrective Action Plan (CAP), issue and assigns to the LOB If schedules are not provided timely.
- 2.7 Safety Prequalification Contracted Third Party Administrator – ISNetwork
  1. Pre-qualify contractors to PG&E safety criteria. See Attachment 1 – Contractor Safety Pre-Qualification Criteria.
  2. Perform safety manual audits to ensure compliance with regulatory standards and PG&E requirements.
  3. Maintain as a system of record all program related documents, evaluations and files that are uploaded into the ISN system.
- 3 Contractor Safety Pre-qualification Variance Requests**
  - 3.1 Contractor Safety Pre-qualification Variance Requests shall be submitted based on the requirements outlined in [SAFE-3001P-11, Contractor Safety Pre-qualification Variance Request Procedure.](#)
- 4 Emergent Work Requests**
  - 4.1 Contractor emergency/emergent work shall be permitted per the guidelines outlined in [SAFE-3001P-12, Contractor Emergent Work Request Procedure.](#)

END of Requirements

## Contractor Safety Standard

### Definitions

**Company** – Refers to the PG&E Company, as the utility wholly owned by PG&E Corporation.

**Contractor** – Company directly hired by PG&E to complete a specific SOW or service. This term also applies to all subcontractors, at any tier, that have been retained by a primary PG&E contractor to provide a service for PG&E related project work. Additionally, the term “subcontractor” may include an individual, a group of workers (crew), equipment or other items used on a PG&E facility, project or

**Emergent Work** – Unplanned/unscheduled contract medium/high risk services required to immediately support critical project work which cannot be acquired through normal procurement processes. Situations do NOT include routine work activities and immediate project work required due to lack of planning.

**High Risk Contractors** – As defined by Appendix A: Risk Matrix - Definitions and Examples.

**Life-Altering Injury** - An acute injury that resulted in a permanent and significant loss of a major body part or organ function that permanently changes or disables that person’s normal life activity.

**Life-Threatening Injury** –An acute injury that required immediate life-preserving rescue action, and if not applied immediately would likely have resulted in the death of that person.

**Line of Business (LOB) Representative or Designee**– Individual assigned as the primary interface with the contractor to coordinate and oversee a specific SOW performed by the contractor.

**Low Risk Contractor** – As defined by Appendix A: Risk Matrix - Definitions and Examples.

**Medium Risk Contractor**- As defined by Appendix A: Risk Matrix - Definitions and Examples

**Safety Plan** – Detailed safety plan created to eliminate and/or mitigate specific job site environmental, health and safety hazards associated with the SOW.

**Safety Prequalification Contracted Administrator** – ISNetwork is the contracted vendor responsible for safety prequalification for in-scope contractors.

**Safety Representative** – Individual(s) responsible for the health and safety of all personnel within their designated area of control and vested with the decision-making authority for ensuring compliance with PG&E and regulatory requirements.

**Scope of Work (SOW)** – A scope of work contains a detailed description of service, project or program work activities.

**Serious Safety Incident/Serious Injury and Fatality (SIF)**- An incident resulting in a Life-Threatening, Life-Altering or fatal injury to the public, employees or contractors resulting from PG&E related work.

## Contractor Safety Standard

**Subcontractor** – Subcontractors are contractors that have been retained by a prime contractor to provide services on behalf of PG&E.

**Independent Party Expert** – Consulting subject matter expert (SME) with authority and expertise in a particular area or work activity not readily available within PG&E's existing personnel. They may have specialized education, experience, qualification or certification required to oversee the work activities being performed.

### IMPLEMENTATION RESPONSIBILITIES

PG&E's Safety, Health & Environment organization is responsible for:

- Overseeing the development and ongoing maintenance of the Contractor Safety Standard
- Communicating this standard to the appropriate audience within PG&E

### GOVERNING DOCUMENT

NA

### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

- California Public Utilities Commission Decision 15-07-014 July 23, 2015.

### REFERENCE DOCUMENTS

#### Developmental References:

- Law 2001S – Contracting Requirements Standard
- Diablo Canyon Power Plant: Interdepartmental Administrative Procedure

#### Supplemental References:

- [Contractor Safety Program Contract Requirements Based on Utility Standard: SAFE-3001S](#)
- [PG&E's Purchasing Program supplier website](#)
- [SAFE-3001P-12, Contractor Emergency/Emergent Work Procedure](#)
- [SAFE-3001P-11, Contractor Safety Pre-qualification Variance Request Procedure](#)
- [GOV-6102S, Enterprise Cause Evaluation Standard](#)



## Contractor Safety Standard

### APPENDICES

- Appendix A, Risk Matrix – Definition and Examples

### ATTACHMENTS

- [Attachment 1: Contractor Safety Pre-Qualification Criteria](#)

### DOCUMENT REVISION

NA

### DOCUMENT APPROVER

██████████, Director, Business Operations

### DOCUMENT OWNER

██████████, Manager, Enterprise Contractor Safety Pr

### DOCUMENT CONTACT

██████████, Manager, Enterprise Contractor Safety Pr

### REVISION NOTES

Where?	What Changed?
Section 2.2.1	Deleted contractor requirements and referred to the contract terms and conditions <a href="#">“Based on Utility Standard: SAFE-3001S, Contractor Safety Program Requirements.”</a>
Section 2.2.5.i	Included language from Utility Bulletin: SAFE-3001S Rev.0 dated 6/28/2019 to allow LOBs to also perform evaluations and generate reports directly from the ISN system in addition to or in lieu of performing in-field scanning checks.
Section 2.2.5 – Note Section	Added requirement for PG&E Safety Plan Approvers to be sponsored by the LOB safety representative.
Section 2.2 – Various sections	Deleted implementation due dates for required program enhancements in 2019.
Section 2.2 and 2.3 – Various sections	Deleted references to the LOB specific causal evaluation procedures as these are no longer in place and the LOBs all utilize GOV-6102S,

## Contractor Safety Standard

Where?	What Changed?
	Enterprise Cause Evaluation Standard Enterprise Causal Evaluation Standard.
Definitions – Contractor	Deleted additional language for subcontractor definition that was repetitive.
Document Stewardship	1/31/2022 change: Approver from Sarah Low to [REDACTED] Owner/Contact from [REDACTED]
	2/8/2022 Fixed links to GOV-6102S and corrected title. Fixed links to Purchasing Program website.

## Contractor Safety Standard

### Appendix A, Risk Matrix – Definition and Examples

Page 1 of 2

PG&E’s Contractor Safety Program applies to **all contractors, including subcontractors**, that provide **medium and/or high-risk services on PG&E’s sites or assets**. It is the responsibility of LOB personnel to determine the risk classification of contract work being performed based on the guidelines provided below. The examples of work scopes or work activities are not all-inclusive.

Any issues regarding the risk classification of a contractor and their work activities should be assessed and determined between the LOB representative, Supply Chain/procurement representative and Corporate Contractor Safety.

Risk Category	Examples of Work Scopes or Work Activities	Primary Triggers
<b>Low Risk</b>	<ul style="list-style-type: none"> <li>• Consulting, classroom training</li> <li>• Office engineering, design, inspection (limited to no direct exposure to site hazards)</li> <li>• Project Management Office (PMO) services</li> <li>• Basic landscaping services such as lawn mowing, trimming, and pruning (no trenching)</li> <li>• Material delivery off PG&amp;E premises (Shipping)</li> <li>• Transportation of materials (limited to Material Handling off-site to PG&amp;E premises)</li> <li>• Unarmed security services</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Performs <b>NO</b> work activities covered in the Medium/High risk definitions</li> <li>• Does <b>NOT</b> require <b>ANY</b> of the pre-requisites covered in the Medium/High risk definitions</li> <li>• Does <b>NOT</b> require Occupational Safety and Health Administration (OSHA) safety and health programs to address specific criteria identified below under high and medium risk definitions, including any OSHA required training, to mitigate task and location specific hazards</li> </ul>

## Contractor Safety Standard

<p><b>Medium Risk</b></p>	<ul style="list-style-type: none"> <li>• Excavating and trenching under 4 feet (excluding hand digging within 2 feet of depth)</li> <li>• Geotechnical investigation, potholing, drilling, boring, horizontal directional drilling (HDD)</li> <li>• Surveying, field inspection, construction management, engineering, design services that require specialized PPE</li> <li>• Material Handling (on/off loading materials using mechanical electric or pneumatic equipment)</li> <li>• Bulk hazardous chemicals transport and handling</li> <li>• Compressed natural gas (CNG) / liquefied natural gas (LNG) handling</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Requires OSHA safety and health programs, including OSHA required training, to mitigate task and location specific hazards</b></li> <li>• <b>Work requires advanced or specialized PPE, beyond hard hat, safety boots, safety glasses and reflective vest</b> (Examples: personal fall arrest/restraint system, respirator, SCBA, rubber gloves, ear plugs/hearing protection, Flame Resistant (FR) clothing, Electrical Hazard (EH) boots, Energy Control Locks, Tyvek suit, etc.)</li> </ul>
<p><b>High Risk</b></p>	<ul style="list-style-type: none"> <li>• Excavation and trenching beyond 4 feet (includes hand digging)</li> <li>• Heavy equipment operation (crane, fork lift, front loader, backhoe, bobcat, bucket truck, aerial lift, boom lift, skidder)</li> <li>• Underwater diving operations</li> <li>• Aviation operations (helicopter, fixed wing)</li> <li>• Demolition / blasting / explosive work</li> <li>• Utility tree trimming, clearance work, vegetation management</li> <li>• Hazardous waste disposal/treatment/transportation, contaminated soil, asbestos, lead, etc.</li> <li>• General construction activities such as framing, sawing, cutting, welding, boring, blasting, coating, grinding, roofing, commercial painting using specialized equipment, electrical/gas installation, scaffolding, civil</li> <li>• Traffic control flagging</li> <li>• Pesticide, herbicide application</li> <li>• Armed security services</li> <li>• Welding and/or hot tapping of gas lines</li> <li>• Electrical work</li> <li>• Conductor stringing / sagging removal</li> <li>• Fault protection / grounding</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Work requires specialized training, formal training, licensing, certification or qualification</b> (Examples: HVAC, Industrial Lift Truck, Permit Required Confined Space Training, Fall Protection Training, Crane Operator certification, pest control applicators license, FERC/NERC training, HAZWOPPER, etc.)</li> <li>• <b>Work <u>directly</u> exposes contract employee(s) to the hazards associated with the other work</b> (Examples: Suspended load spotters, aggregate haulers where delivery of materials requires material handling or site hazard exposure, heavy equipment is in operation, traffic control flaggers)</li> </ul>

## Contractor Safety Standard

	<ul style="list-style-type: none"><li>• Radiological handling activities</li></ul>	
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## **Wildfire Risk Reduction**

The metric measures the count of Fire Ignitions that result in fires equal to or greater than 100\* acres in PG&E's High Fire Threat District (HFTD) and reportable to the CPUC per Decision 14-02-015.

A reportable fire ignition per Decision 14-02-015 is a fire event that meets the following criteria: 1) ignition is associated with PG&E powerlines (both transmission and distribution), 2) something other than PG&E facilities burned, and 3) the resulting fire travelled more than one meter from the ignition point.

Reportable Fire Ignitions that result in fires  $\geq 100$  acres in PG&E's HFTD for which PG&E submits an Electric Incidents report (EIR) are counted. If the ignition source for a fire  $\geq 100$  acres in PG&E's HFTD is unknown or disputed, it will also be counted if PG&E records a financial reserve associated with that ignition. The PG&E Board of Directors will retain discretion to determine and make final STIP awards related to the performance of the Wildfire Risk Reduction metric.

If the information related to the acreage of CPUC reportable Fire Ignitions is not available from the responding agency (e.g. CalFire), PG&E's meteorology department will make an estimated determination of the burned acreage.

\*The threshold for 100 acres was based on the fact that ~4% of all CPUC reportable HFTD fire ignitions accounted for ~99.8% of the total acreage burned in HFTDs between the years 2016 – 2020

## **Reportable Fire Ignitions**

The metric measures the count of fire incidents that meet the following criteria:

- Occur within a PG&E High Fire Threat District (HFTD)
- Reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all the following: 1) Ignition is associated with PG&E powerlines (both transmission and distribution), 2) something other than PG&E facilities burned, and 3) the resulting fire travelled more than one meter from the ignition point.

## **Quality Pass Rate**

Equally weighted index that tracks the quality of four core Wildfire Mitigation Inspection programs as measured by:

1. 25% - Percentage of Distribution Overhead Ground (MAT BFB) Inspections in High Fire Threat District's (HFTD) Tier 3 and Tier 2 that pass the Quality Verification review
2. 25% - Percentage of Transmission Overhead Ground (MAT BFZ) Inspections in HFTD's Tier 3 and Tier 2 that pass the Quality Verification review
3. 25% - Percentage of the completed Enhanced Vegetation Management work that had an 100% VM Work Verification final pass rate that passes the Quality Verification review

4. 25% - Percentage of the completed Routine Vegetation Management work in HFTD's Tier 3 and Tier 2 that passes the Quality Verification review

### **Core Commitment Completion**

The metric measures timely completion of 5 core commitments across two key areas as outlined in the official submission of the 2022 Wildfire Mitigation Plan (WMP):

Reduce Wildfire Potential:

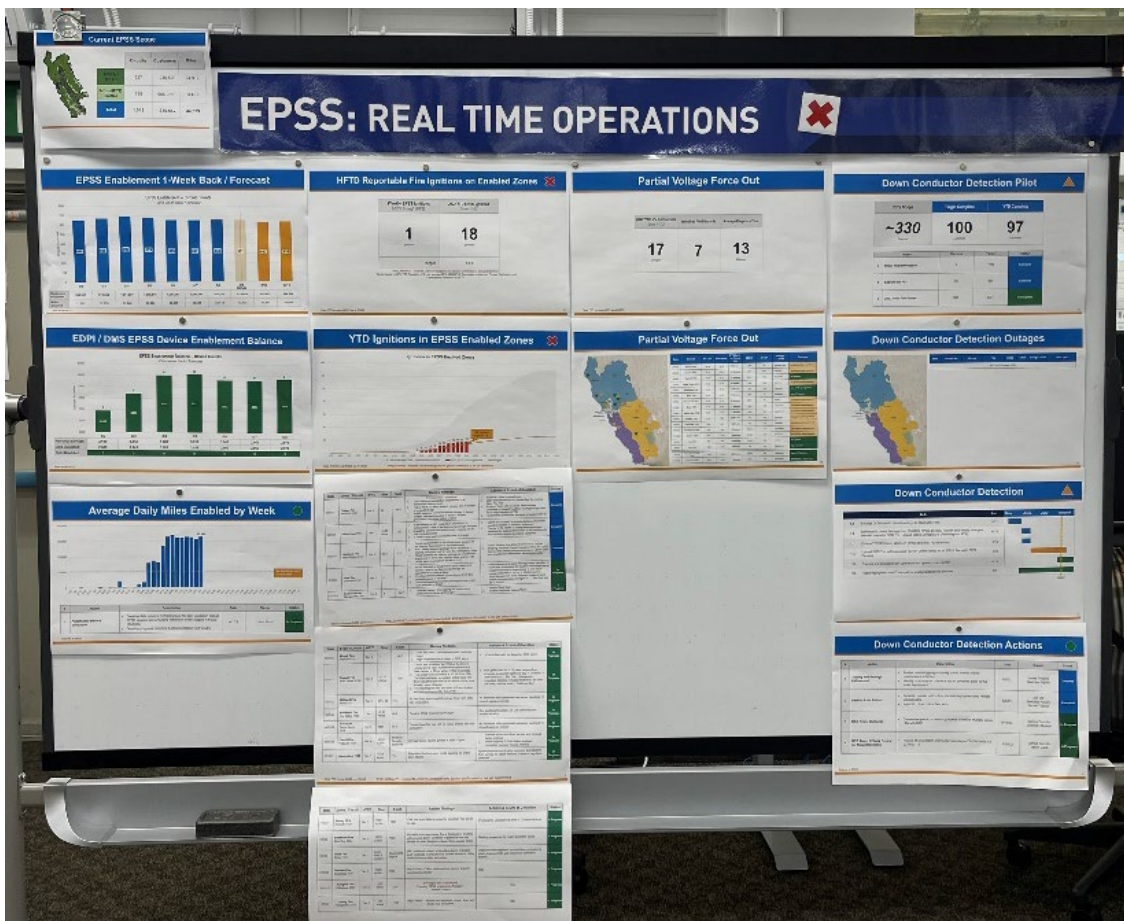
1. Distribution System Inspections in HFTD / HFRA
2. Transmission System Inspections in HFTD / HFRA
3. Substation System Inspections in HFTD / HFRA
4. Replacement of Expulsion Fuses / Cutouts, and other non-exempt equipment identified on poles in Tier 2 and Tier 3 HFTD areas. Non-exempt equipment is defined as fuses, connectors, and surge-protection equipment with the potential to emit or discharge hot or molten material that has potential to ignite and spread a fire, as such require clearance of flammable vegetation.

Reduce Impact of PSPS:

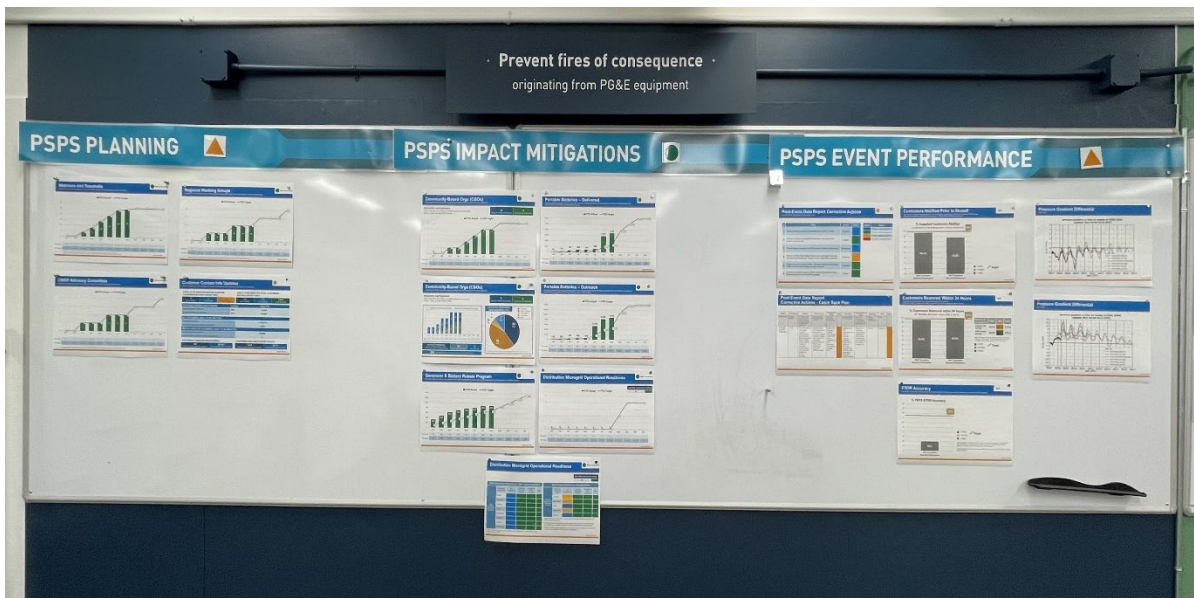
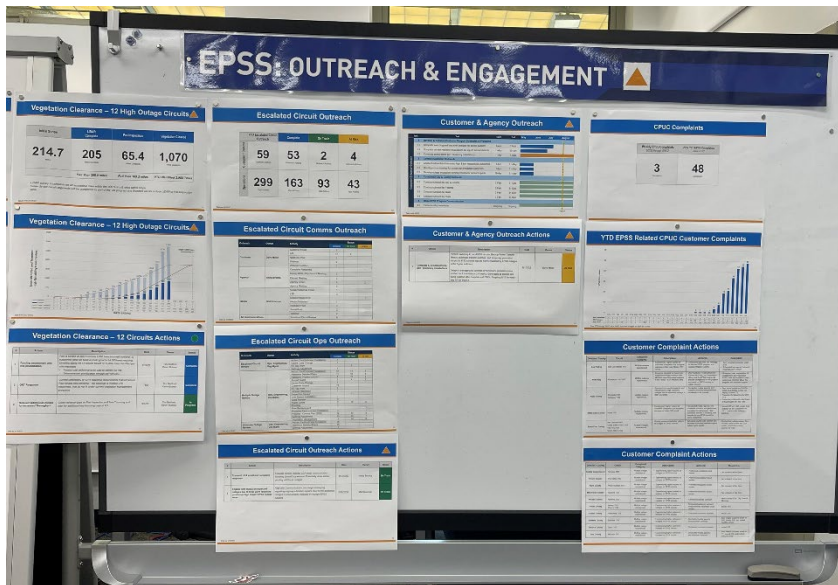
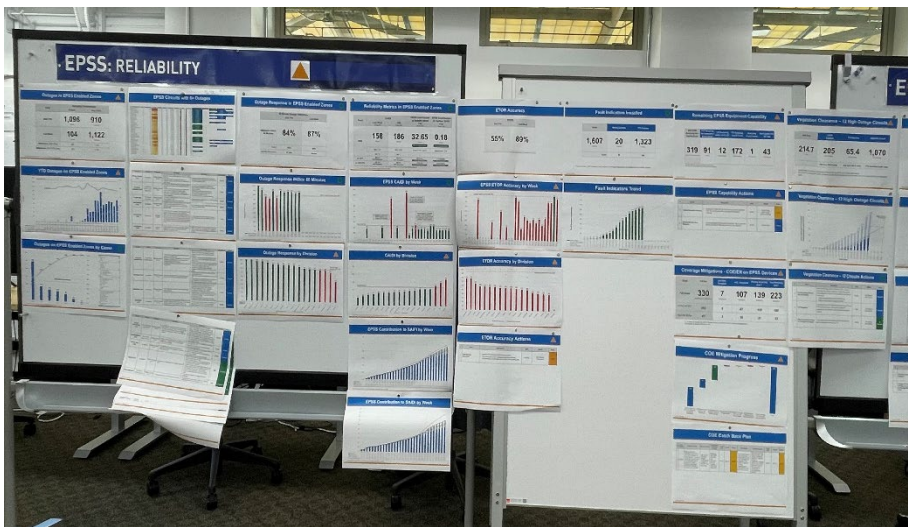
5. Distribution Sectionalization Devices. The commitment relates to the work volume and timeliness of distribution circuit sectionalization devices installed, automated and operationalized to limit the number of customers impacted by PSPS events. These SCADA-enabled PSPS devices are a combination of Line Reclosers, FuseSavers, and SCADA Switches.

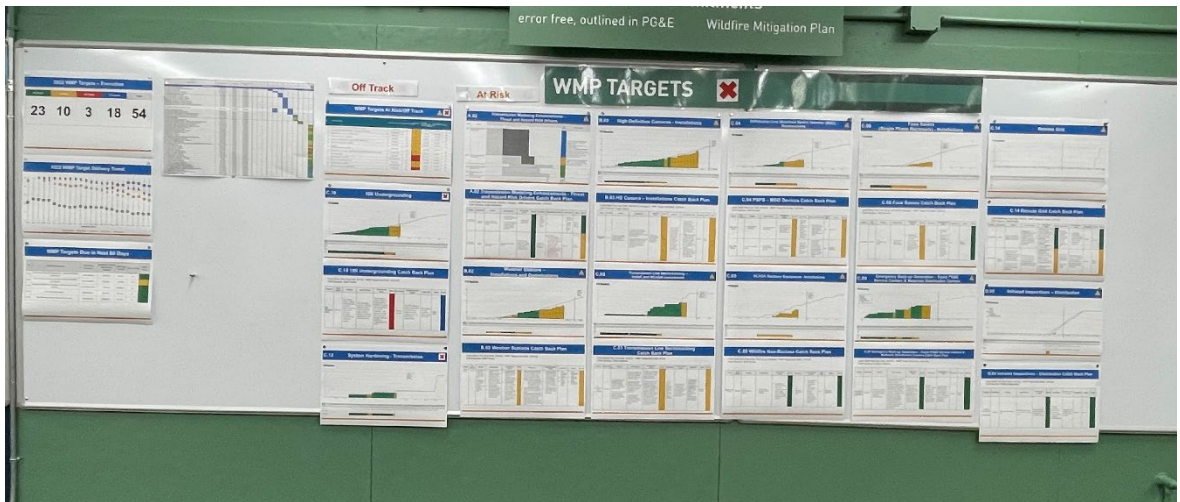
The metric is measured as a percentage (with once decimal place) of the 5 commitments meeting the time and work volume targets that PG&E commits to in the annual WMP\*. PG&E submits its WMP in compliance with California SB 901, AB 1054 and direction from the Office of Energy Infrastructure Safety (OEIS), provides updated details on PG&E's comprehensive Community Wildfire Safety Program (CWSP), incorporates lessons learned from the 2021 wildfire season, and outlines the additional programs planned to continue reducing the risk of catastrophic wildfires.

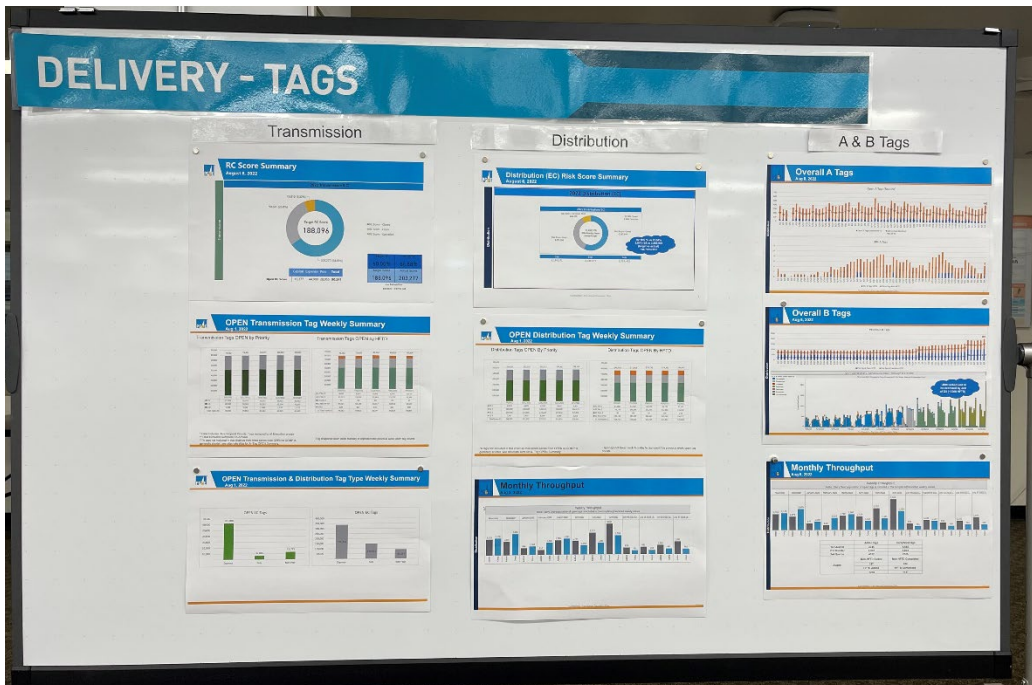
\* At the time of the STIP metric definition / targets approval in January 2022, the 2022 WMP commitment targets and due dates were under development and were formally submitted to OEIS on February 25, 2022. For commitment details, targets and due dates, see section II-E.

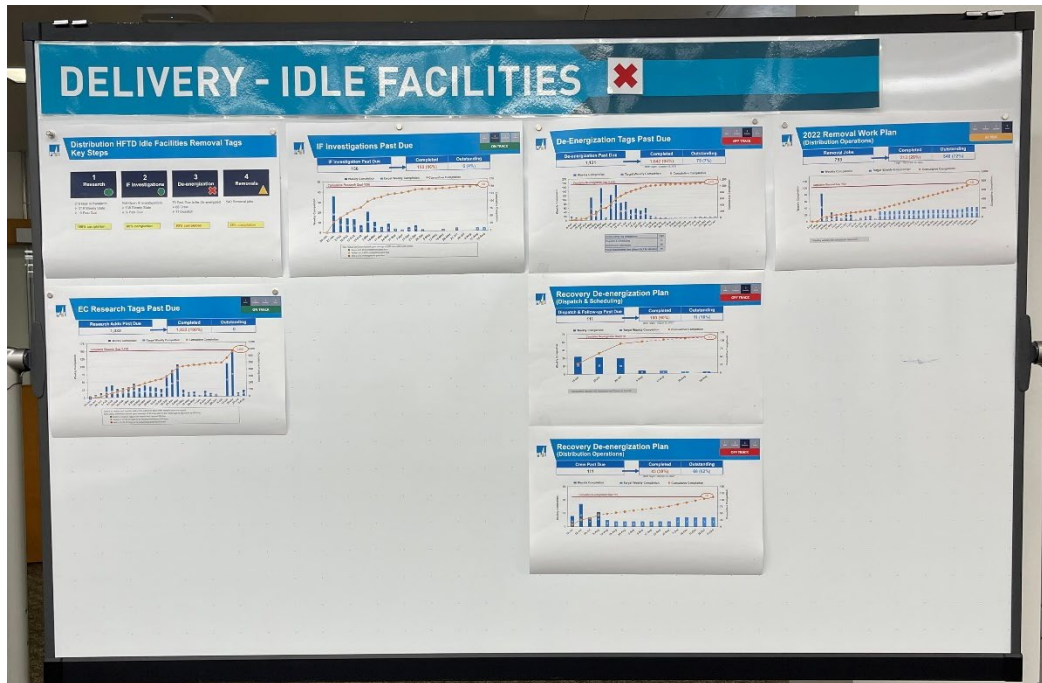
















# WSJ

## THE WALL STREET JOURNAL WEEKEND



### What's News

World-Wide

**The House passed a** roughly \$1 trillion public works bill, sending to Biden's desk a generational investment in roads, bridges and rail that had languished for several months as Democrats feuded over the terms of its approval. **A1**

◆ **Pfizer said** that a preliminary look at study results found its experimental pill was highly effective at preventing people at high risk of severe Covid-19 from needing hospitalization or dying. **A1**

◆ **A Russia analyst** who fed information to the author of a salacious dossier about Trump lied to federal investigators about his interactions with a business-group official he said was a source for the document, according to an indictment unsealed Thursday. **A4**

◆ **Prosecutors said** the complaint against former New York Gov. Cuomo is "potentially defective" and successfully asked to push back his arraignment date in a letter filed with the court this week. **A3**

◆ **The trial began** in Georgia of three white men charged with murder in the fatal shooting of Ahmaud Arbery, an unarmed Black man, in 2020. **A3**

### Business & Finance

◆ **The U.S. labor market** sprang back to life in October after a summer slowdown, with employers adding 531,000 jobs, the biggest gain in three months. Nearly 200,000 women joined the labor force. **A1**

◆ **U.S. stocks rose** to fresh highs after the jobs report. The S&P 500, Dow and Nasdaq added 0.4%, 0.6% and 0.2%, respectively, and all three posted weekly gains. **B1**

◆ **Security-software company McAfee** is nearing a deal to sell itself to a group including private-equity firms Advent and Permira for more than \$10 billion. **A1**

◆ **The Justice Department** has opened an investigation into electric-van startup Workhorse, according to documents reviewed by The Wall Street Journal. **B3**

◆ **Boeing's board will add** a director with safety expertise and adopt other internal measures under a proposed \$237.5 million agreement to settle a shareholder lawsuit. **B10**

◆ **Evergrande raised** more than \$50 million last month by selling two of its private jets, bringing in much needed cash to help avert a default on its U.S. dollar debt. **B3**

**NOONAN**  
Voters Give Democrats A Woke-Up Call **A15**

**CLOCKS MOVE BACK**  
Standard time begins at 2 a.m. Sunday. Clocks move back by one hour. Daylight-saving time returns March 13, 2022.

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## Mourners Laud Soldier-Statesman Powell



**TRIBUTE: A military honor guard carries the casket of trailblazing soldier and diplomat Colin Powell at his funeral at the Washington National Cathedral on Friday. President Biden and former Presidents Barack Obama and George W. Bush were among those in attendance. A5**

## Facebook Can Hurt Work, Families, Its Research Shows

Internal documents say 12.5% of users struggled to manage time on the app, which they saw as worse than other social media

Facebook researchers have found that 1 in 8 of its users report engaging in compulsive use of social media that impacts their sleep, work, parenting or relationships, according to documents reviewed by The Wall Street Journal.

These patterns of what the company calls *the facebook files* Latest in a series

By Georgia Wells, Deepa Seetharaman and Jeff Horwitz

problematic use mirror what is popularly known as internet addiction. They were perceived by users to be worse on Facebook than any other major social-media platform, which all seek to keep users coming back, the documents show. A Facebook team focused on user well-being suggested a range of fixes, and the company implemented some, building in optional features to encourage breaks from social media and to dial back the notifications that can serve as a lure to bring people back to the platform. Facebook shut down the team in late 2019. A company spokeswoman said Facebook in recent months has begun formulating a new effort to address what it calls problematic use alongside other well-being concerns, such as body image and mental health. The company has been public about its de-

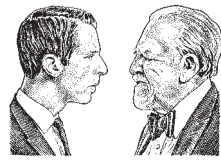
sire to address these problems, said Dani Lever, the spokeswoman, in a statement. Some people have struggles with other technologies, including television and smartphones, she said. "We have a role to play, which is why we've built tools and controls to help people manage when and how they use our services," she said in the statement. "Furthermore, we have a dedicated team working across our platforms to better understand these issues and ensure people are using our apps in ways that are meaningful to them." The Wall Street Journal's Facebook Files series has documented how Facebook knows the products and systems central to its business success routinely fail and cause harm. For some people, such as teen girls or human-trafficking victims, the risks can be significant. These documents highlight the company's research into possible negative impacts on a broader swath of users. The research was launched several years ago with the goal of mitigating harmful behavior that the company was increasingly identifying on its platforms. The researchers on the well-being team said some users lack control over

## Family Business Drama Is Reality For Some 'Succession' Fans

Companies of even modest size relate to the show's over-the-top power struggles

By JOHN JURGENSEN

The chief executive of a cheesecake dynasty can relate. Alan Rosen of Junior's Restaurants and Bakery represents the third generation of his family to run the company started in 1950 in Brooklyn, N.Y. It still pains him to remember the time he says his



Splitting heirs

## McAfee Nears Sale For Over \$10 Billion

Security-software company McAfee Corp. is nearing a deal to sell itself to a group including private-equity firms Advent International Corp. and Permira for more than \$10 bil-

By Cara Lombardo, Miriam Gottfried and Dana Cimilluca

lion, according to people familiar with the matter. A deal, which would value the cybersecurity company at around \$25 a share, could be announced by Monday, some

## House Sends Infrastructure Bill to Biden

WASHINGTON—The House passed a roughly \$1 trillion public-works bill late Friday, sending to President Biden's desk a generational investment in roads, bridges and rail that

By Andrew Duehren, Natalie Andrews and Lindsay Wise

had languished for several months. Negotiated and approved by a bipartisan group of senators this summer, the bill reauthorizes existing federal infrastructure programs for five years and pours an additional \$550 billion into water projects, ex-

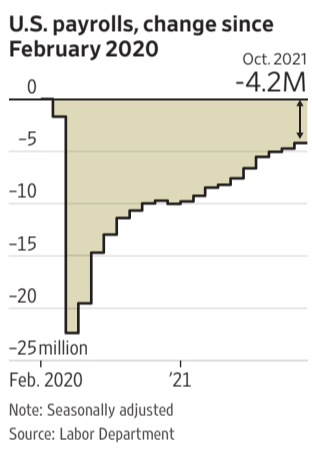
panding access to broadband internet and overhauling the electrical grid, among many other measures. A major piece of Mr. Biden's economic agenda and his vision for making the U.S. more competitive internationally, its passage in the House hands him a bipartisan achievement that presidents of both parties have tried, and failed, to achieve for years. But the effort was circuitous and tortured for House Democrats, whose paper-thin majority repeatedly complicated leadership's plans for the legislation. Democrats on Friday began

## U.S. Jobs Market Posts Big Rebound

BY JOSH MITCHELL

The U.S. labor market sprang back to life in October after a summer slowdown, with employers briskly adding jobs and nearly 200,000 women joining the labor force.

The economy churned out 531,000 new jobs last month, the biggest gain in three months, the Labor Department said Friday. Restaurants, consulting firms and factories all boosted hiring, suggesting broad strength across the economy. Nationwide job growth was also stronger in August and September than previously estimated, with new data boosting employment over that period by 235,000 jobs. The unemployment rate fell to 4.6% in October from 4.8% a month earlier, and is down by



more than half a percentage point in just two months. Major stock indexes rose to

### EXCHANGE



**GOING UNDERGROUND**  
A CEO aims to bury PG&E's biggest problem: its power lines. **B1**

## Covid-19 Pill Is 89% Effective, Pfizer Says

BY JARED S. HOPKINS

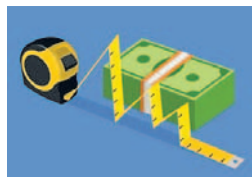
Pfizer Inc. said a preliminary look at study results found its experimental pill was highly effective at preventing people at high risk of severe Covid-19 from needing hospitalization or dying, the latest encouraging performance for an early virus treatment.

The company's drug cut the risk of hospitalization or death in study subjects with mild to moderate Covid-19 by about 89% if they took the pill within three days of diagnosis, Pfizer said Friday. The drug, called Paxlovid, was also found to be generally safe and well-tolerated in the early look at ongoing study results.

Pfizer plans to ask the Food and Drug Administration to authorize the drug's use this month, and the company could deliver doses this year, should regulators give a thumbs-up, Pfizer Chief Scientific Officer Mikael Dolsten said. "It's stunning data," Dr. Dolsten said in an interview. "I feel very optimistic on a day like this. For everyone living in this pandemic, a new light of hope has turned on."

Pfizer has already begun to share with the FDA information

◆ Cities offer incentives for child vaccinations..... **A6**



**1% Interest**  
The billionaire's tax should matter to you, too **B5**

# EXCHANGE

**Out of Fashion**  
For clothing chains, it's not easy being green **B12**



BUSINESS | FINANCE | TECHNOLOGY | MANAGEMENT

THE WALL STREET JOURNAL

\*\*\*

Saturday/Sunday, November 6 - 7, 2021 | **B1**

**DJIA** 36327.95 ▲ 203.72 0.6% **NASDAQ** 15971.59 ▲ 0.2% **STOXX 600** 483.44 ▲ 0.05% **10-YR. TREAS.** ▲ 21/32, yield 1.451% **OIL** \$81.27 ▲ \$2.46 **GOLD** \$1,816.40 ▲ \$23.40 **EURO** \$1.1568 **YEN** 113.40



Patti Poppe, top, surprised PG&E's board with a plan to reveal her strategy to the public; scenes from California's Dixie Fire in August.

## Stocks Hit New Highs On Strong Jobs Data

By JOE WALLACE AND AKANE OTANI

U.S. stocks rose to fresh highs Friday and posted weekly gains after Labor Department data showed job growth rebounded in October following a summer slowdown.

Stocks have climbed to a series of records in recent weeks, bolstered by solid economic data and earnings reports from the biggest U.S. companies.

About 82% of S&P 500 companies that have reported results this earnings season have topped analysts' earnings forecasts, according to FactSet data.

Data on the labor market have also been reassuring to investors. Friday's employment report showed the U.S. economy added 531,000 jobs in October, more than the 450,000 jobs that economists surveyed by The Wall Street Journal had expected to see. Meanwhile, the unemployment rate fell to 4.6% from 4.8% in September.

Friday's jobs report showed the labor market is solid enough for the Fed to justify tapering its monthly asset purchases, said Jay Pestrichelli, chief executive of investment firm ZEGA Financial.

Some investors have worried throughout the year about how stocks would fare once the Fed begins tapering.

Please turn to page B11

## Hotel, Travel Industries Say Rebound Has Arrived

By DAVE SEBASTIAN

Vacationers are returning to the roads and sky in the U.S. after an earlier pullback caused by the Delta variant, setting expectations for a busy holiday travel season.

After nearly two years of disruptions caused by the Covid-19 pandemic, travel and leisure companies are reporting strong sales gains and interest from tourists. Bookings are rising. Rooms are filling up. Shows are being added.

Uncertainties still remain. Business travel is returning more slowly, recovery in some parts of the world is choppy and another rise in Covid-19 cases is a threat. But executives say the disruption from the Delta variant in late summer has mostly passed.

"The travel rebound is here despite the continued pandemic," home-sharing company Airbnb Inc. Chief Executive Brian Chesky said Thursday. Shares of Airbnb rose 13% Friday following the company's earnings update.

Investors picked up on the recent optimism expressed by the travel and leisure companies and the prospect of a strong holiday season.

Please turn to page B2

# Can She Bury PG&E's Biggest Problem?

CEO Patti Poppe intends to spend billions to put 10,000 miles of the utility's power lines underground. It's an attempt to extinguish wildfires before they erupt.

By KATHERINE BLUNT

**A**s a California wildfire was exploding in July to become the state's second-largest ever, Patti Poppe made an executive decision.

The chief executive of PG&E Corp. traveled to the town of Chico, in fire-ravaged Butte County, and declared that the utility would spend as much as \$20 billion

to bury 10,000 miles of power lines like the one that had likely sparked the fire burning out of control just miles away.

The decision left PG&E's board of directors reeling, according to people familiar with the matter: The company had scarcely fleshed out the details of the proposal, or how to pay for it. Ms. Poppe had surprised the board the night before with her plan to publicize it anyway.

The announcement amounted to a Herculean promise to substantially reduce wildfire risk by safeguarding electric lines from making contact with trees. No U.S. utility has ever attempted such a feat, in part because of cost and engineering hurdles.

Please turn to page B6

# Ford, GM and The Race for Rivian

An auto giant could reap more than \$7 billion from a hot IPO. It had to elbow out a rival first.

By MIKE COLIAS AND BEN FOLDY

**W**hen hot electric-truck startup Rivian Automotive Inc. goes public next week seeking a valuation of roughly \$70 billion, one of the biggest winners is likely to be a 118-year-old Detroit giant. Ford Motor Co. could make a windfall of more than \$7 billion from the deal, as an investor with a 12% stake.

But it wasn't supposed to happen this way. More than two years ago, Ford's biggest rival, General Motors Co., was poised to make the critical investment in Rivian.

The story of how Ford outmaneuvered GM to cut its own deal illustrates the high-stakes battle under way as old-school auto companies race to transform themselves into major players in the electric-vehicle age. The mission culminated in a four-hour-long negotiation aboard a private jet that ended with executives scurrying for cover at a suburban Detroit airport, worried about being spotted by GM.

Ford, which was founded in 1903, and GM, founded five years later, have long battled over everything from pickup trucks to sports cars.

Please turn to page B4



The upstart and the icon: Rivian founder RJ Scaringe, left, with Ford Executive Chairman Bill Ford Jr.

# EXCHANGE

## Can a CEO Bury PG&E's Problems?

Continued from page B1  
 PG&E itself had earlier called undergrounding, as the practice is known, prohibitively expensive.

Ms. Poppe was now pledging publicly that PG&E would find a way to make it happen.

"I could not go up to Chico and look those people in the eye and apologize and not tell them what we're doing," Ms. Poppe later said in an interview.

When Ms. Poppe, a 52-year-old former Michigan utility executive, took the helm at PG&E in January, she assumed one of the most difficult CEO jobs in the country. Her challenge: to rapidly overhaul the safety of a sprawling electrical system roughly the size of New England, which continues to ignite major wildfires that have collectively killed more than 100 people in recent years and cost the company the trust of customers, regulators and legislators.

PG&E has cycled through five CEOs during the past 20 years, in which time it filed twice for chapter 11 bankruptcy protection. The company is on federal probation after being convicted on felony charges of violating federal pipeline safety laws. It is one of the few American companies ever to have been convicted of homicide, after pleading guilty to 84 counts of involuntary manslaughter for its role in igniting the 2018 Camp Fire that destroyed the town of Paradise, Calif. A California prosecutor recently filed new involuntary-manslaughter charges against PG&E for its role in sparking a wildfire near the Oregon border that killed four people last year, and the company disclosed this past week that it has received a subpoena from federal prosecutors for documents related to the fire that ignited in July.

Meanwhile, California is struggling through a crippling drought that scientists say has been exacerbated by climate change. Tens of millions of trees throughout the company's Northern California service territory are dead or dying, increasing the risk of rapid fire spread when power lines spark.

Ms. Poppe got a firsthand look at those risks in July, when a Douglas fir tree tipped onto a small power line running through Feather River Canyon in the Sierra Nevada foothills near Chico. A blaze ignited beneath it and exploded to consume nearly a million acres.

Investigators are still probing what became known as the Dixie Fire, but PG&E has acknowledged that it likely started when the tree touched its electric wire. The company has struggled for years to clear its power lines of trees, the most common cause of major fires sparked by its equipment.

The Dixie Fire had started just miles from Paradise, a remote town still rebuilding after the Camp Fire, which was sparked by an aging PG&E transmission line. Upon learning what had happened, Ms. Poppe decided it was time to reveal the plan to underground a swath of the system. A month earlier in June, PG&E had held an internal workshop where employees across multiple divisions brainstormed what it would take to execute such an effort, Ms. Poppe said.

But the company hasn't yet formulated enough detail to submit a plan to the California Public Utilities Commission, where it is now seeking permission to substantially raise rates—already among the highest in the U.S.—to fund other major safety investments. The announcement also came as a surprise to those within the agency, none of whom had a substantive conversation with PG&E about the plan beforehand, a spokeswoman said.

Mark Toney, executive director of the Utility Reform Network, a



Ms. Poppe praised employees at PG&E's wildfire-risk command center, but also asked how the company could do more to accomplish its goals.

consumer advocacy group that scrutinizes PG&E's requests to raise rates, said he has been impressed by Ms. Poppe's industry experience and her desire to make a lasting change. But he remains skeptical about the company's ability to achieve its undergrounding goal in a way that doesn't put a big financial burden on customers, especially given that it hasn't hashed out a strategy yet.

"You're setting a mighty big expectation, and you have no details," Mr. Toney said. "That's confusing at best."

**The cost of 'undergrounding'**  
 Several of the company's directors were upset about Ms. Poppe's decision to accelerate the undergrounding announcement out of concern that the company won't be able to deliver on the promise, according to people familiar with the matter. The estimated price tag of up to \$20 billion is nearly equal to the company's current market capitalization.

Across the country, fewer than 20% of distribution lines—the wires that deliver power to homes and businesses—run underground. That's largely because burying the wires costs significantly more than stringing them overhead as a result of the need for digging, drilling and

**'You're setting a mighty big expectation, and you have no details. That's confusing at best.'**

more expensive materials. Underground wires can also be more expensive to maintain, given that they are more difficult to access and inspect.

The cost of burying power lines, which involves digging trenches and encasing the wires with insulation and perhaps metal to protect them from subsequent digging, varies widely and depends largely on the density of development around the work site. Industry data indicate it costs between several hundred thousand dollars and several million dollars to bury a single mile of distribution wire, a particularly challenging proposition in urban areas, due to the need for extensive permitting and digging near homes

and businesses.

PG&E has been working to bury power lines in Paradise, and the company is learning it can do so for as little as \$2 million a mile, down from about \$4 million a mile when it started on the work a few years ago—a number that roughly supports the cost estimate for burying 10,000 miles of wire. Ms. Poppe anticipates the company can further cut costs by scaling up the program, which she says will eventually offset the amount the company has to spend on clearing trees and create an opportunity to boost shareholder returns through large capital investments.

"What we're spending today is too much: \$1.4 billion a year in vegetation management alone," Ms. Poppe said. "When I convert that to capital [for] undergrounding, that is a win for customers, and that is a win for investors."

Ms. Poppe acknowledged her decision surprised the board, but said directors knew that the company had started working on the idea. PG&E has since solicited information from 40 engineering and construction firms and shortlisted about 10, Ms. Poppe said. It has also formed an undergrounding council with input from various agencies, environmental groups and others to help formulate the plan.

"I have total support from my board of directors to run the company and to do what is necessary," she said. "They hired me because I'm an experienced utility executive."

Board chairman Robert Flexon, a former power-industry executive, said each of the company's directors may have their own perspectives on the undergrounding announcement, but that all of them support the idea. He sees the board's role in the process coming later, as the company fleshes out details related to cost, procurement and planning.

"All of those things will require board scrutiny and board approval," he said. "What we expect from Patti is for [her] to go into a situation like she faced in Chico and be the face of the company and offer solutions."

### 'Leading with love'

Since becoming CEO, Ms. Poppe has striven to embody that public ambassador role. She manages her own social media, where she often posts photos and videos of herself

with other employees at PG&E work sites. Many include rhetoric about "leading with love," an approach that has surprised many of those she has to work with, including regulators and union members.

Ms. Poppe is an early riser, often waking at 5 a.m. and working out before reading the news and financial analyst notes. Her day officially starts with a meeting with her direct reports in which they review the company's prior-day performance.

A hundred days into the job, wearing a shirt bearing a white cutout of California with a red heart drawn on it, she recorded a lengthy video in which she ex-

### No U.S. utility has ever attempted to bury so many miles of electric-power distribution lines.

plained to employees what it meant to be loved by their leader.

"We'll put that love mind-set to work and use it to start turning the page on PG&E's past, change the way we do business and begin writing the next chapter of this iconic company," she said.

In the interview, Ms. Poppe said she is trying to rebuild morale within an organization that has been widely villainized in recent years.

"They have been through a lot, and they are resilient," she said of her employees, whom she refers to as her co-workers. "They get up every day to make it safer than it was the day before."

Until moving to Lafayette, Calif., a small city just east of Berkeley, with her husband and her golden-doodle, Chester, Ms. Poppe spent most of her life in Michigan, where she raised twin daughters who now work as engineers. Ms. Poppe started her career as an engineer and plant manager at General Motors Co. and then moved to DTE Energy Co., a Michigan utility company. She was then hired by a neighboring utility company, CMS Energy Corp., where she ascended to become CEO in 2016.

For years, Ms. Poppe, who once had a bumper sticker proclaiming her love for coal, denied that climate change was a problem, but said she made an about-face during her time at CMS, after delving more deeply into the science and finding conclusive evidence that humans played a significant role in the phenomenon. As CMS's CEO, she ended up leading an ambitious effort to speed the company's shift away from coal to renewable energy and thought deeply about the role of a utility in mitigating climate change. Her next job would require her to consider how a utility should adapt to climate risk.

PG&E's board of directors tapped Ms. Poppe late last year, several months after former CEO Bill Johnson resigned upon seeing the company through bankruptcy. He had spent just over a year in the role, and was the person who stood in court and pleaded guilty on behalf of the company to 84 counts of involuntary manslaughter in June 2020.

Ms. Poppe signed a five-year contract, and PG&E's directors said at the time of her hiring that they hoped she would stay for longer. Mr. Flexon, who led the search for a new CEO, said that five minutes into an interview with Ms.

Poppe, he emailed the chair of the compensation committee to say he didn't need to interview anyone else. He said her willingness to leave a stable utility like CMS—and to trade the long-term stock awards she had earned there for shares in a risk-laden company—indicated to him that she was willing to stake her legacy on PG&E's future.

Mr. Flexon said her desire to attempt such a challenging overhaul reminded him of his mind-set in 2011, when he became CEO of Dynegy Inc., a former wholesale power producer in need of a culture shift as it struggled through its own bankruptcy restructuring. Ms. Poppe faces an even larger challenge in reorienting the culture of a company the size of PG&E, he said.

"That's a big job," Mr. Flexon said. "I've been through that, and I didn't have 25,000 people, two-thirds of which were unionized."

Already, some members of the company's most prominent union, International Brotherhood of Electrical Workers Local 1245, have bristled at Ms. Poppe's love-heavy approach. At first, business manager Bob Dean, the union's top officer, was among them. But he said he changed his perspective upon realizing that she has a tough edge that he sees as critical to making the difficult decisions needed to turn the company around. Internally, she has been working to implement a strict set of principles to improve the safety and efficiency of the company's processes, he said.

For Mr. Dean, a critical question is how long she stays. The rapid turnover of key executives and personnel has left the company in a lurch over the past several years, he said.

"If someone makes a decision on Tuesday, I need to know they are going to be there on Friday," Mr. Dean said.

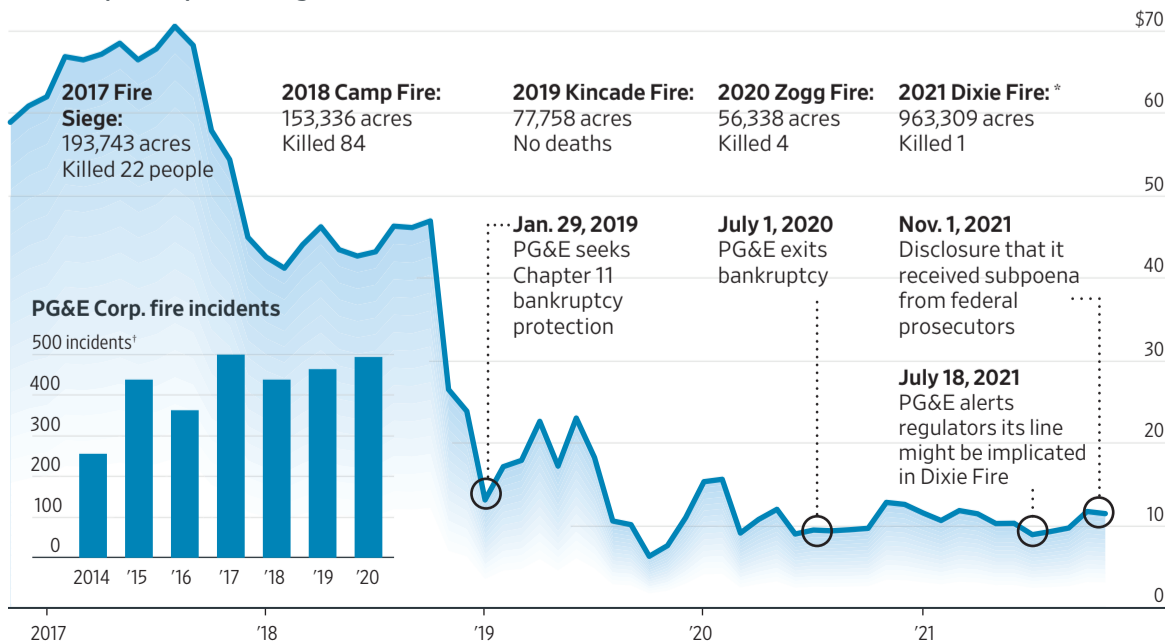
Ms. Poppe, who has hired a new cohort of executives in recent months, says she is committed to the task of transforming the company. She has lately been attending weekly operating meetings in which executives and other employees gather to discuss performance metrics, including the number of fires sparked by its equipment and progress on a number of wildfire-prevention goals outlined in an annual plan filed with the CPUC.

The company faces an acute challenge. While it has been taking a range of measures to reduce the likelihood of its power lines sparking, the risk is inherent within the system. Live wires can spark on contact with trees and produce arcs of electricity when they get too close to each other or to nearby objects. Such sparks can ignite dry trees and brush—fires that can range from small, easily contained flare-ups to large conflagrations that spread rapidly through parched forests.

At a recent meeting at PG&E's wildfire-risk command center in the Bay Area town of San Ramon, Ms. Poppe was quick to offer praise: The ignition rate in certain areas at high risk of wildfire has fallen this year as a result of technology the company has deployed on some of its power lines. But she was also quick to question the areas where the company risks falling short of its goals.

High on the ceiling, above a green "Leading with Love" sign, a banner hung: "CATASTROPHIC WILDFIRES SHALL STOP."

PG&E Corp. stock price and significant events since 2017



\*The cause of the Dixie Fire has not been officially determined. †Fire incidents include vegetation, structure and other types. Source: California Public Utilities Commission (fire incidents); FactSet (stock price) California Department of Forestry and Fire Protection (acreage)



# August 9, 2022: Weekly Operating Review Agenda

	<i>Agenda</i>	<i>Topic</i>	<i>Leads</i>	<i>Timing</i>
0	<b>Preface &amp; Introductions</b>	<ul style="list-style-type: none"> <li>▪ Room Safety</li> <li>▪ Introductions</li> <li>▪ Key Takeaways</li> </ul>	<p>██████████  <i>All</i>  <i>Andy Abranches</i></p>	5 min
1	<b>WMP Delivery</b>	<ul style="list-style-type: none"> <li>▪ WMP Target Update</li> <li>▪ In Progress Validation Update</li> </ul>	<p><i>Matt Pender</i>  <i>Jennifer Burrows</i></p>	10 min
2	<b>Idle Facilities</b>	<ul style="list-style-type: none"> <li>▪ Idle Facilities Update</li> </ul>	<p><i>Martin Wyspianski</i></p>	5 min
3	<b>Ignitions</b>	<ul style="list-style-type: none"> <li>▪ New Ignitions in HFTD</li> </ul>	<p><i>Andy Abranches</i></p>	<ul style="list-style-type: none"> <li>▪ 10 min</li> </ul>
4	<b>EPSS</b>	<ul style="list-style-type: none"> <li>▪ EPSS update</li> </ul>	<p><i>Eric Lamoureux</i></p>	<ul style="list-style-type: none"> <li>▪ 15 min</li> </ul>



# Agenda

Topic	Presenter
Safety/Action Items	[REDACTED]
SIF	[REDACTED] <b>Update on Contractor Safety Action Plan</b> <b>Rollover Deep Dive</b>
PMVI	[REDACTED] <b>CHP NOVs</b> <b>MVI Free Days</b>
DART	[REDACTED]

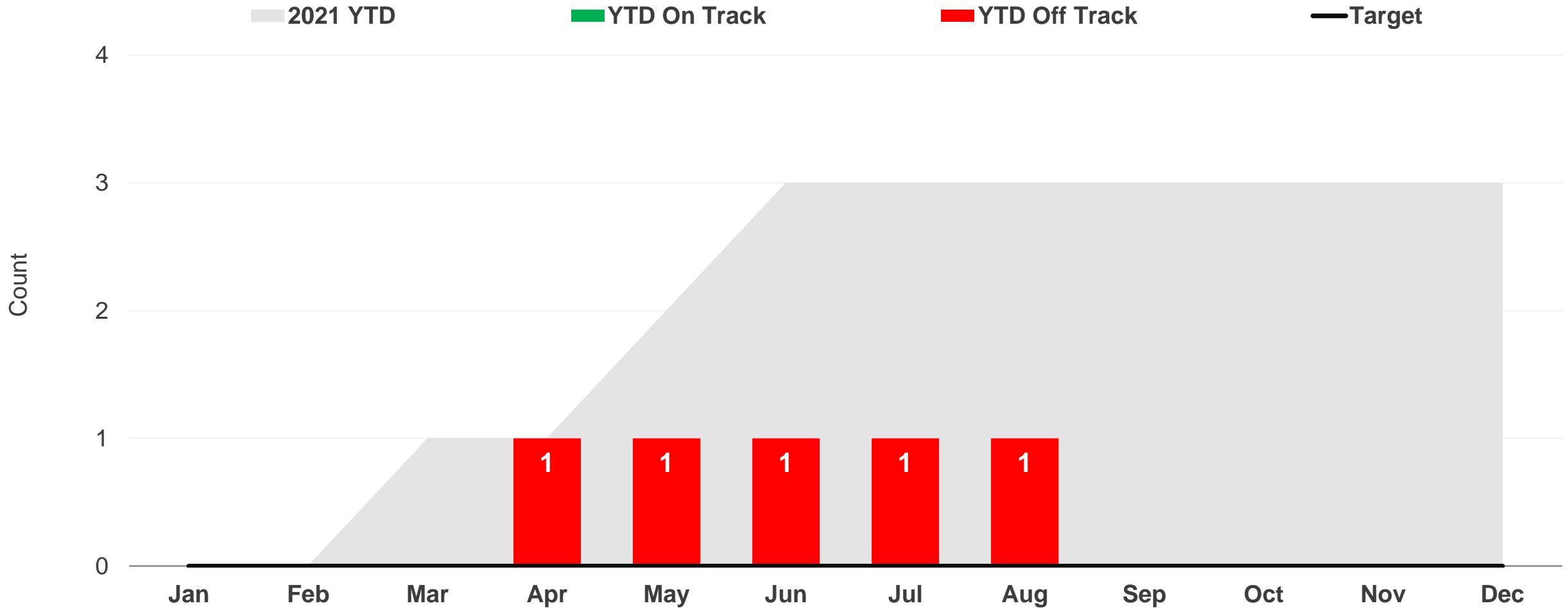


# Open Actions Items and Action Items from Last Week

Item #	KPI	Requested By	Action	Owner	Due Date	Recovery Date	Status
1	SIF	Sumeet Singh	Benchmark essential controls	Bahar Hajian	7/29	8/10	Off Track
2	PMVI	Sumeet Singh	Review feasibility and path forward to require distracted driving technology for contract partners	Jack Suehiro	8/16		On track
3	SIF	Sumeet Singh	Review Corrective Action Review Process to expedite timeline.	Natasha Rose	8/9	8/23	Off Track
4	PMVI	Bahar Hajian	Perform common cause analysis on Vehicle Rollovers	Chris P/ Natasha R	8/9	TBD	On Track
5	SIF	Scott Rose	Obtain Fleet resource(s) to provide subject matter expertise on Volcano MVI Investigation Review team	Chris P.			Complete
6	SIF	Patti Poppe	Include safety video development in Induction incident corrective action plan	Rob Stillwell			Complete



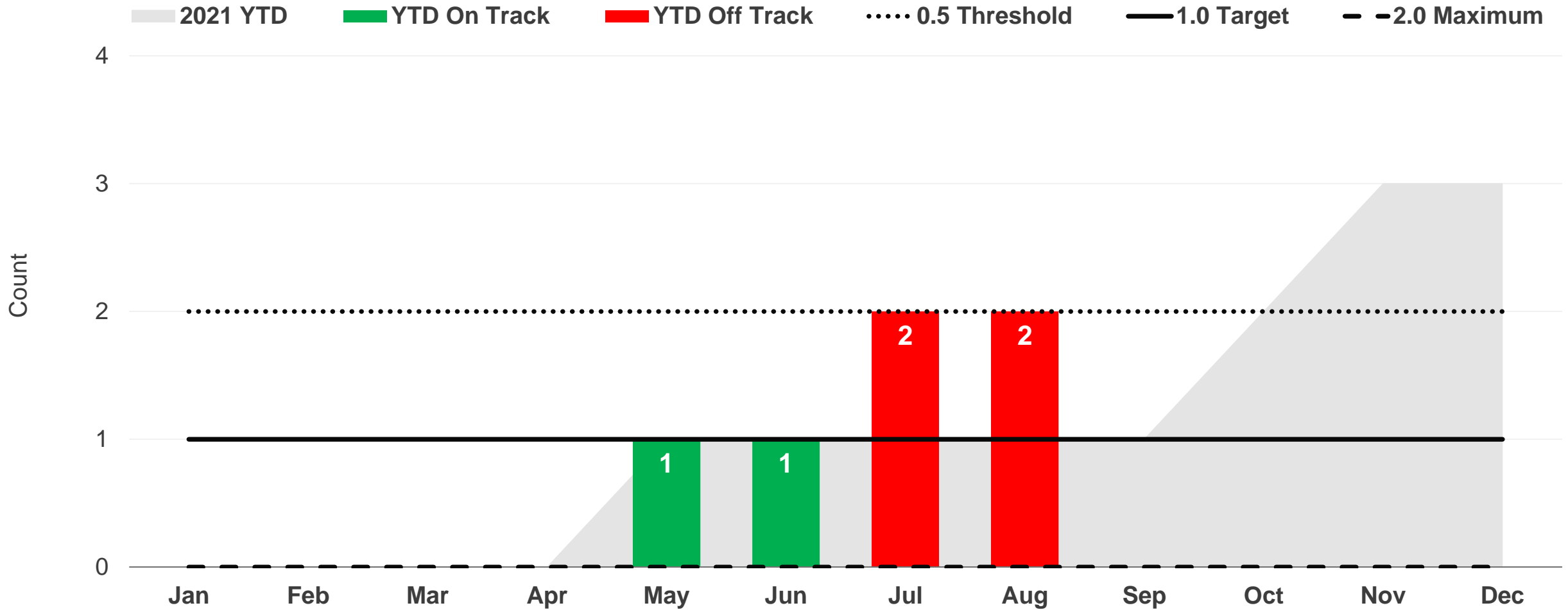
# SIF-Actual Fatal



	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
YTD Actual	0	0	0	1	1	1	1	1				
Target	0	0	0	0	0	0	0	0	0	0	0	0



# SIF-Actual Non-Fatal



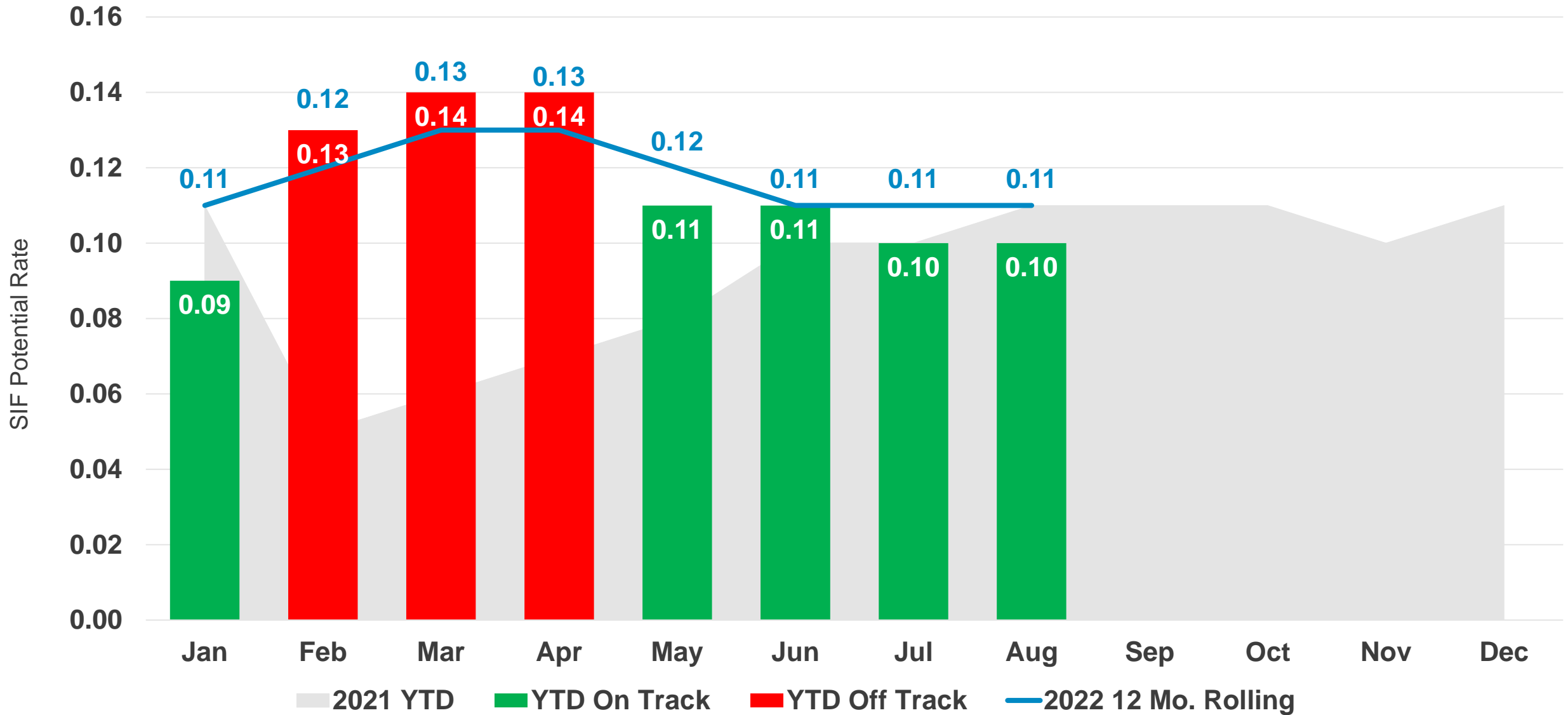
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
YTD Actual	0	0	0	0	1	1	2	2				
2.0 Maximum	0	0	0	0	0	0	0	0	0	0	0	0
1.0 Target	1	1	1	1	1	1	1	1	1	1	1	1
0.5 Threshold	2	2	2	2	2	2	2	2	2	2	2	2

Updated on 8/5/2022



# SIF Potential Trends

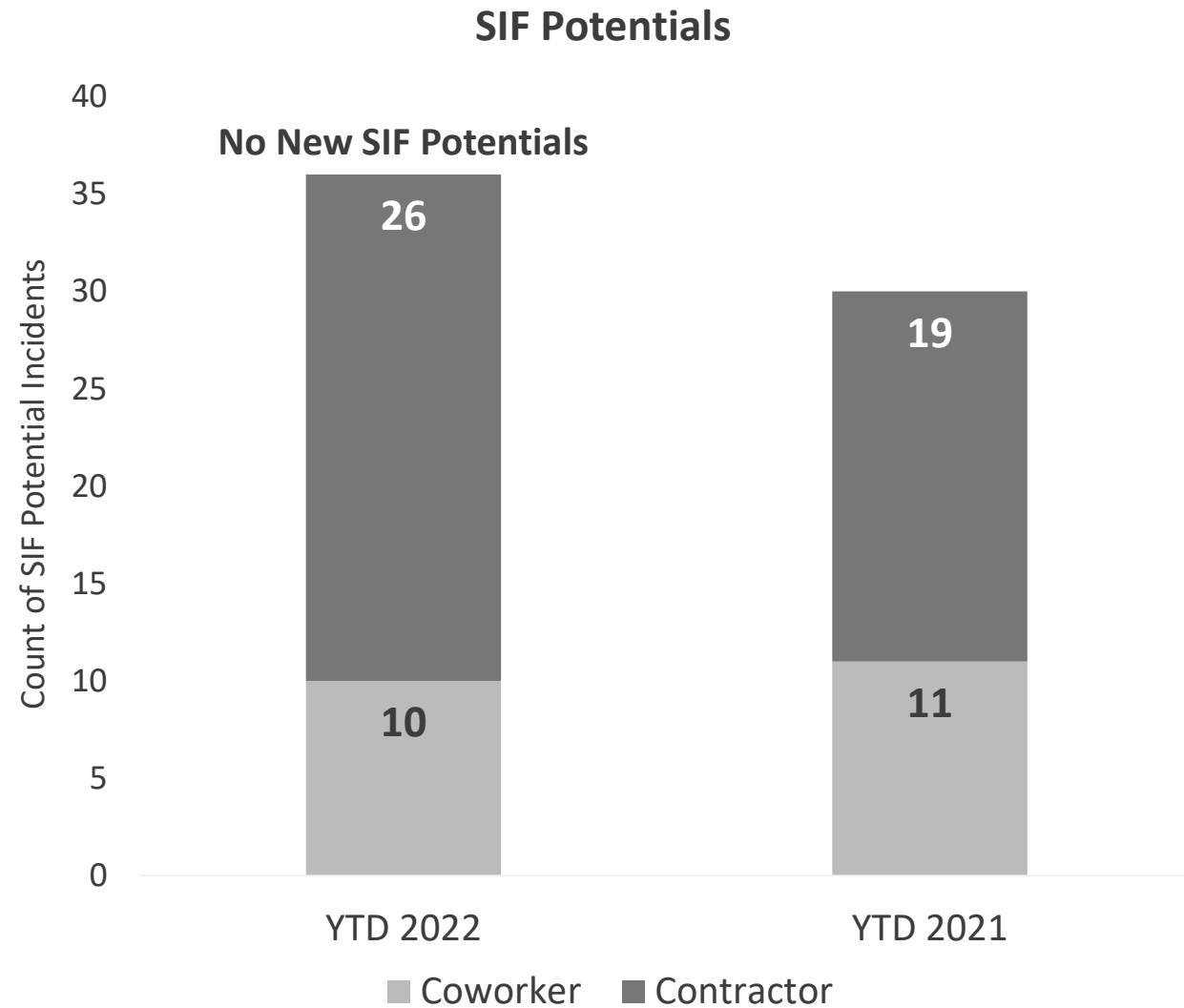
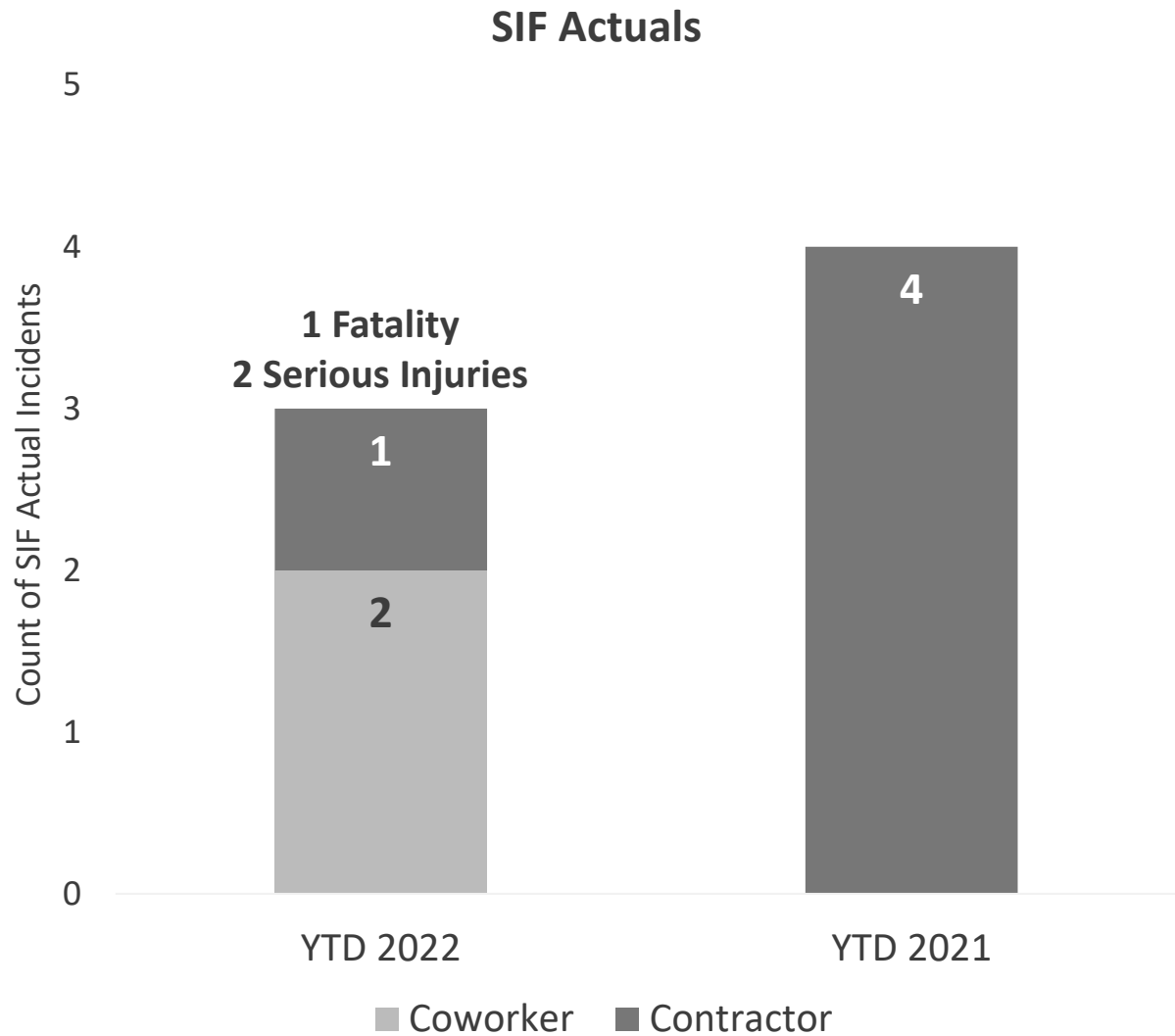
Jan 2021- Aug 2022 YTD





# SIF Incidents (Actual & Potential)

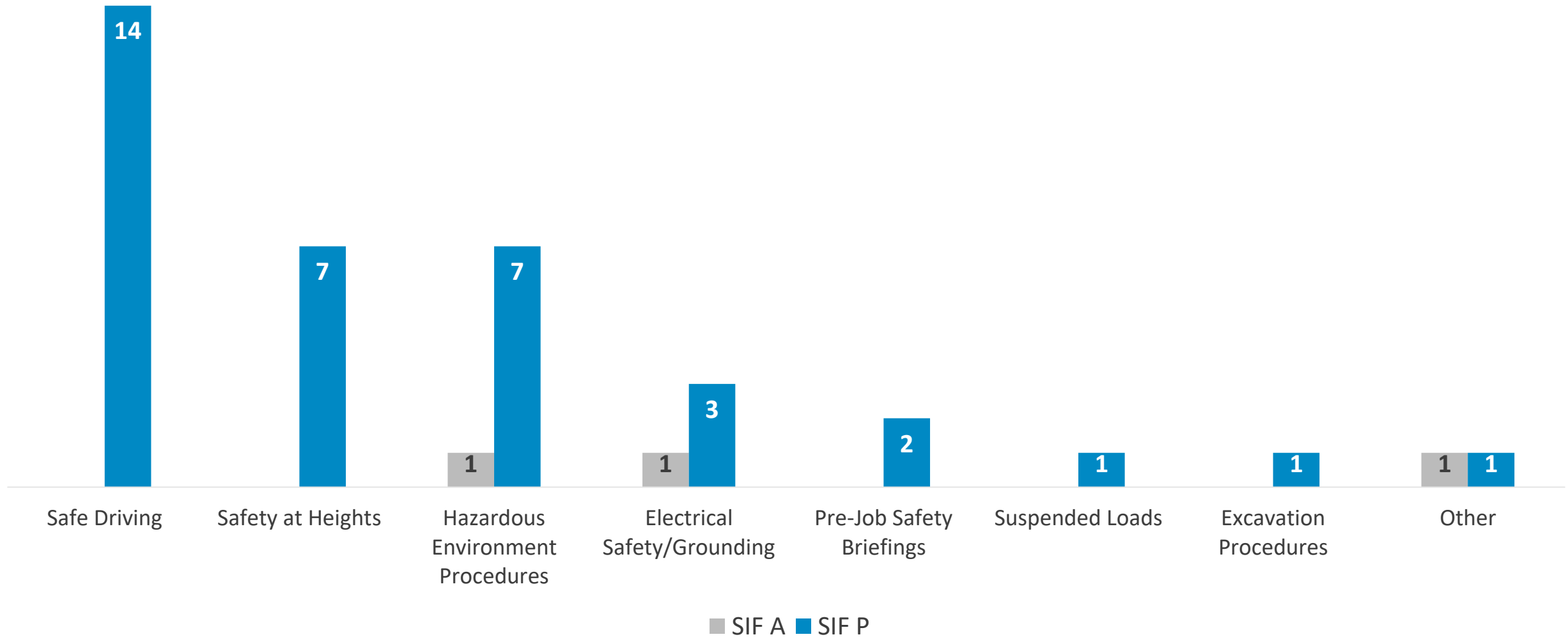
Aug 2022 YTD





# SIF Incidents (Actual & Potential) by Keys to Life

## Aug 2022 YTD



■ SIF A ■ SIF P  
**New this week (YTD 2022)**

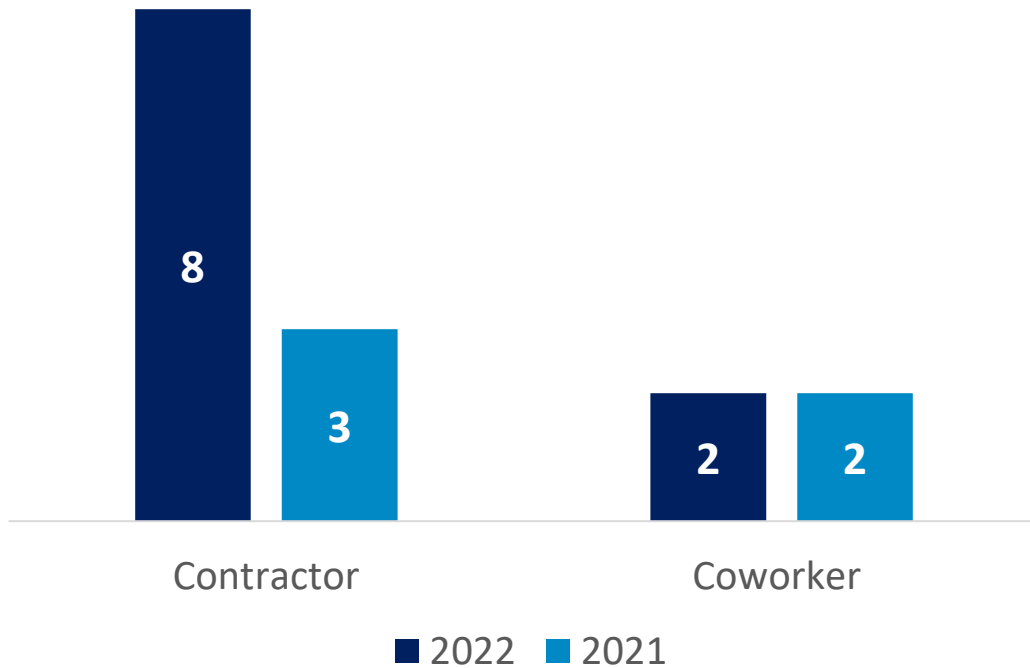
Updated on 8/5/2022





# Rollover Incidents- Jan to Jul

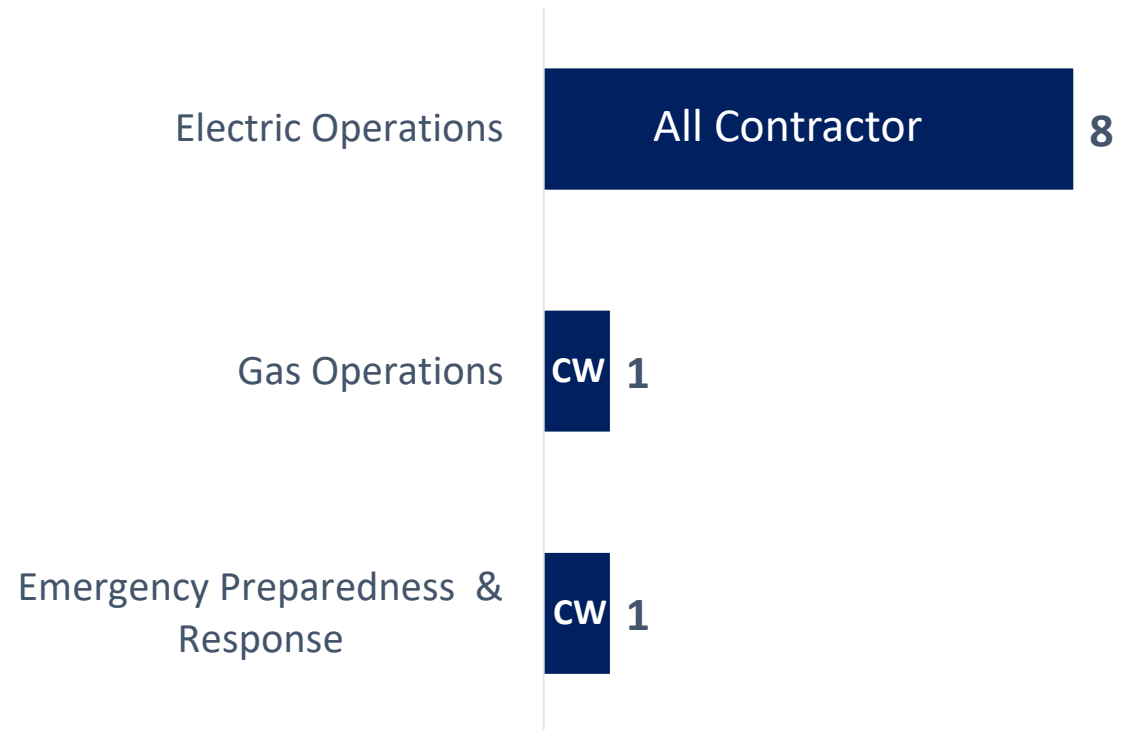
Rollover Incidents- Jan to Jul  
2021 vs 2022



*2021 EOY = 11*

*8 Contractor/3 Coworker*

2022 Rollover Incidents  
by LOB





# SIF-A: SLO Induction Incident Containment- Open

	Action Description	Action Owner	Due Date	Status
1	Develop <b>grounding assessment</b> for a representative pilot group in TLine to inform gaps on knowledge, training development and qualifications with support from Standards/Work Methods, Academy and IBEW.	Annabelle Louie	8/4/22	Complete
2	Review grounding manual against <b>OSHA regulation</b> and best practice with peer utilities.	Jeff Painter	8/5/22	Complete
3	Engage <b>DCPP</b> on Human Performance investigations and corrective measure development.	Dave Gabbard	7/25/22	Complete



# SIF-A: SLO Induction Incident Countermeasures

	Action Description	Action Owner	Due Date	Status
1	Continuing Grounding Manual updates and execute headquarter roadshows to socialize any changes to grounding procedures with support from Electric Engineering, IBEW and Electric Ops.	Joe Little	11/4	On Track
2	Develop grounding scenarios for discussion during Transmission quarterly yard visits. These scenarios will be developed in partnership with our Work Methods team and provide our crews the opportunity to test their knowledge, share their thinking behind different grounding scheme applications, and create a safe space for journeyman and apprentices to ask questions and refine their trade. We will look at other innovative ways to execute this with the help of DCP/Work Methods/Academy/EPR.	Jeff Painter	10/3	On Track
3	A verification process will be incorporated to include a “call out” process where all employees assigned to the task, “pause” and visually verify that all attachments have been made.	Joe Little	9/5	On Track
4	PG&E Transmission Line management team to update or revise the current tailboard form /LiveSafe App to incorporate a wellness check at the beginning of each shift, before performing “high risk tasks”, to ensure the employee is physically and mentally capable of safely performing the essential functions of his/her job.	Jeff Painter	9/2 subject to confirmation from IT	On Track
5	Route recommendation for standard FLS and FSS to crew ratios, including proposal for Operational Supervisor position to COO and CSO for approval via EDRS.	David Gabbard	9/5	On Track
6	Evaluate grounding skills assessment program based on findings from Los Padres Induction RCE and the results of the grounding assessment pilot.	Annabelle Louie	9/5	On Track
7	All additional corrective actions developed to mitigate root and contributing causes identified in the Los Padres Induction RCE.	Jeff Painter	8/12	On Track
8	Create and distribute video of the SLO transmission crew to share mindset around conditions that led to the induction incident and learnings that can be shared across the org.	Rob Stillwell	10/3	
9	If outcomes dictate, enhance Apprentice program and explore the development of Lineman Annual Refresher course.	Jay Randolph	12/9	On Track



# SIF-A: Livermore Helicopter Incident – Corrective Actions

	Open Actions	Owner	Due Date	Date
CAPR-1	Initiate a tracking CAP and link it in the Describe Event section and as a CAPR (CAP # 124022995 initiated). This CAP will allow for any cause findings and recommendations identified by the NTSB to be reviewed and, where applicable, to have recommendations implemented as corrective actions	John McCoy	8/30/2022	On Track
CA-1	Identify and construct a new location for an Aviation Services training facility that will support the safe operation of helicopters while conducting pilot HEC qualifications and coworker HEC training. The location must be constructed to permit operations within defined safety zones to support unanticipated helicopter malfunctions such as power loss and critical system failures and provides pilots multiple options to conduct a safe emergency landing without harm to persons or structures on the ground.	Dane Crough	12/30/2023	On Track
CA-2	Identify an interim location/facility with capacity to implement required safety zones for HEC testing/qualification and which can accommodate Lineman training prior to resuming HEC training/qualification	Jay Randolph	7/30/22	Complete
CA-3	Build out and open interim location identified in CA-2	Dane Crough	7/30/22	Complete
CA-4	Create a helicopter operations procedure for helicopter pilot qualification and coworker HEC training that incorporates coordination, notification, and defined protocols for planned pilot HEC Qualification and Coworker HEC training evolutions	John McCoy	7/30/22 New: 8/19/22	Off Track
CA-5	Perform a job hazard analysis on helicopter operations supporting pilot HEC qualifications and Coworker HEC training. Document the JHA and if needed create additional CAP actions to ensure mitigations are completed	John McCoy	12/30/2023	On Track

*\*Pending approval from Andy*



# SIF P- Mariposa Auger Injury: Immediate Actions & Next Steps

Action	Due Date	Status
Initial Incident Report developed & shared with actions (LOF, Inspection, manufacturer procedure)	07/18/22	Completed
Summit performed stand down with their crews on safe operations and inspection of auger	07/16/22	Completed
Summit evaluated auger strap	07/18/22	Completed
PG&E Safety Stand Down to inspect / verify safe operating condition of all rigging	07/27/22	Completed
SIF Team Investigation starts	07/28/22	Completed
Summit will change out fiber slings to wire	08/05/22	Complete
Confirm PG&E Auger strap standard and inspection process	07/19/22	Complete
Verifying EO Vendors inspection standards for auger strap ( fleet inspection frequency)	08/05/22	Complete
Sharing event and expectations on Contractor safety call	07/22/22	Complete
Investigation complete	08/31/22	On Track



# SIF P- Soledad Arc Flash: Immediate Actions & Next Steps

Action	Due Date	Status
Initial Incident Report shared	07/25/22	Completed
Michels Pacific shut down	07/25/22	Completed
Michels Return to work Safety Improvement plan to be submitted for review	07/28/22	Completed
Michels RTW plan approved and re-start date established	08/01/22	Complete
Enterprise Contractor Safety is conducting a Contractor Safety Quality Assurance Review	8/31/22	On Track
Enterprise Contractor Safety will perform an Effectiveness Review of Michels Safety Plans with regular check-ins and progress reports for the next 90 days.	11/01/22	On Track
Investigation complete	08/31/22	On Track



# SIF P- Volcano MVI : Immediate Actions & Next Steps

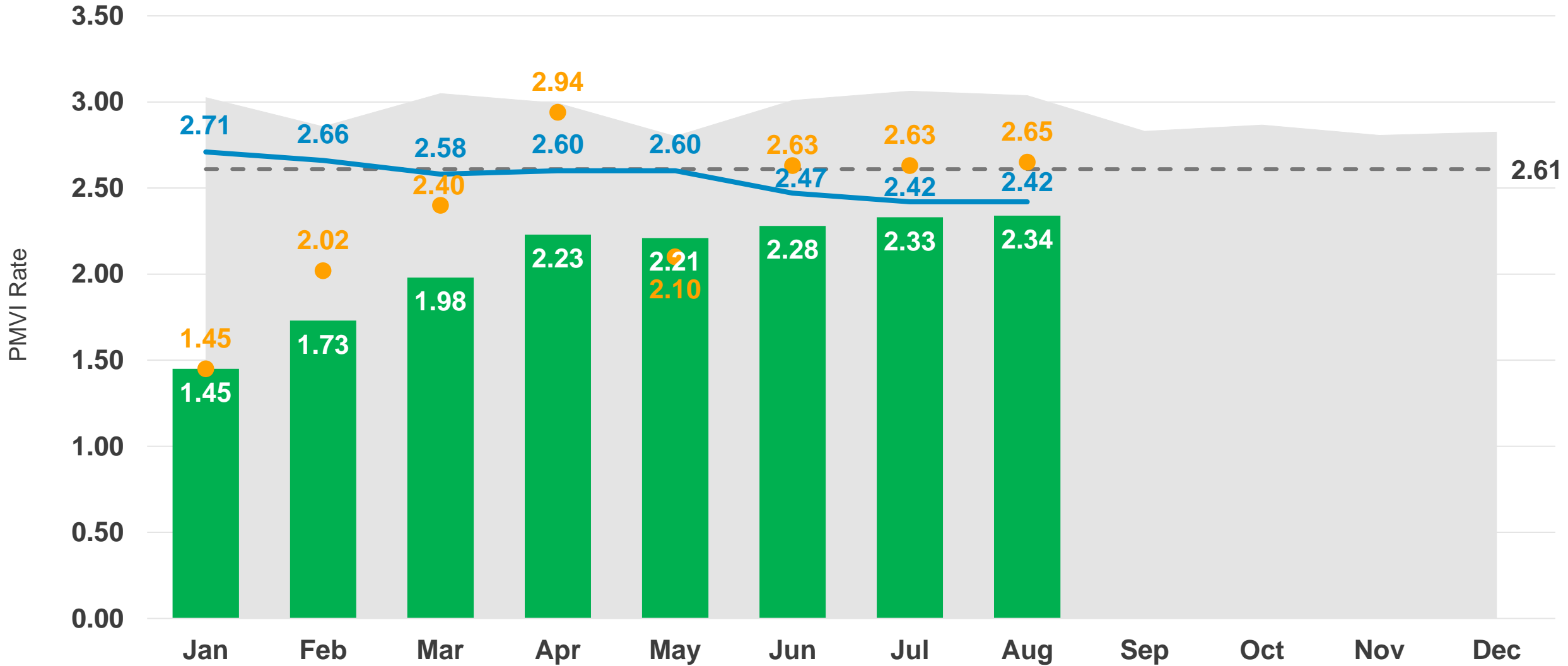
Action	Due Date	Status
ILB Stand-down held with crew on safe driving on sloped terrain	07/16/22	Completed
ILB Held Company stand- down to discuss incident and review how to avoid brake failure and what to do if brakes issues occur.	07/18/22	Completed
Initial Incident Report developed & shared with actions and sloped driving Tailboard	07/18/22	Completed
ILB evaluate brakes on vehicle	07/18/22	Completed
ILB Evaluated Driver experience, certifications and training	07/18/22	Completed
Event to be reviewed on Contractor safety call	07/22/22	Completed
Inspection of all Commercial Vehicles in ILB fleet	07/29/22	Completed
Investigation complete	08/22/22	On Track
ILB to complete Pre-Trip Inspection training, including brake inspection with all employees	09/20/22	On track
ILB to complete additional driver evaluation with all employees	01/21/23	On Track



# PMVI Trends – by Incident Date

## Jan 2021- Aug 2022 YTD

2021 YTD YTD On Track YTD Off Track – – Enterprise Target 2022 12 Mo. Rolling 2022 Monthly Actual



Updated on 8/5/2022

↓ Good (lower is better)

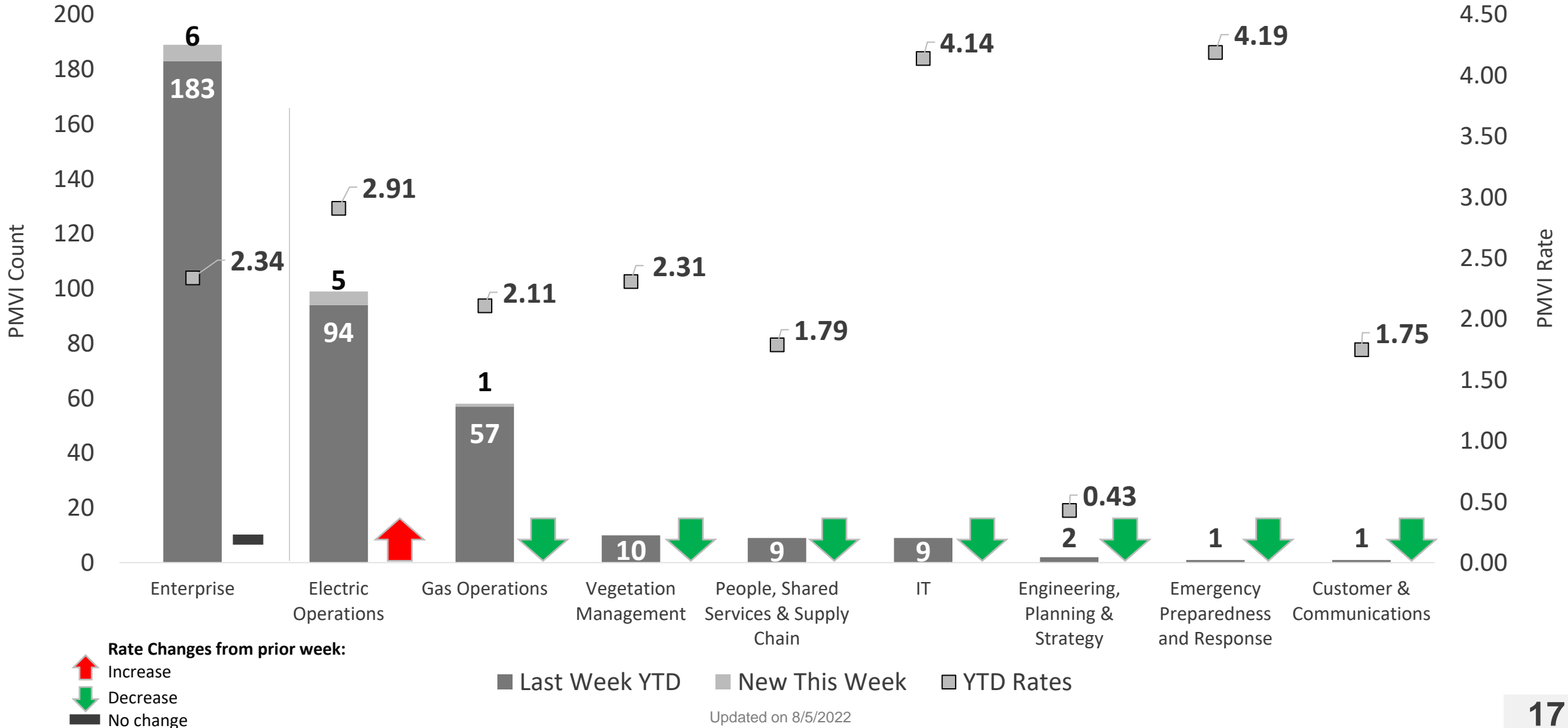




# PMVI by LOB

## Aug 2022 YTD

MVIs	2022 YTD	% of Total MVIs	2021 YTD	% of Total MVIs
PMVIs	189	43%	230	49%
Non-Preventable MVIs	253	57%	235	51%
<b>Total</b>	<b>442</b>	<b>100%</b>	<b>465</b>	<b>100%</b>
Miles	80,941,777		77,362,000	

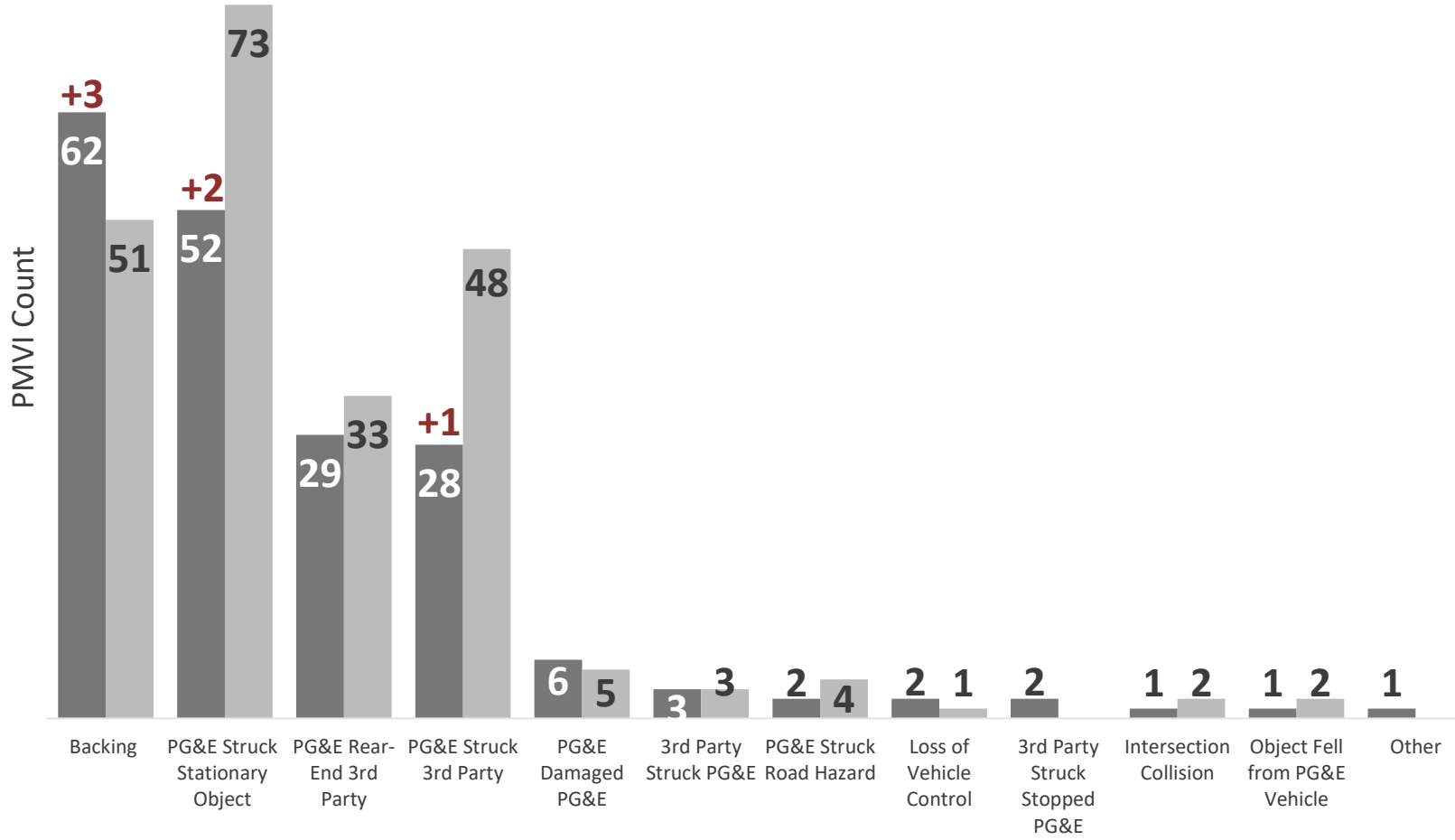




# PMVI by Accident Type

## Aug 2022 YTD

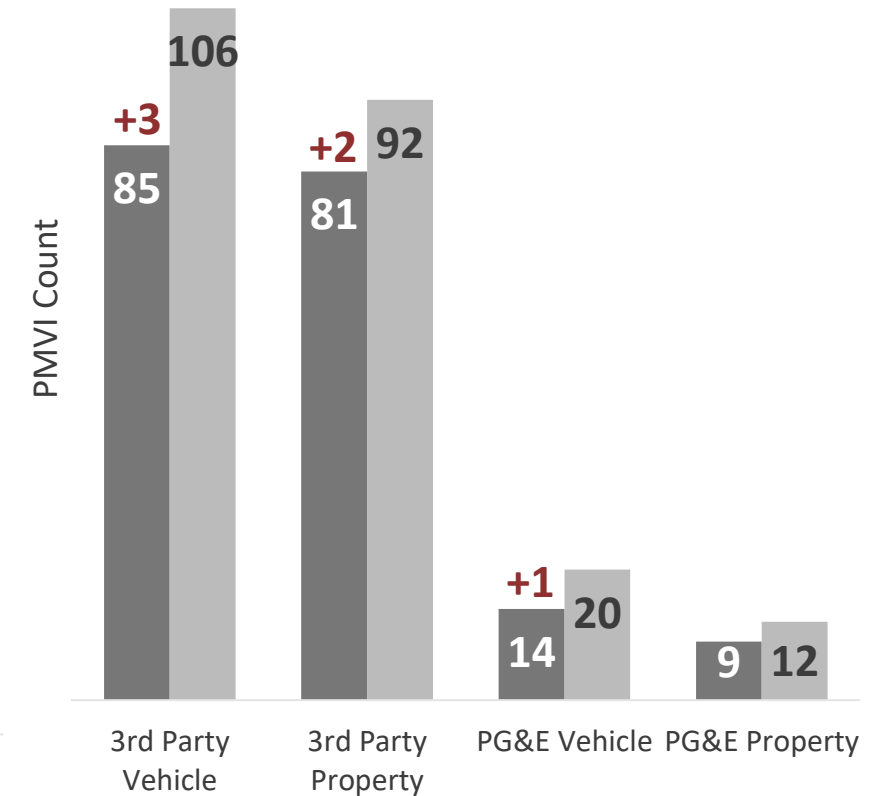
### By Accident Type



■ YTD 2022    ■ YTD 2021

**New this week (YTD 2022)**

### By Impacted Party



■ YTD 2022    ■ YTD 2021

**New this week (YTD 2022)**



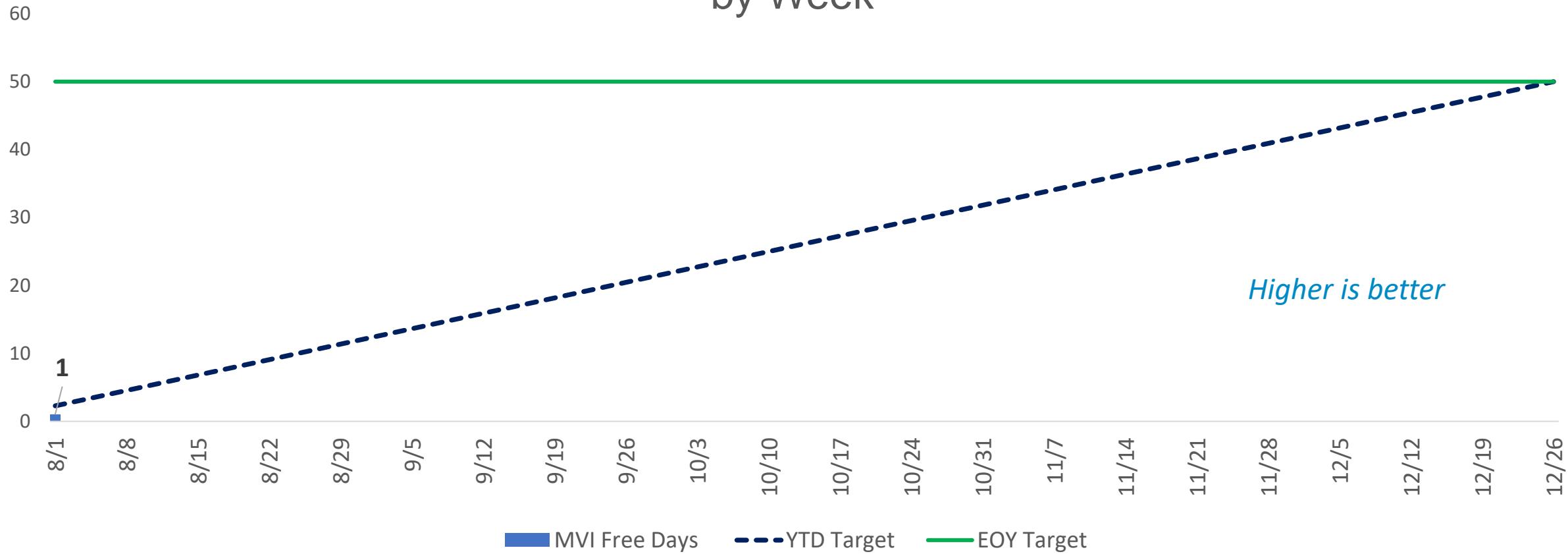
# Preventable Motor Vehicles Action Plan

	Actions	Owner	Date
1	Established daily cross functional PMVI DOR starting 5/2, previously held twice per week	Chris Piacentini	Complete
2	Establish problem solving session with Damage Prevention team	Chris Piacentini / Kevin Armato	Complete
3	Complete analysis of PMVI drivers	Lamine Akaba	Complete
4	New backing and close quarter maneuvering course	Mary Beth Mockler	Complete
5	Academy to develop reporting and provide training counts for new hires- Get support from Anabelle Louie / Learning Academy to setup Profile controls	Diane Thurman: Planning Meeting	Complete
6	New employees required to take Smith driver training in 1 <sup>st</sup> 90 days of employment; training taught in CWs vehicle		Complete
7	Smith Driver training added to all Academy apprentice programs		Complete
8	Complete additional Driving Rodeos in Electric Ops	Janisse Quinones	Complete
9	Coordinate expedited Smith Training for Coworkers	Sumeet/Annabelle	Mid August



# MVI Free Days

## MVI Free Days by Week



Higher is better

Operations Only  
Includes Preventable and Non-Preventable MVIs  
Includes Weekends

[How does SMS relate to crashes?](#)

**BASIC Status** (Motor Carrier View) ?  
 Behavior Analysis & Safety Improvement Categories (BASICS) Based on a 24-month record ending June 24, 2022

UNSAFE DRIVING

CRASH INDICATOR

HOURS-OF-SERVICE COMPLIANCE

VEHICLE MAINTENANCE

CONTROLLED SUBSTANCES AND ALCOHOL

HAZARDOUS MATERIALS COMPLIANCE

DRIVER FITNESS

INSURANCE AND OTHER

### On-Road Performance

0.05 Measure	0.01 Measure	0 Measure	0.56 Measure	0 Measure	0 Measure	0 Measure	
0% Percentile	4% Percentile	0% Percentile	3% Percentile	0% Percentile	No HM placardable vehicle inspections	Less than 5 driver inspections with violations	N/A

### On-Road Performance Detail

Driver Inspections with Unsafe Driving Violations: 19 Safety Event Group: 19-49 driver inspections with Unsafe Driving Violations Avg. PU x UF: 4,618 Segment: Straight Carrier	Crashes Included in SMS: 44 Safety Event Group: 27+ Crashes Avg. PU x UF: 4,618 Segment: Straight Carrier	Driver Inspections: 814 with HOS Compliance Violations: 0 Safety Event Group: 501+ relevant driver inspections	Vehicle Inspections: 692 with Vehicle Maint. Violations: 67 Safety Event Group: 501+ relevant vehicle inspections	Driver Inspections: 814 with Drugs/Alcohol Violations: 0 Safety Event Group: No Safety Event Grouping	HM Placardable Vehicle Inspections: 0 with HM Compliance Violations: 0 Safety Event Group: No Safety Event Grouping	Driver Inspections: 814 with Driver Fitness Violations: 1 Safety Event Group: 501+ relevant driver inspections	N/A
--	--	---	--	--	--	---	-----

### Investigation Results

No Acute/Critical Violations Discovered	N/A	No Acute/Critical Violations Discovered	No Acute/Critical Violations Discovered	No Acute/Critical Violations Discovered	No Acute/Critical Violations Discovered	No Acute/Critical Violations Discovered	No Acute/Critical Violations Discovered
---	-----	---	---	---	---	---	---



# CHP Inspections

## PACIFIC GAS AND ELECTRIC COMPANY

DBA: P G & E

U.S. DOT#: 2809687  
Address: 3401 CROW CANYON RD  
SAN RAMON, CA 94583  
Number of Vehicles: 4,618  
Number of Drivers: 6,750  
Number of Inspections: 823

## Safety Rating & OOS Rates

(As of 08/04/2022 updated daily from [SAFER](#))

Not Rated

### Out of Service Rates

Type	OOS %	National Avg %
Vehicle	5.0	21.4
Driver	0.1	6.0
Hazmat	0.0	4.5

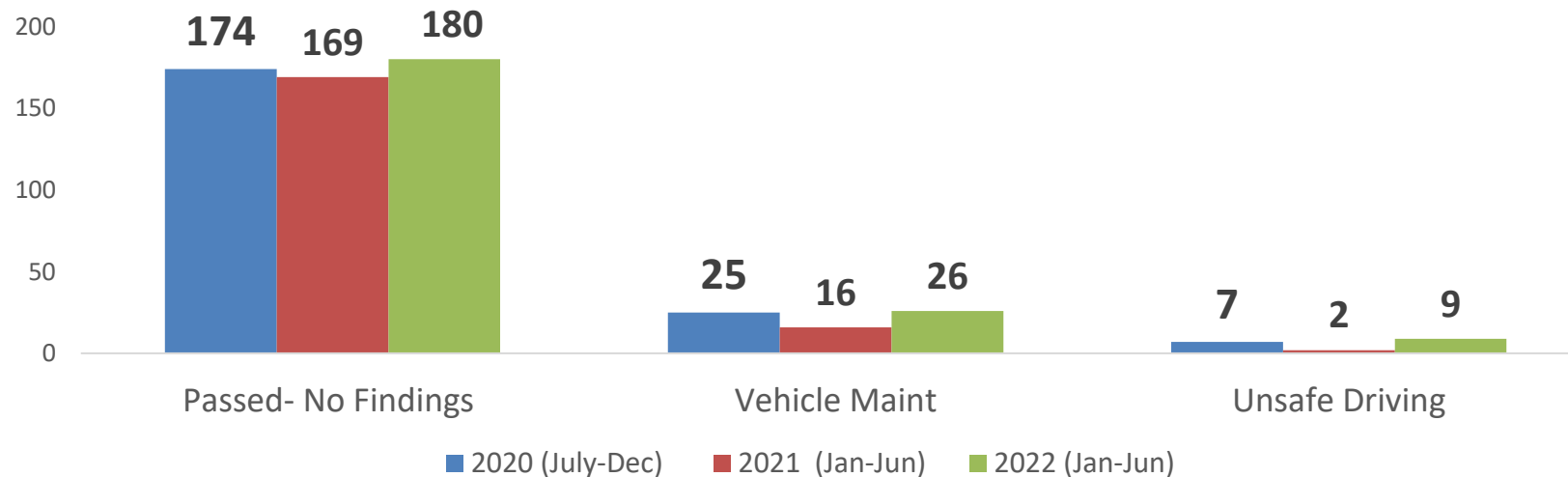
## Licensing and Insurance

(As of 08/04/2022 updated hourly from [L&I](#))

Active For-Hire Authority

Type	Yes/No	MC#/MX#
Property	No	
Passenger	No	
Household Goods	No	
Broker	No	

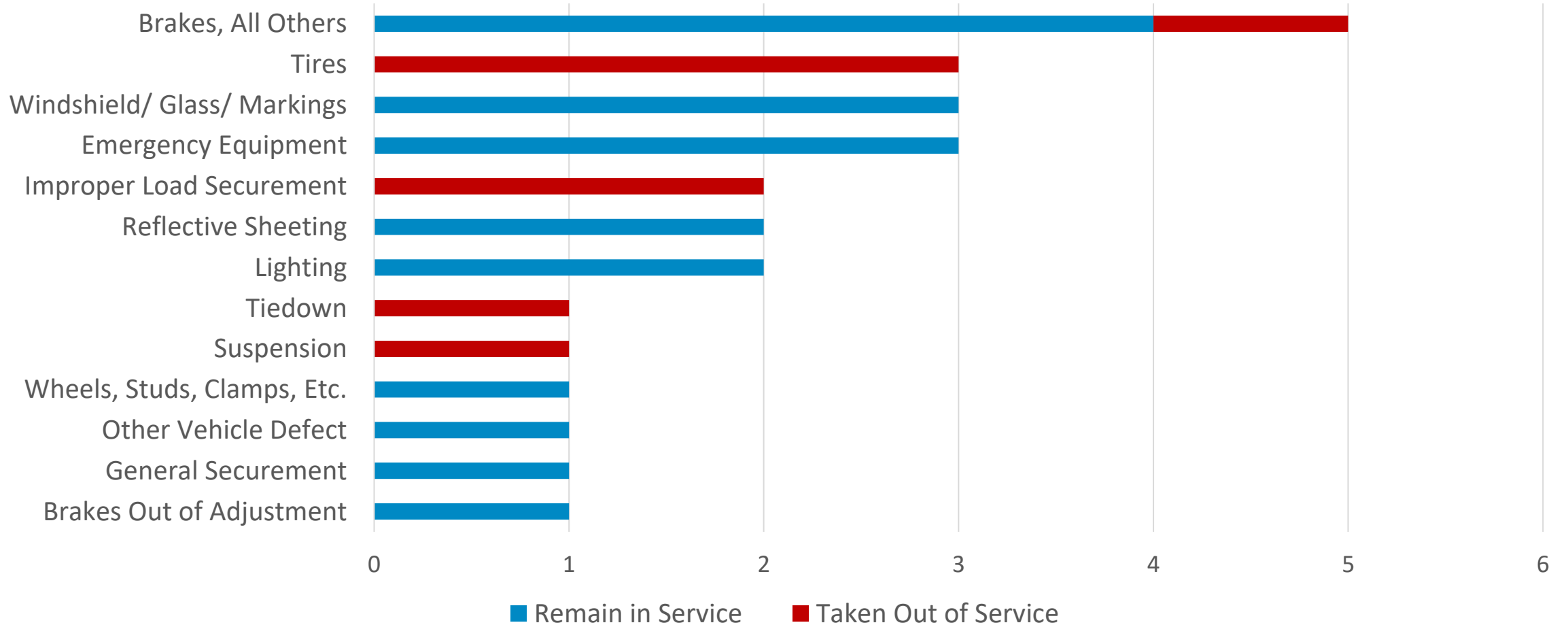
### CHP Inspection Findings by Category





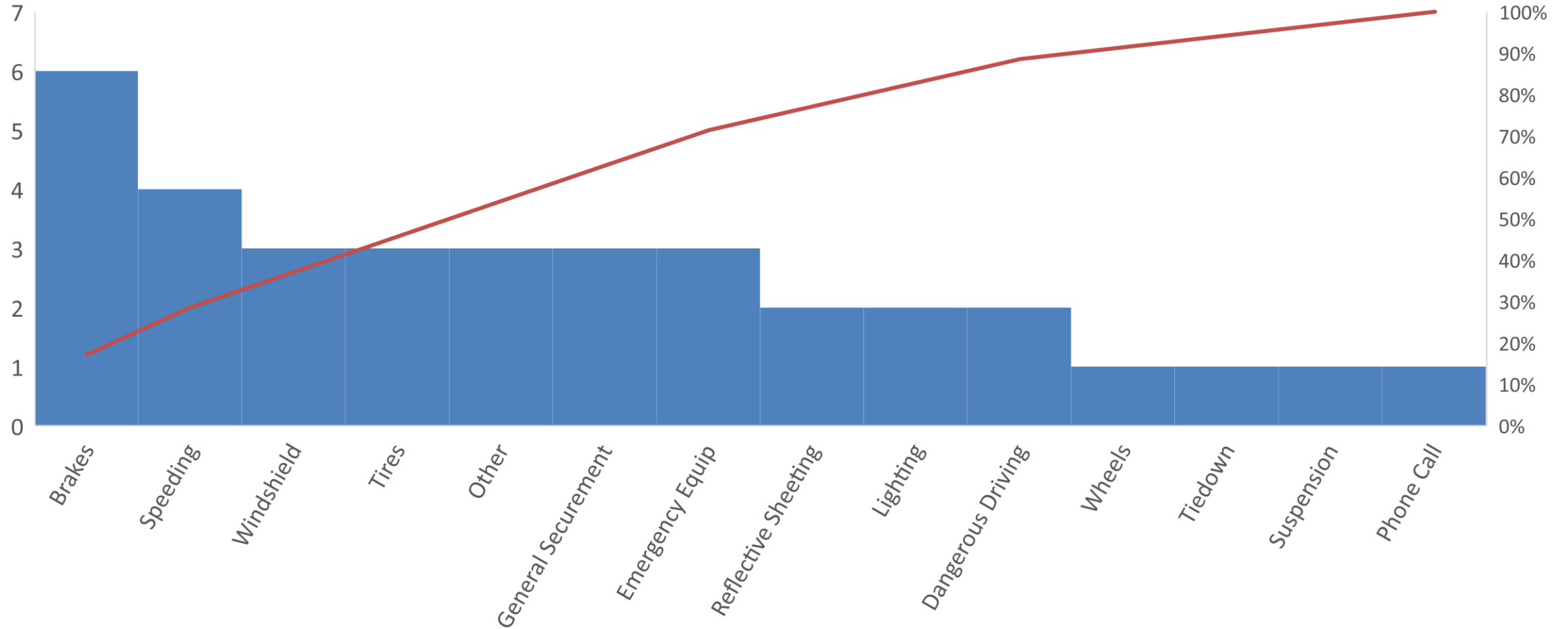
# CHP Findings

## Vehicle Maintenance Violations by Out of Service status





# CHP Findings by Type Jan- June 2022

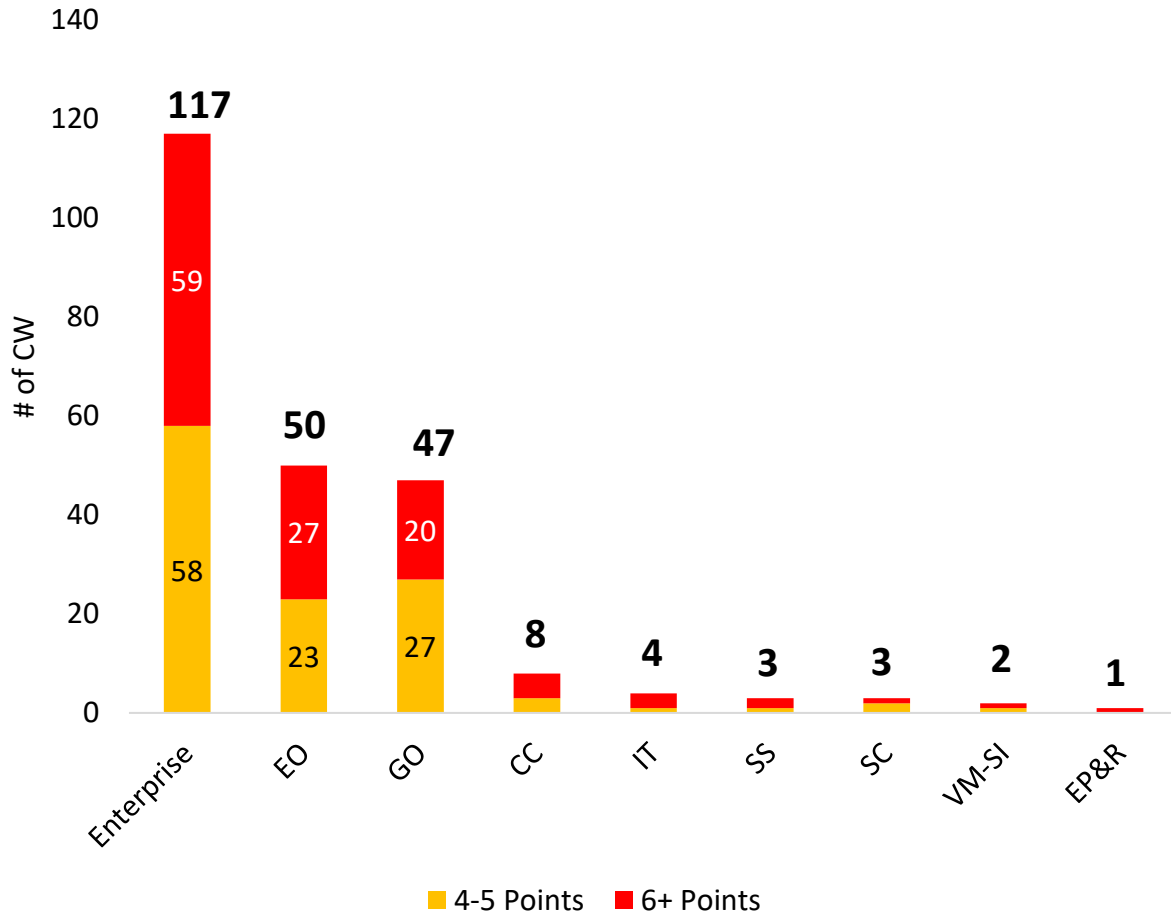




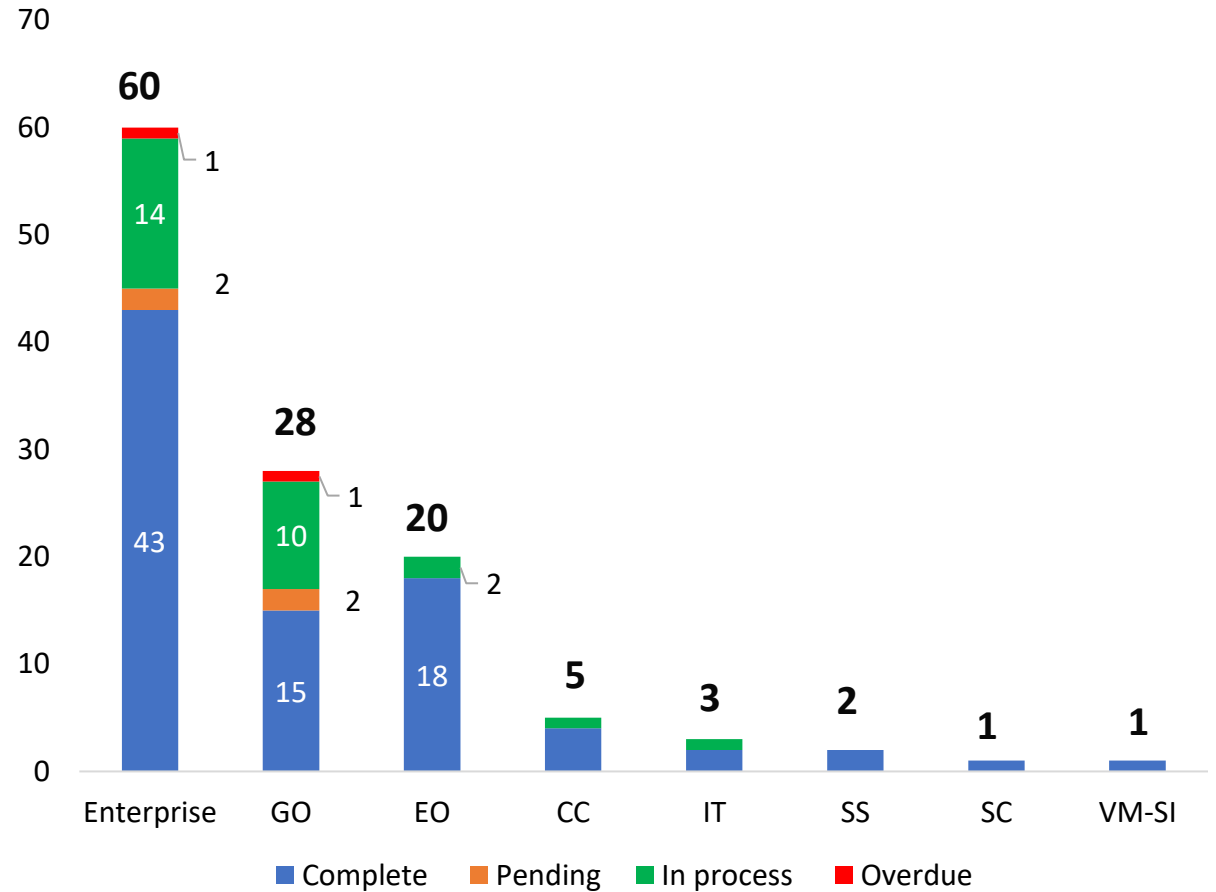


# Driver Scorecard

### Driver Scorecard- CWs with Amber/Red Status Week ending 7/29



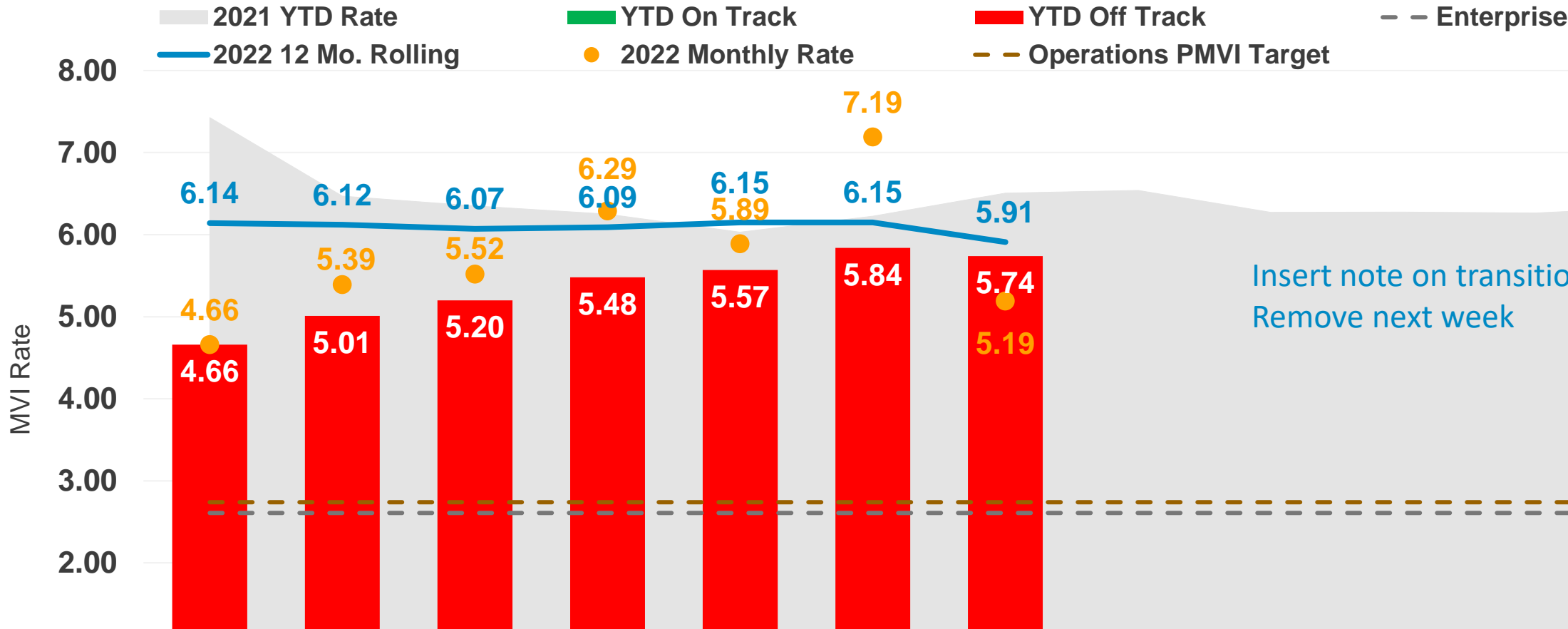
### Driver Scorecard Action Plan Status Week ending 7/29



Action plan required for any co-worker with 6+ points on driver scorecard

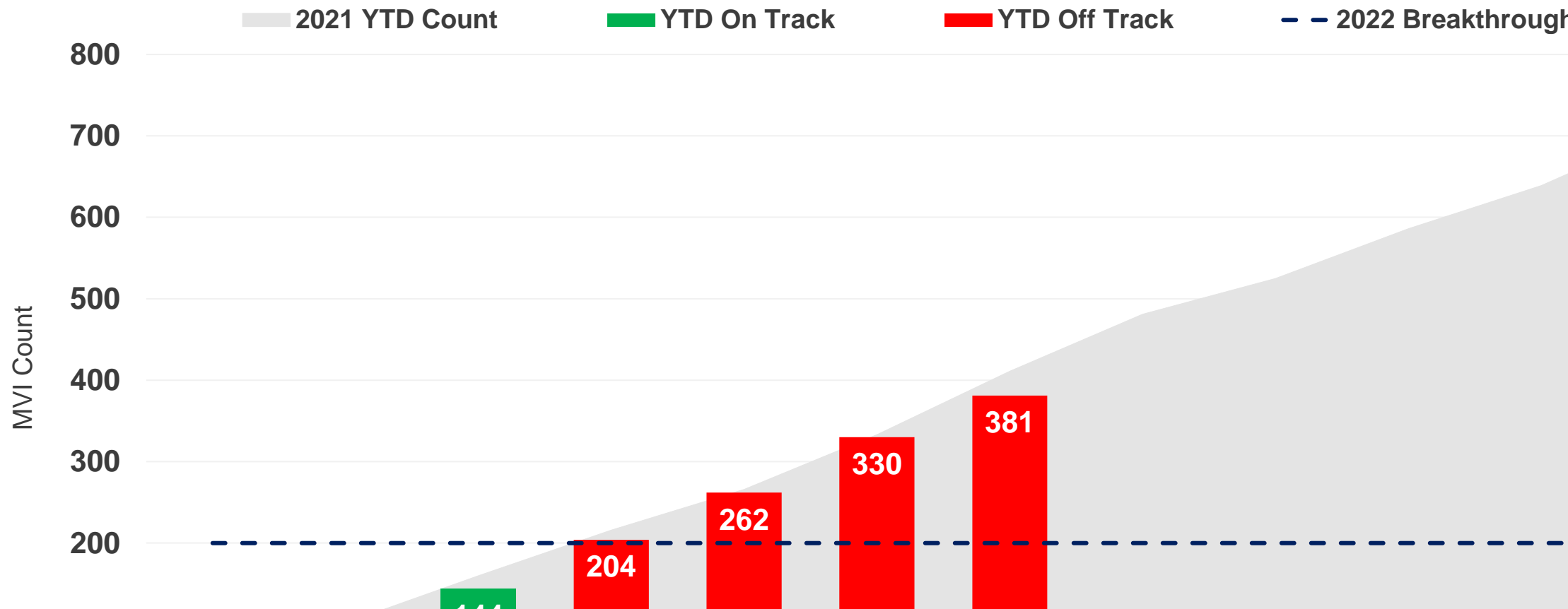


# Operations MVI Trends (Preventable and Non-Preventable) by Incident Date





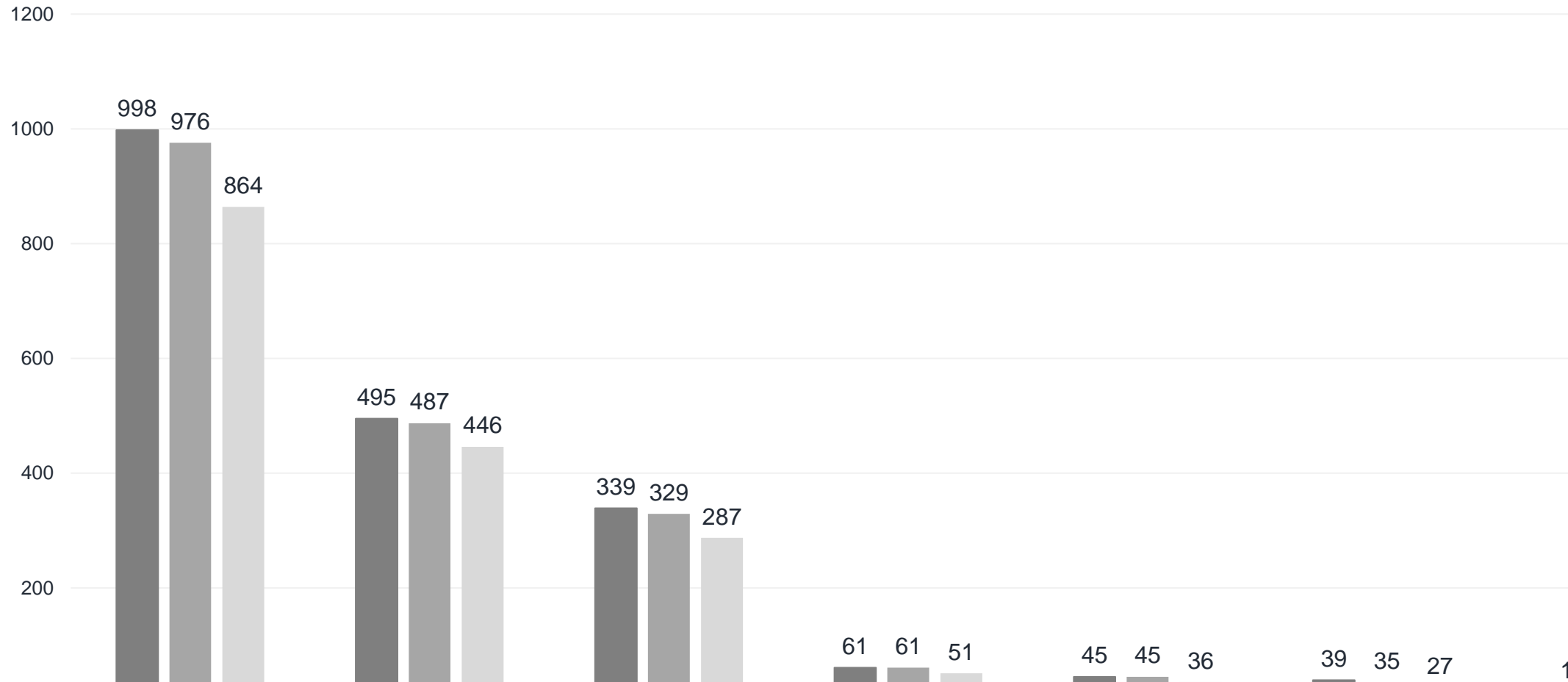
# Operations MVI Trends (Preventable and Non-Preventable) by Incident Date





# TRUCE Device Summary

Aug 2022 YTD





# TRUCE Dashboard Data – 43 Days

Reporting Period: 6/25

## Protected Group



Distraction Frequency  
**30 Miles**

Registration Rate = 99%

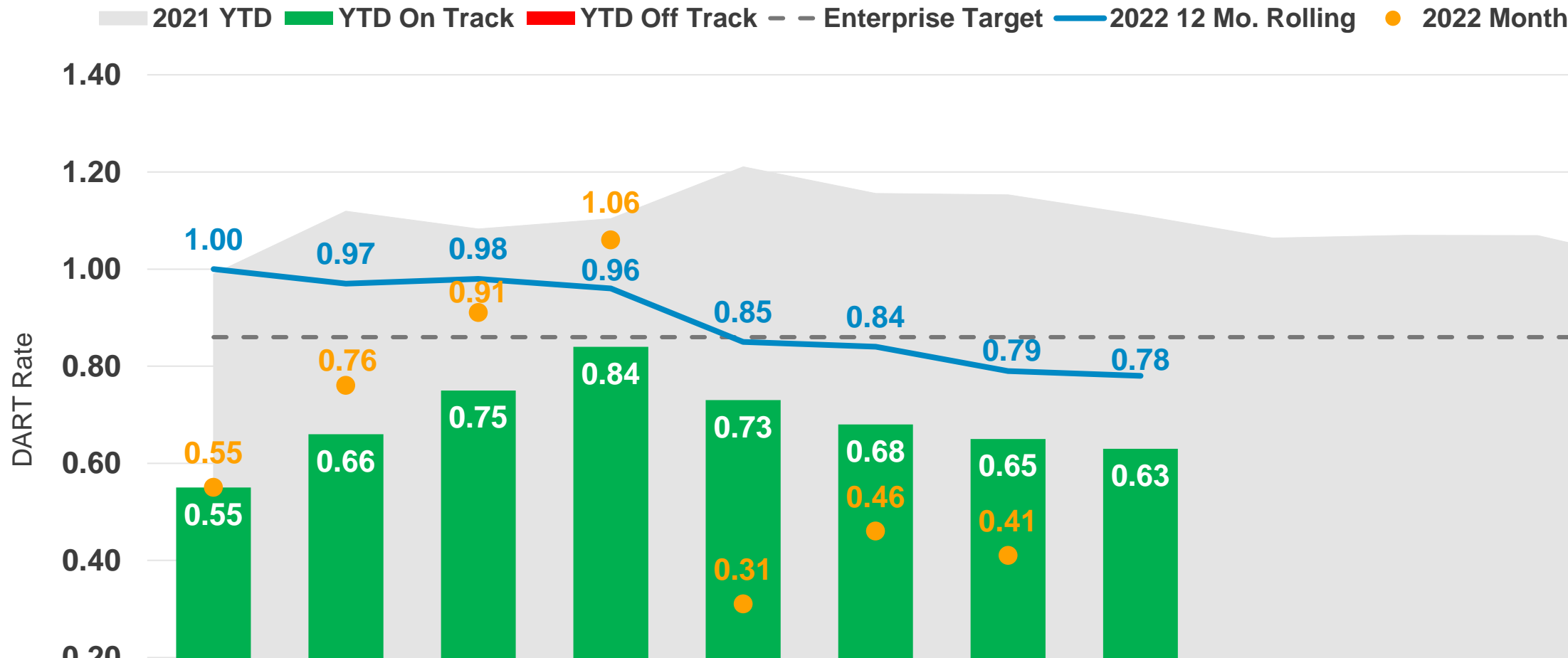
<b>Sessions</b>	<b>127,347</b>
<b>Miles</b>	<b>1,360,118</b>
<b>Hours</b>	<b>64,151</b>
<b><u>Calls</u></b>	
Allowed	<b>461</b>
Suppressed	<b>11,058</b>
Talk Time	<b>29hr 50min</b>
<b><u>Inbound Text</u></b>	
Allowed	<b>0</b>
Suppressed	<b>35,951</b>
<b><u>App Usage</u></b>	
Allowed	<b>33,306</b>





# DART Trends – by Incident Date

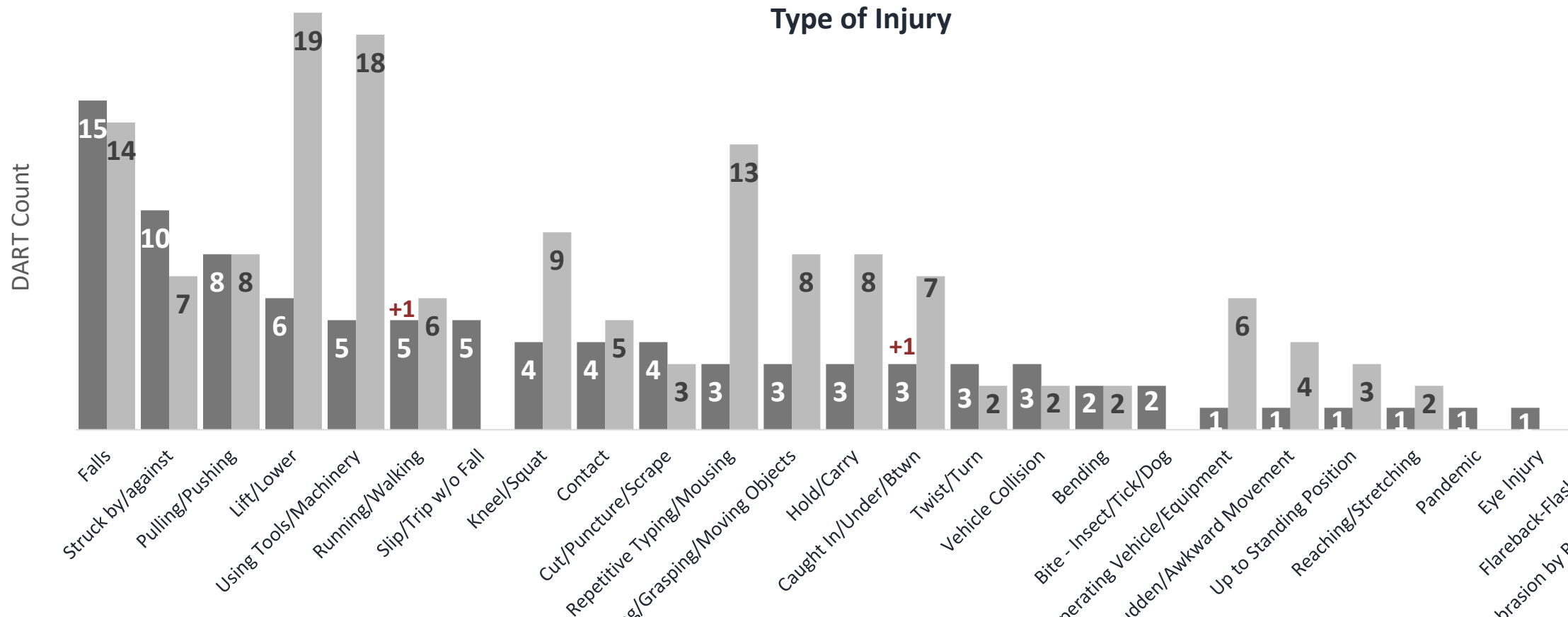
## Jan 2021- Aug 2022 YTD





# DART: YTD 2022 to YTD 2021

## Aug 2022 YTD





# SIF Actuals YTD

## Jul 2022 YTD

SIF Actuals - YTD through 7/22/22						
LOB	CAP #	DOI	Description	PG&E or Contractor	City	Region
Gas Operations	123493078	4/29/2022	During a Hydrotest at 4200 Hwy 29 in Calistoga two coworkers were injured. The team was in the middle of hydrotest project and were in process of drying the line. They were placing foam pigs through the launcher to the receiver to dry the line. One of the pigs became stuck somewhere in the line. The pig receiver door was opened, pig released and struck the two employees who were standing at the receiver. <b>1 Coworker Fatality</b>	PG&E	Petaluma	North
Aviation Services	123573456	5/11/2022	Around 10 a.m., a Bell 407 helicopter owned by PG&E contract partner Guardian Helicopters crashed while participating in a Human External Cargo qualification exercise. The flight crew consisted of two people: the pilot, our contract partner from Guardian Helicopter, and an Aviation Operations Specialist, our coworker, who was on a line attached to the helicopter. Both the pilot and the specialist were transported to area hospitals following the incident. Our coworker has been released from the hospital; the pilot remains hospitalized. There were no injuries to people on the ground. <b>1 Contractor Serious Injury</b>	Guardian Helicopter	Livermore	Bay Area
Electric Operations	124008095	7/5/2022	On Tuesday July 5th a PG&E T-Line M&C crew was working on the Diablo-Mesa 230kV (structure X010/042) reinsulating a 230kV dead-end tower. The crew was in the process of cutting in new jumpers when an employee got in series and suffered electric burn to both hands. A co-worker was able to disengage the employee and no others sustained injuries. The injured employee remained conscious and was transported by helicopter from the tower to the landing zone. <b>1 Coworker Serious Injury</b>	PG&E	San Luis Obispo	South Bay Central

No New SIF Actuals





# SIF Potentials YTD

## Jul 2022 YTD

SIF Potentials - YTD through 7/28/22						
LOB	CAP #	DOI	Description	PG&E or Contractor	City	
Electric Operations	122563803	1/6/2022	While in the process of changing the cross-arm, the pole failed at ground level, fell down hill with both contractors attached at cross arm level. The pole made contact with downed trees before hitting the ground. Sustained Injuries	Wilson Construction Company	Colfax	N
Electric Operations	122595260	1/7/2022	A INTREN crew was performing storm restoration work on the Shady Glen 1102. The crew worked in an area that required the vehicle to utilize its four-wheel drive for most of the day. The crew finished up work and started traveling out of the work site. The driver and one passenger started down Norton Grade Rd, which is a paved road. As the driver rounded a corner onto Glen Alder Rd, the front tires of the single bucket F550 grabbed on the asphalt surface pulling the vehicle to the right side, off the paved surface and into a catch basin. When the vehicle left the paved surface, it rolled to the passenger side, made one full rotation before coming to rest on its wheels in about 4ft of water. No injuries to either occupant of the vehicle.	INTREN	Colfax	N
Veg Mgmt	122796081	1/20/2022	The contractor was trimming a 55-foot LIVE OAK tree. For work positioning, he was in the adjacent 51-foot LIVE OAK tree and while trimming, the tree that contractor was in, fell slowly to the ground.	Mountain F. Enterprises	Somerset	N
Electric Operations	122886868	1/22/2022	UCCO Subcontractor Statewide traffic control had a near- miss. Traffic control flagger was returning from a lunch break, walking down the sidewalk. The driver of a Statewide pickup truck (Co-Worker) was decreasing the traffic taper by removing cones. The flagger stepped off the sidewalk and walked behind the truck towards her traffic control station. The driver of the traffic control truck began backing up. Contact was made between the backing pick-up and the flagger, knocking flagger to the ground. Driver of vehicle stopped. Flagger recovered from the ground stating she was fine and has no injury. UCCO dispatched On-Site Medics to scene for a wellness check and drug screening. No injuries found.	Underground Construction Co., Inc.	Paradise	N
Electric Operations	122950112	2/3/2022	A four-man crew was tasked with changing out a cross arm on a steel transmission pole with 12kv under build . The preform contacted the steel pole above the rubber on the pole causing an arc flash. No sustained injuries.	PG&E	Woodland	N
Power			Contractor returning from break accessed the Helms Unit 3 runner using a two-level temporary access platform to retrieve a used battery from their light located inside the work area at runner vane #1. After retrieving the battery, the			



# SIF Potentials YTD

## Jul 2022 YTD

SIF Potentials - YTD through 7/28/22						
LOB	CAP #	DOI	Description	PG&E or Contractor	City	R
Veg Mgmt	122970032	2/8/2022	A crew was removing trees along a creek bank when a tree log that was being pulled hit another piece of wood causing crew members to clear the area. One contractor slipped and fell approximately 6 -7 ft. into the creek bed below. Sustained Injuries.	Family Tree Services	Healdsburg	No
Electric Operations	122987678	2/15/2022	A contractor driving a bucket truck veered onto the shoulder. Over-correcting, the bucket truck went into the opposite lane. This resulted in a third-party fatality and two other third-party motorists hospitalized. No physical injuries to the contractor.	MGE Underground, Inc.	Moss Landing	S an
Gas Operations	123024071	2/22/2022	GSR performing gas turn on at a commercial building. CW used ladder to get to top of interior roof and relight first appliance. When attempting to light the second appliance, CW stepped to second roof structure however this one was only dry wall and CW fell through approximately 8'. Minor injuries	PG&E	Menlo Park	E
Veg Management	123033059	2/24/2022	Bucket truck was driving along a paved road into a tight turn when the truck flipped on its side. No injuries were sustained by either the driver or the single passenger.	Rancho Tree Service	Nicasio	No
Electric Operations	123035808	2/28/2022	A PWLC distribution crew was tasked with changing out two wood arms and installing cutouts. The foreman was on the bucket truck platform communicating with the lineman. When he made the turn to step down off the step, his right foot got stuck on the grating. He lost his balance, then fell to the ground landing on the left ankle.	PAR Western Line Contractors, LLC	Bakersfield	
Electric Operations	123062956	2/28/2022	Crew was utilizing a helicopter to remove burnt poles/materials. As the helicopter was coming into the LZ to set down a burnt pole, the crossarm fell off and landed in close proximity to the lineman handling the load on the ground. No sustained injuries.	International Line Builders	Tobin	No anc



# SIF Potentials YTD

## Jul 2022 YTD

SIF Potentials - YTD through 7/28/22						
LOB	CAP #	DOI	Description	PG&E or Contractor	City	R
Electric Operations	123061869	3/7/2022	After completion of work, employee lifted outriggers and bucket truck rolled down hill backward and hit a tree.	Henkels & McCoy	Eureka	Non
EP&R	123110950	3/15/2022	CW veered off roadway onto right shoulder causing a low-speed rollover. Sustained injuries.	PG&E	Shaver Lake	Cent
Gas Operations	123212343	3/29/2022	CW was cutting conduit with reciprocating saw. Due to a miscommunication, employee began cutting through an energized line, resulting in a line strike. No sustained injuries.	PG&E	Paradise	Non an
Veg Management	123208837	3/29/2022	Performing brush trimming and removal under a distribution line, employee moved a primary wire with his hand resulting in a shock. Preliminary – No sustained injuries	Family Tree Services	Hopland	Non
Veg Management	123229505	3/30/2022	A 3-man bucket crew was driving a truck over the fog line preparing for potential oncoming traffic. The truck struck a guard barrier. Recorrecting caused loss of balance of the vehicle which resulted in a tip over.	Rancho Tree Service	San Rafael	Non
Gas Operations	123243630	3/31/2022	CW hit a guard rail and flipped the PG&E vehicle onto its side.	PG&E	Kettleman City	Cent
Veg Management	123256735	4/5/2022	A chip truck rolled approximately 186' downhill striking a pickup truck and then went off a steep ledge striking a stump. The truck rolled onto its passenger side, sliding approx. 50' until coming to a stop. No sustained injuries.	ACRT	Calistoga	Non
Electric Operations	123261402	4/5/2022	CW was ascending a ladder and it slid against the gutter causing them to fall 8-10 feet to the sidewalk below.	PG&E	Fresno	Cent
Electric Operations	123262884	4/6/2022	CW was setting up a pole, and while looking for a tool, fell into the hole causing an injury to their right abdomen and left knee.	PG&E	Brentwood	Ba



# SIF Potentials YTD

## Jul 2022 YTD

### SIF Potentials - YTD through 7/28/22

LOB	CAP #	DOI	Description	PG&E or Contractor	City	Region
Veg Management	123434582	4/26/2022	During the back cut on an oak tree, the spar split horizontally pulling down on CW's lanyard and pulling him towards the tree. The piece snapped off releasing the pressure. No injuries	Arbor Works	Igo	North Va Sier
Gas Operations	123433871	4/26/2022	PG&E co-worker was purging a 2" plastic main utilizing a 1" plastic pigtail at a purge point inside an excavation. While purging, gas had ignited causing burns to the employee's hands and face.	PG&E	Marina	South B Central
Electric Operations	123434063	4/26/2022	Groundman was driving a digger derrick, towing a trailer loaded with a back yard machine on a curvy, steep, rural road. The driver reportedly stated that he experienced brake failure, ran the truck up an embankment on the driver side, and the truck tipped over and landed on the passenger side.	Edison Power Constructors	Cloverdale	North
Veg Management	123636496	5/16/2022	On 5/16/22, a contract crew was removing a 90 ft high pine tree, which included an 11 ft section two spars, utilizing rope rigging. The climber placed a notch cut in the front spar and a back cut in the back spar. The back cut went through the back spar it fell in an unintended direction. The spar hit the arborist resulting in a broken leg, broken finger and some scrapes.	Arbor Works, Inc. (Prime) Ace Tree Enterprises Inc. (Sub)	Brownsville	North Va Sier
Gas Operations	123843458	6/14/2022	While marking a pipe after post welding activities, a CW was struck on the back of their head by the telehandler. The coworkers were in the process of placing their stamp on the welded piping when the telehandler boom came down and struck the CW.	PG&E	Gerber	North Va Sier
Electric Operations	123893247	6/16/2022	A PWLC transmission crew had completed night work and were headed back to the Red Bluff yard. Approximately 1 mile from the yard, the Journeyman Lineman (JL) driver of the flatbed truck dropped a water bottle. He looked down and was reaching to retrieve it. When he looked up, he saw that he was in the oncoming lane and at the shoulder. The soft shoulder was steep, and he was unable to recover. The truck contacted a rocky embankment and came to a stop. The truck remained upright but the water buffalo being towed rolled onto its roof. The driver was restrained and self-extricated. There were no injuries and no other vehicles involved.	PAR Western Line Contractors, LLC	Red Bluff	North Va Sier
			A M55 2010 5.550... (G11-660) ... 2020 12" M... (G112-06)			



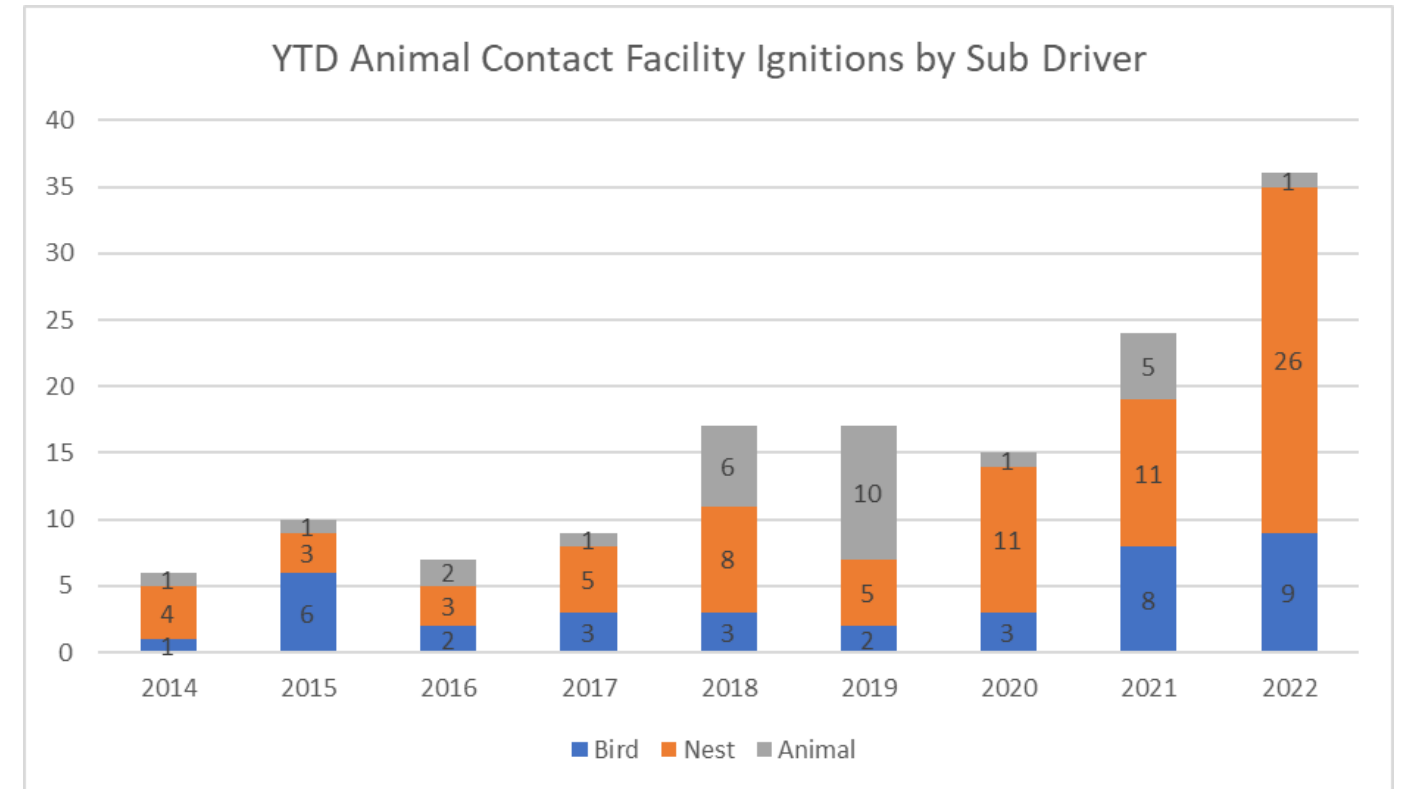
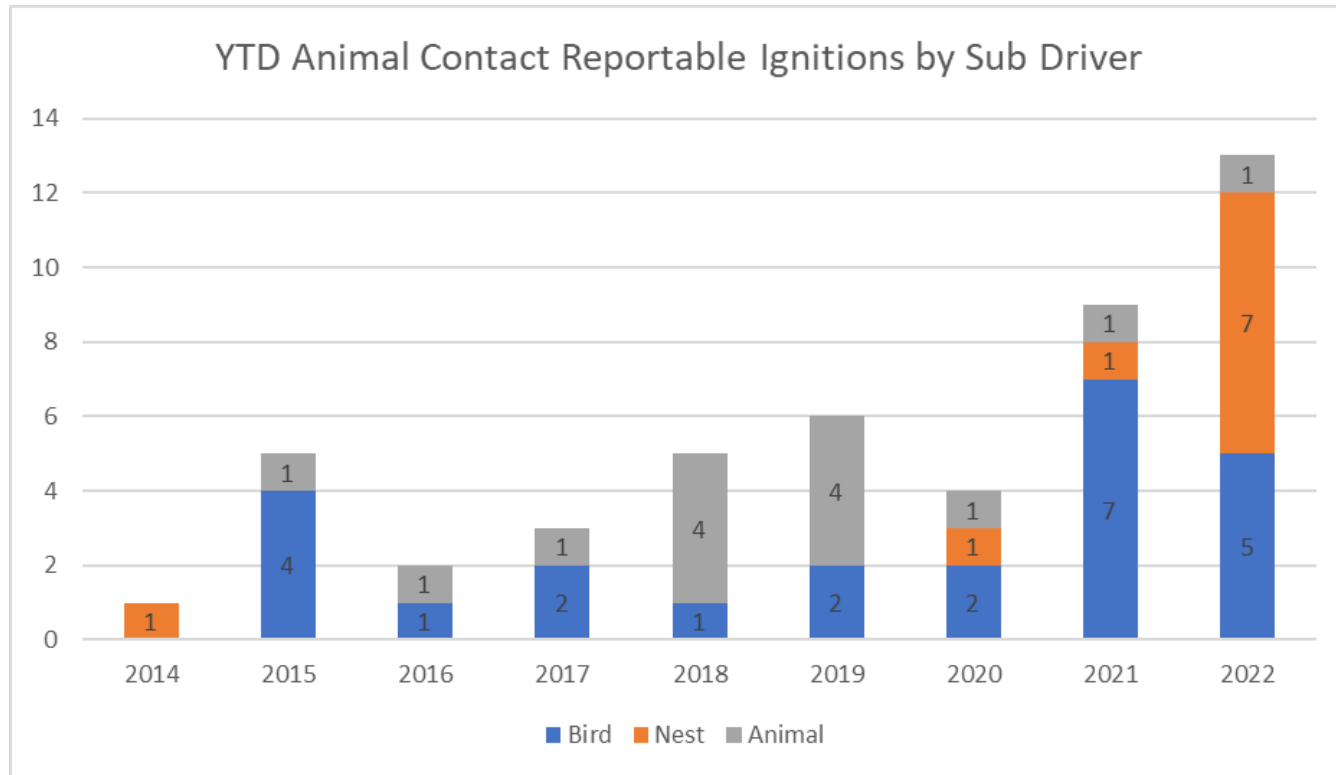
# SIF Potentials YTD

## Jul 2022 YTD

### SIF Potentials - YTD through 7/28/22

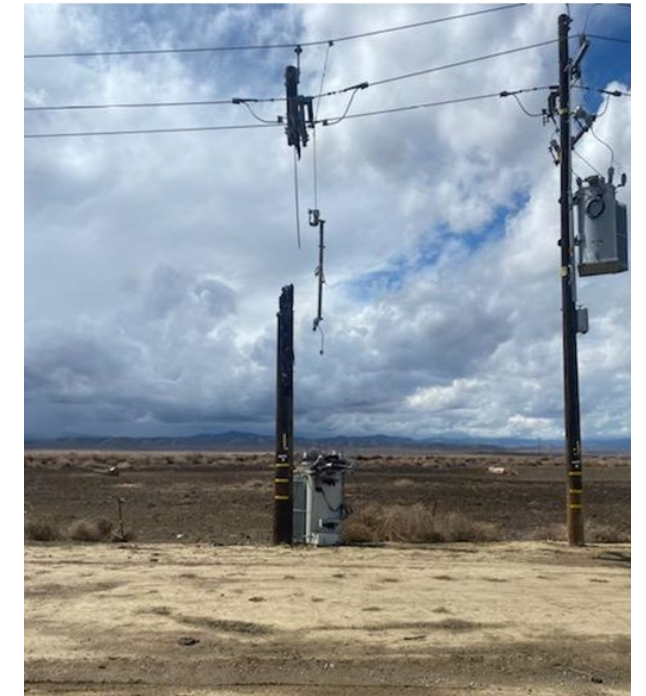
LOB	CAP #	DOI	Description	PG&E or Contractor	City	Region
Electric Operations	124053406	7/8/2022	An MGE civil GM was driving a Quinn rental 2017 Freight liner water tanker, carrying approximately 1000 gallons of water, and rolled down an embankment.	MGE Underground, Inc.	Bradley	South Bay Central
Veg Management	124075250	7/13/2022	Employee was climbing a tree listed for top directional work on routine maintenance work when a spar broke out. Employee fell from tree approximately 10-13 feet.	Wright Tree Service	Fortuna	North
Electric Operations	124091983	7/14/2022	An operator was working to stow an auger on a digger derrick and the sling utilized to roll up and stow the auger broke, at that time the auger swung down and struck another employee in the knee. The Employee that was struck was working as a spotter for the operator.	Summit Line Construction, Inc.	Mariposa	Central
Electric Operations	124108879	7/16/2022	A journeyman lineman driving a digger derrick with a water buffalo in tow was in transit from one jobsite to another. As he approached a steep grade entering the town of Volcano he applied the brakes to start slowing the digger. The employee stated that the brakes didn't feel right and the digger wasn't slowing. The employee blew the air horn as he approached the first intersection entering the town. A third party driver in a pickup truck entered the intersection from the left turning left. When the employee saw the third party vehicle, he swerved to the left to miss the truck barely clipping the back bumper. The employee hit two trees on the left side in attempt to stop the truck. The second tree stopped the digger in the middle of the street. There were no injuries due to this incident. The digger had to be towed back to the yard.	International Line Builders, Inc.	Volcano	Central
Electric Operations	124092373	7/22/2022	At approximately 7:25 p.m. on July 22, 2022, in Soledad, CA, a Michels Pacific Energy crew was in the process of completing a pole change out of a 70' transmission pole with energized 21 kV distribution under-build. As the crew was making-up connections on the distribution circuit, an employee inadvertently removed a mechanical jumper, resulting in an unplanned outage. Following the outage, the crew foreman stopped work and notified the MPE superintendent. The DO was notified shortly after, the circuit was cleared to make repairs, and work was completed without further incident.	Michels Pacific Energy, Inc.	Soledad	South Bay Central

# Animal Contact Ignitions are Primary Avian Driven



- PG&E has observed **an increase** in CPUC Reportable and Facility Ignitions in 2022 primarily driven by **Avian Ignitions**
- **~180% increase** in **Avian Facility Ignitions** 2022 vs 3-year average (36 to 13)
  - **~190% increase** in **Nest Contact Facility Ignitions** in 2022 vs 3-year average (26 to 9)
  - **~130% increase** in **Bird Strike Facility Ignitions** in 2022 vs 3-year average (10 to 4)

# Nest Contact Ignitions Were Primarily Caused by Insulator Tracking



**100%**

Of the 26 2022 **Nests Ignitions** were in direct contact with an insulator

**77%**

Of the nests were on top of a **Transformer**

**73%**

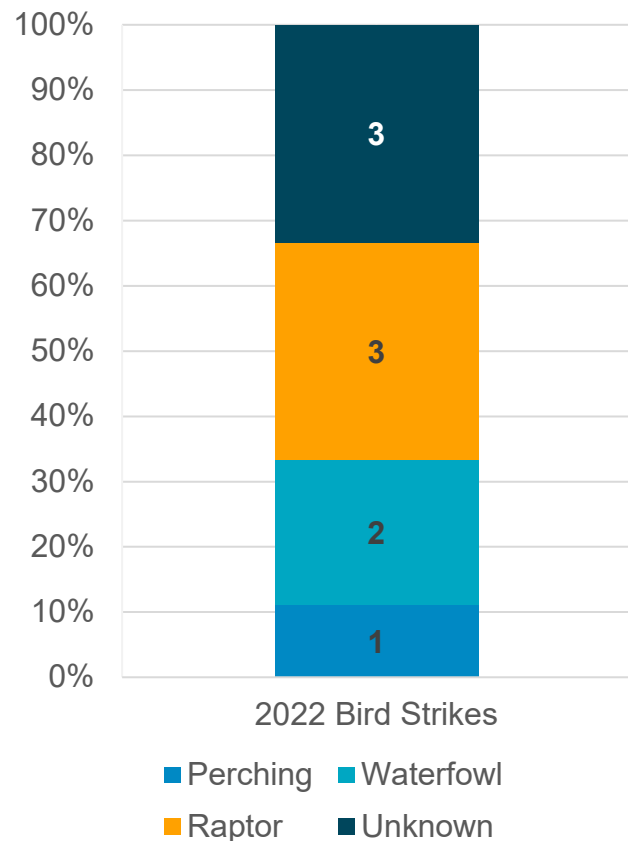
Of Insulators had some form of **Bird Guard** installed

**92%**

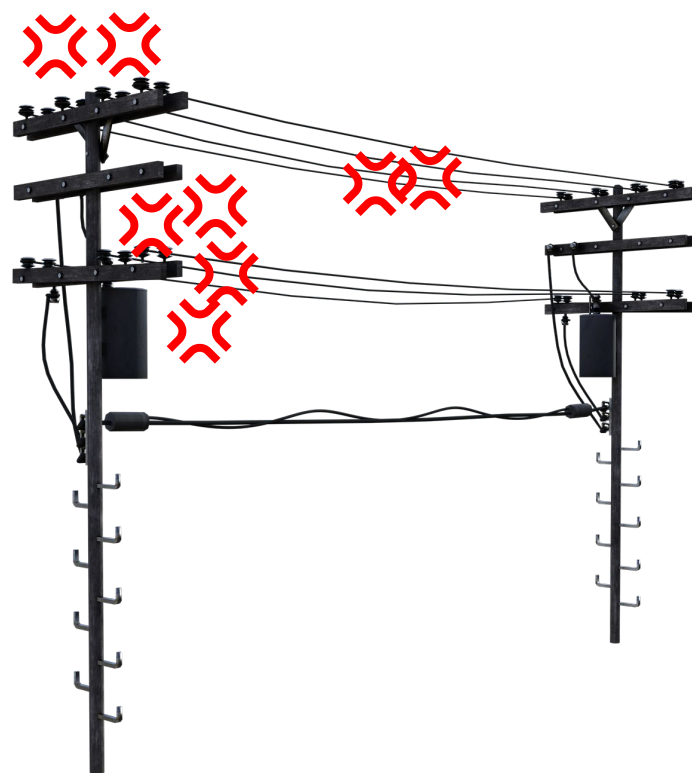
Had **Precipitation Observed** at the time of Outage

# Most 2022 Bird Strikes Occurred at Pole Mounted Equipment

Bird Strikes by Species

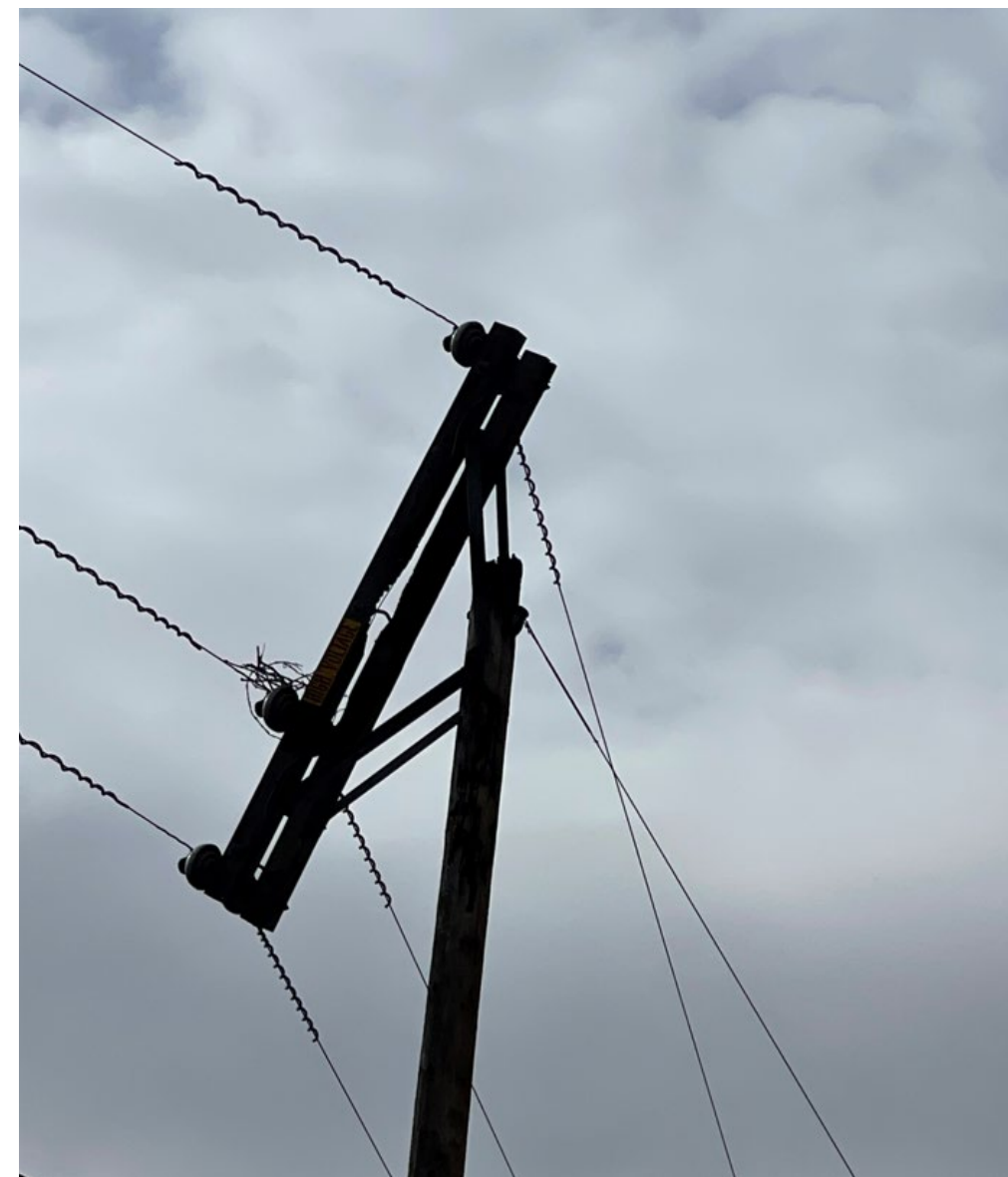


**Raptors** make up the most common known species



**75%**

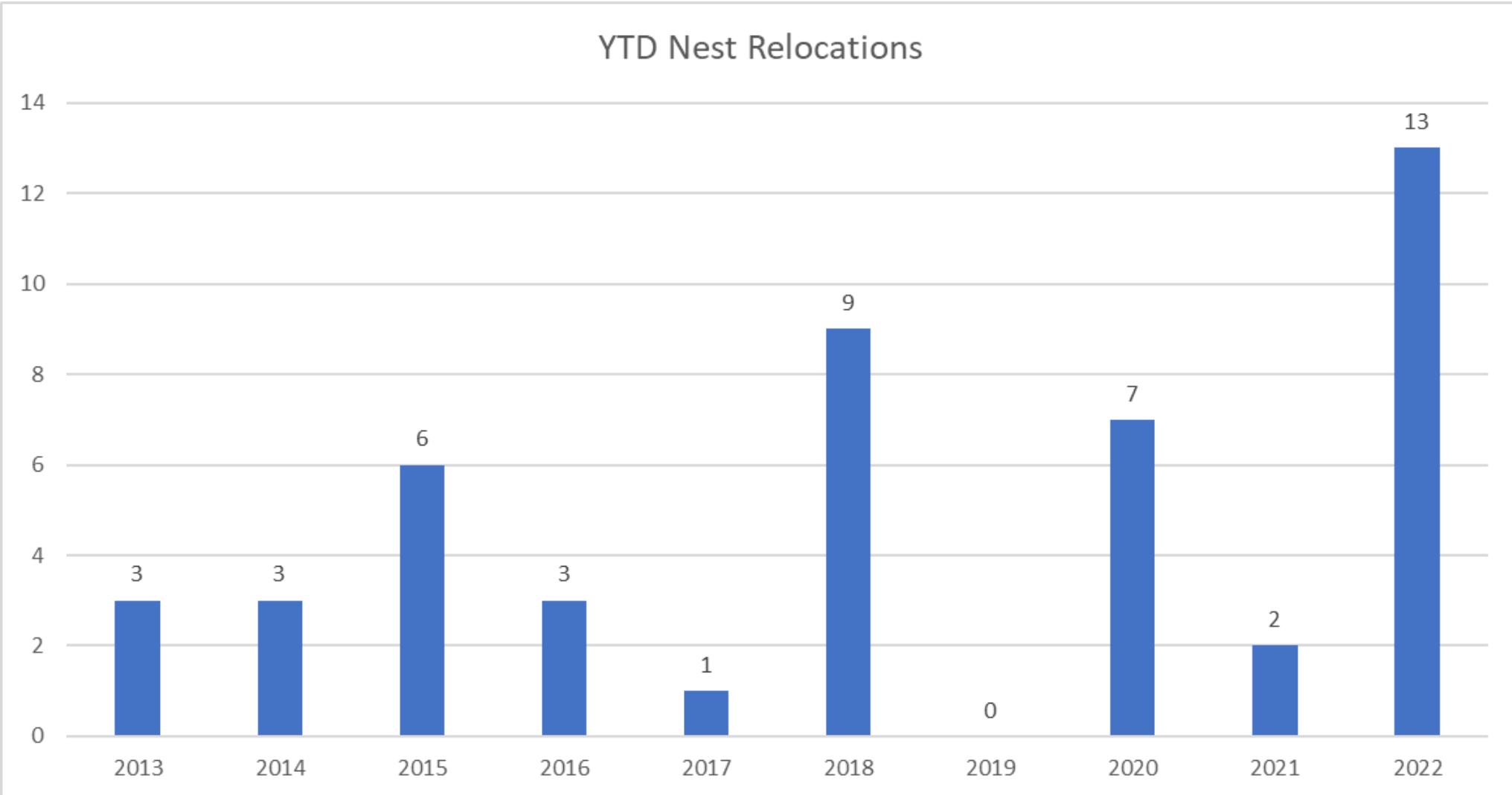
Of Bird Strikes were suspected to have been caused at **Pole Mounted Equipment**



**Raptor Strike With Nest Material**



# PG&E's Nest Relocation Rate Has Increased At a Similar Rate to Avian Ignitions



YTD **Nest Relocations/Removals** have **increased 250%** in 2022 compared to 10-year average (13 vs 3.7)

# Identifying Patterns and Next Steps

## Top 20 Distribution Feeds by Outage Count

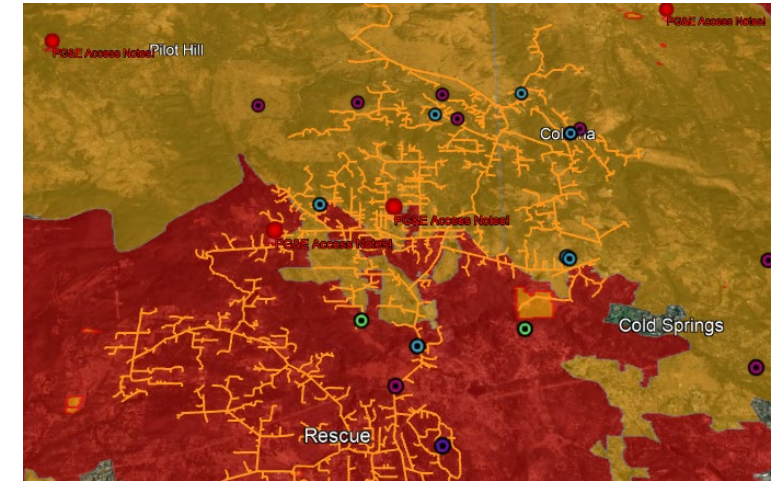
Distribution Feeder	Count of Bird Incident
CARBONA 1101	216
LOGAN CREEK 2101	148
LOGAN CREEK 2102	135
HOLLISTER 2104	122
TEMPLETON 2109	92
GREEN VALLEY 2101	91
KERMAN 1106	89
LOCKEFORD SUB 2102	89
HOLLISTER 2105	85
MC CALL 1101	85
PAUL SWEET 2107	85
MC ARTHUR 1101	84
HOLLISTER 2101	83
LLAGAS 2101	82
DINUBA 1104	80
FROGTOWN 1702	80
KINGSBURG 1113	80
REEDLEY 1112	79
DINUBA 1105	77

## Trends in HFTD:

- None of the distribution circuits in HFTD have had more than 2 ignitions caused by avian drivers
- Outage data is a much larger and richer data set and initial analysis identify clearer geographic patterns.

## Next Steps:

- Leverage bird outage data to identify and analyze trends (i.e. geographic, species, seasonality)
- Identify and prescribe mitigation measures on prioritized circuits in HFTD (i.e. products that prevents nesting on ignitions)



SHINGLE SPRINGS 2109 has observed 2 ignitions but numerous non-ignition bird outages

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

#### \*\*\*\*\*READ BEFORE STARTING WORK\*\*\*\*\*

BEFORE starting work on or near any forest-, brush-, or grass-covered lands, all work personnel must review this attachment and assess the required mitigations based on the [Utility Fire Potential Index Rating](#) produced by PG&E's Meteorology team (use this [link](#) to subscribe).

This "Wildfire Mitigation Matrix" (referred to as "Matrix" from here on) is set up with work activities and activity descriptions listed down the left, and generic mitigations based on the Utility Fire Potential Index Ratings across the top.

Activities requiring additional mitigations are referenced in the corresponding box in blue text.

Refer to [Utility Standard TD-1464S, "Preventing and Mitigating Fires While Performing PG&E Work,"](#) for detailed information on the general requirements and other mitigations listed in this document.



#### WARNING

When Red Flag Warnings are in effect, work personnel must perform R5 Fire Potential Index Rating mitigations.



Denotes a work activity that requires general mitigations (**R1**, **R2**, and **R3** Fire Potential Index Ratings mitigations).



Denotes a work activity that requires ALL general mitigations (**R1**, **R2**, and **R3** Fire Potential Index Ratings mitigations) AND the mitigations from **R4**.



Denotes a work activity that requires ALL general mitigations (**R1**, **R2**, and **R3** Fire Potential Index Ratings mitigations), mitigations required for **R4** Fire Potential Index Ratings, AND mitigations required for **R5** and **R5-Plus**.



Denotes the work activity that is **not** allowed.




**Blue Text** – Denotes mitigations required **in addition** to the respective mitigations listed at the beginning of the matrix.

IF there is a need for an exemption of work being performed during an R5-Plus Fire Potential Index Rating,

THEN contact the Hazard Awareness & Warning Center (HAWC) at [WildfireSOC@pge.com](mailto:WildfireSOC@pge.com) or 1-800-255-7593.

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

 <p><b>General Mitigations for R1, R2, and R3</b></p> <ol style="list-style-type: none"> <li>1. Prepare for work (review standard, matrix, and checklist).</li> <li>2. Review the Fire Potential Index Rating each morning during tailboard.</li> <li>3. Evaluate weather conditions throughout the day to ensure work can be done safely. IF weather conditions warrant, THEN stop work or update mitigations, when necessary (e.g., wet down work area).</li> </ol> <p><b>TOOLS</b></p> <ol style="list-style-type: none"> <li>4. Jobsite <b>must</b> have enough tools to outfit all crew members at the operation.</li> <li>5. Tools and equipment must be located at the immediate work location.</li> <li>6. Major work operations must have a sealed box of tools as described in Section 2.8, including one serviceable chainsaw.</li> <li>7. Ensure that the proper tools are available on the vehicles listed below, as described in Section 2.6: <ul style="list-style-type: none"> <li>• <b>Passenger vehicles:</b> One dry chemical fire extinguisher and one shovel</li> <li>• <b>Trucks/4-wheel drive vehicles (1/2 ton or larger):</b> One dry chemical fire extinguisher, one shovel, one 5-gallon backpack pump</li> <li>• <b>Heavy machinery:</b> One dry chemical fire extinguisher, one shovel, and one 5-gallon backpack pump</li> </ul> </li> </ol> <p><b>TRAVEL and VEHICLES</b></p> <ol style="list-style-type: none"> <li>8. Maintain situational awareness when driving on unimproved roadways.</li> <li>9. Stationary vehicles (when parked or idling) must be parked safely as outlined in Section 2.6 of the standard.</li> </ol> <p><b>JOBSITE AND REPORTING</b></p> <ol style="list-style-type: none"> <li>10. While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (e.g., welding, cutting, grinding), all flammable material (e.g., grass, leaf litter, including snags) must be removed down to mineral soil for a minimum of 10 feet around the jobsite. <ul style="list-style-type: none"> <li>• IF the work is not stationary OR IF the work is being performed above ground, THEN follow the requirements in Section 2.9.4.a, Steps (1)–(6) of <a href="#">Utility Standard TD-1464S</a>.</li> </ul> </li> <li>11. If there is an ignition, THEN work personnel <b>must</b> call emergency services (9-1-1) to report it, even if the fire is extinguished. <ul style="list-style-type: none"> <li>• Call the HAWC at 1-800-255-7596 with the location, source, and impacted assets.</li> <li>• <b>Do not smoke</b>, unless there is a 3-foot cleared area (down to mineral soil), an extinguishing agent, and butt receptacle with water in the smoking area.</li> </ul> </li> </ol>	 <p><b>R4 ratings require all mitigations below, in addition to the mitigations for R1, R2, and R3 ratings:</b></p> <ol style="list-style-type: none"> <li>a. 120 gallons of water with not less than 200 feet of hose, not less than 1 inch in diameter, and a minimum of 40 pounds per square inch (psi) at the nozzle. This water delivery system <b>must</b> be able to reach the immediate work location.</li> <li>b. Evaluate weather conditions to ensure it remains safe to work.</li> <li>c. <b>Working Fire Watch</b> assigned to the jobsite, <b>EXCEPT</b> when working with energized equipment which requires <b>Dedicated Fire Watch</b>.</li> </ol>	 <p><b>R5 ratings require all mitigations below, in addition to the mitigations for R1, R2, R3, and R4 ratings:</b></p> <ol style="list-style-type: none"> <li>a. <b>Dedicated Fire Watch</b>.</li> <li>b. Must have a trailer-mounted water tank or alternative water delivery method with a hose long enough to reach the jobsite.</li> <li>c. Consider additional modification to the fuel sources surrounding jobsite.</li> <li>d. Suspend all planned work during an <b>R5-Plus</b> fire rating.</li> <li>e. During all emergency work being performed during an <b>R5-Plus</b> fire rating, work personnel <b>must</b> have SIPT on standby or a 300-gallon water tender available.</li> </ol>
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Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Vehicle, Roads</b>						
1	<b>Vehicle travel on unimproved roadways</b>	Anything that propels, moves, or is drawn on unpaved surfaces. This includes the transportation of materials.	✓	✓	✓	✓
2	<b>Using heavy equipment</b>	General construction, water, bars, culvert cleaning/repair grading / excavation, digging  E.g., blades, dozers, skid steers, excavators, back hoes.	✓	✓	✓	✗
<b>Unmanned Aerial Vehicle (UAV)</b>						
3	<b>Unmanned Aerial Vehicle (UAV) Line of Sight (LOS)</b>	Comprehensive data collection within line of sight of UAV.	✓	✓  <b>Crew must have 5-gallon backpack pump (in place of the 120-gallon mitigation), and round-point shovel readily available during all flight operations.</b>  <b>When performing flight operations that require flight below the conductor level or operations within a congested area (i.e., crossing lines, guy wires, dense vegetation), UAV being flown must be immediately accessible by a working fire watch in the event of a downed UAV.</b>	✓  <b>In addition to R4 restrictions:  Flying between parallel conductors is prohibited when less than 60 feet apart (plus drone diameter).</b>	✗

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### Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Electrical and Telecommunications Equipment/Maintenance</b>						
4	<b>Equipment repair and replacement (Electric operations, IT / Telecom)</b>	This includes tasks related to conductors, pole OH equipment, fiber splicing, and tower work from which a spark, fire, or flames may originate.	✓	<div style="text-align: center;">✓ De-Energized</div> <div style="text-align: center;">✓ <u>Energized:</u></div> <ul style="list-style-type: none"> <li>Dedicated Fire Watch.</li> <li>Fuels cleared to bare mineral soil in a 15-foot radius below the facility.</li> <li>Wet down a 50-foot radius around work area.</li> </ul>	<div style="text-align: center;">✓ <u>Energized:</u></div> <ul style="list-style-type: none"> <li>Fuels cleared to bare mineral soil in a 15-foot radius below the facility.</li> <li>Wet down a 50-foot radius around work area.</li> </ul>	✗
5	<b>Routine work for lone worker or 2-person crews (t-man, comm tech)</b>	This includes installing new services, disconnect and reconnect services, power connections, etc.	✓	✓ Crews should have a 5-gallon backpack pump within 25 feet of the work being performed.	✓ Crews should have a 5-gallon backpack pump within 25 feet of the work being performed.	✗
6	<b>Restoring and testing, Electric operations</b>	Replacing blown fuses.	✓	<div style="text-align: center;">✓</div> <p>Must patrol and clear the hazard. Ensure conditions at the base of the pole do not support ignition or the rapid spread of fire.</p>	<div style="text-align: center;">✓</div> <p>Must patrol and clear the hazard. Ensure conditions at the base of the pole do not support ignition or the rapid spread of fire.</p>	<div style="text-align: center;">✓</div> <p>Must patrol and clear the hazard. Ensure conditions at the base of the pole do not support ignition or the rapid spread of fire.</p>
7	<b>Switching</b>		✓	<div style="text-align: center;">✓</div> <p>When performing switching, ensure that work personnel have a 5-gallon backpack-style pump and a round-point shovel within 25 feet of the work location.</p>	<div style="text-align: center;">✓</div> <p>Analysis of the work (i.e., switching operation type, time of day, need for a dedicated fire patrol) must be performed. Consultation with a Public Safety Specialist is recommended.</p>	<div style="text-align: center;">✓</div> <p>Analysis of the work must be performed. The Task Force Leader (TFL) MUST consult a Public Safety Specialist.</p>

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Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning		R5-Plus
<b>Vegetation Management</b>							
8	Mowing, hot saw, feller buncher, stump grinding, and masticating equipment	This includes gas- and electric-powered equipment but does NOT pertain to portable tools noted in Work Activities #14 and #15.	✓ <b>**In the event a water buffalo cannot reach the immediate worksite due to inaccessible terrain, in lieu of the 120-gallon water buffalo, you MUST have a 5-gallon backpack-style pump and a round point shovel within 25 feet of the immediate work location. (This ONLY pertains to single- or two-person teams performing this operation).</b>	✓ <b>**</b>	✗		✗
9	Pole/tower ground clearance	10 feet of clearance around poles and tower structure (power tools).	✓	✓ <b>**</b>	✓ <b>**</b>		✗
10	Conductor vegetation clearance	Trim and, occasionally, remove trees to maintain required, mandated clearances. This includes the associated use of equipment such as chainsaws or woodchippers.	✓	✓ <b>**</b>	✗ <b>**</b>	✗ <b>**</b>	✗
11	Harvesting timber on PG&E lands	<b>Follow conditions and standards outlined in the Timber Harvest Plan. Ensure the mitigations in this matrix are followed based on work performed (e.g., using chainsaws).</b>					

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Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Other Activities</b>						
12	<b>Construction hot work</b>	Any temporary operation that involves open flames or produces heat and/or sparks. This includes, but is not limited to, <b>brazing, cutting, grinding, soldering, torch-applied materials, and welding.</b>	✓	✓ Wet down a 50-foot radius around work area.	✓ Wet down a 50-foot radius around work area.	✗
13	<b>Using equipment with an internal combustion engine requiring spark arrestor (excluding vehicles)</b>	This includes hand-held leaf blowers, chainsaws, weed whackers, woodchippers, etc.  Portable and stationary equipment includes compressors, generators, etc.	✓	✓	✓ Unstaffed generators may be used to ensure:  1. Public Safety. 2. Safety and maintenance of company assets.  Ensure a clearance of 10 feet down to mineral soil. Onsite water is NOT required.	✗ <u>Exception: Unstaffed generators used to ensure:</u>  1. Public Safety. 2. Safety and maintenance of company assets.  Ensure a clearance of 10 feet down to mineral soil. Onsite water is NOT required.
14	<b>Using portable tools powered by an internal combustion engine, power cord</b>	Using leaf blowers, chainsaws, weed whackers, drills, saws, mowers, and similar tools with engine or motor.	✓	✓	✓	✗
15	<b>Using battery-powered equipment</b>	Using mowers, weed whackers, leaf blowers, drills, survey equipment.	✓	✓	✓	✗
16	<b>Blasting (explosives)</b>		Must follow the mitigations identified in the State Fire Marshall's Use Permit.		✗	✗



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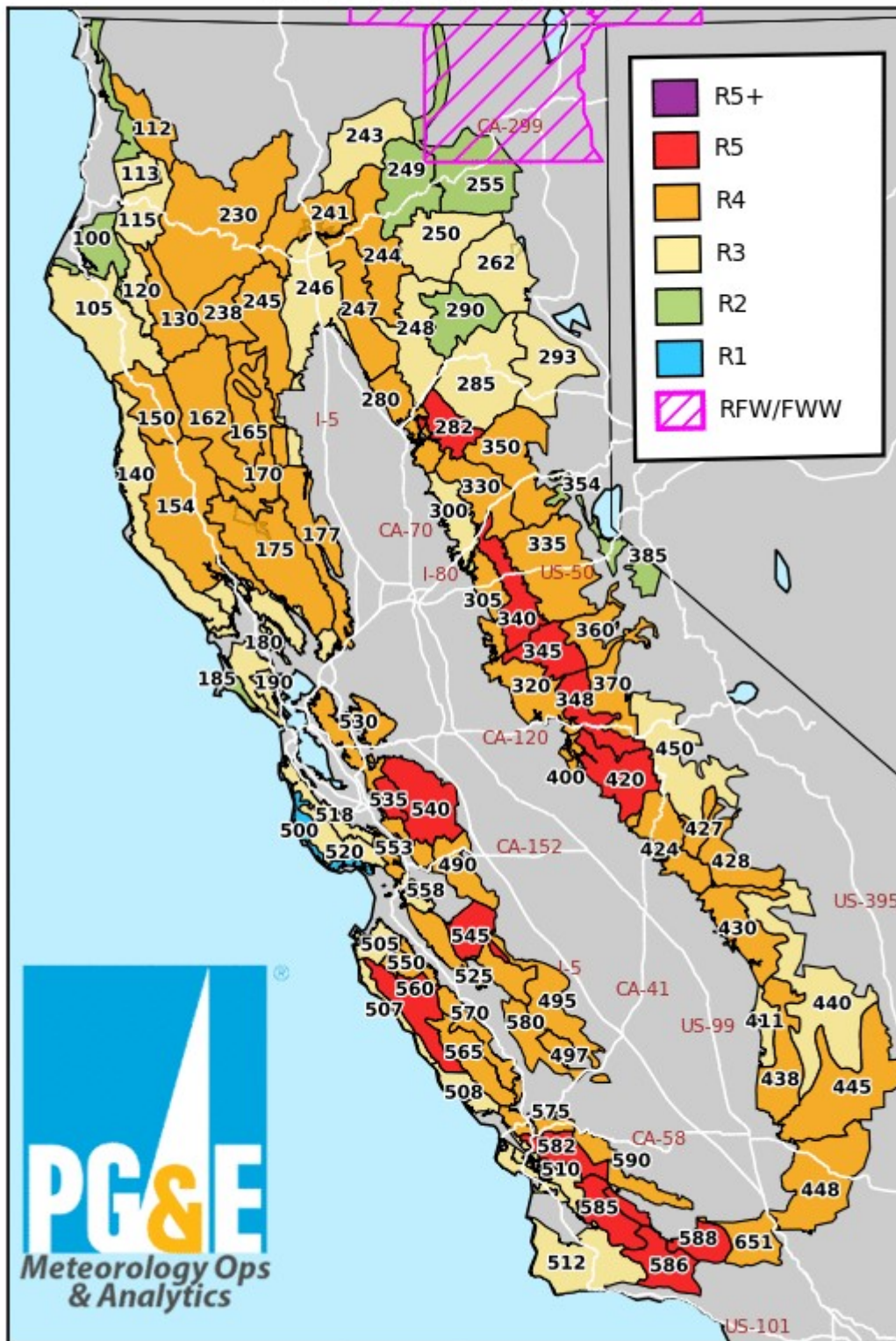
Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Burning</b>						
17	Open burning	Burning of any brush, stumps, logs, fallen timber, fallows, slash, grass-covered lands, brush-covered lands, or other flammable materials.	<p><b>Zone A – Always requires a burn permit and compliance with the permit’s terms.</b></p> <p><b>Zone A:</b> Includes the following counties:</p> <ul style="list-style-type: none"> <li>• Mono</li> <li>• Inyo</li> <li>• San Bernardino</li> <li>• Santa Barbara</li> <li>• Ventura</li> <li>• Los Angeles</li> <li>• Orange</li> <li>• Riverside</li> <li>• San Diego</li> <li>• Imperial</li> </ul> <p><b>Zone B – Permit, when required.</b></p> <p><b>Zone B:</b> Includes any county and portion of any county that is not included in Zone A.</p>	✗	✗	✗
<b>Substation</b>						
<b>NOTE: Activities listed below only pertain to situations where there is vegetation near the work being performed.</b>						
18	Activities that can produce arcing, sparks, or fire ≤ 15 feet from inside the substation fence.	Any substation activities.	✓	✓	✗	✗
19	Activities that can produce arcing, sparks, or fire > 15 feet from inside the substation fence.	Any substation activities.	✓	✓	✓	✗

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### Attachment 1, Wildfire Mitigation Matrix

#### REVISION NOTES

Where?	What Changed?
Page 2, General Mitigations, R1, R2, R3	Added clarifying location of tools and equipment to item 5.
Page 2, General Mitigations, R4.a	Added clarifying information regarding distance.
Page 2, General Mitigations, R4.c	Changed language to add exception for dedicated fire watch in R4 conditions for work activity involving energized equipment.
Page 5, Activity 8	Added statement in blue (**) under R1/R2/R3.
Page 5, Activities 8–10	Added ** under R4 and R5.



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Candidate Name (Nombre del candidato) \_\_\_\_\_ ISN# \_\_\_\_\_ Date (Fecha) \_\_\_\_\_

Company (Compañía) \_\_\_\_\_ Location (Ubicación) \_\_\_\_\_

Previous Certification(s) (Certificaciones previas):  Yes/Sí  No

Type(s) (Tipo[s]): \_\_\_\_\_

Assessing on Bolt (Evaluación en SafeTree) # \_\_\_\_\_ First Aid (Primeros auxilios)/CPR:  Yes  No

Expiration Date (Fecha de vencimiento) \_\_\_\_\_

Job Classification (Clasificación de trabajo) \_\_\_\_\_ Language (Idioma):  English (Inglés)  Spanish (Español)  Bilingual (Bilingüe)

Start Time (Hora de Inicio) \_\_\_\_\_ End Time (Hora de Finalización) \_\_\_\_\_ Years Experience (Años de experiencia) \_\_\_\_\_

**Pass (Exito)**

**Demonstrates Proficiency**  
Demuestra la habilidad

**Demonstrates Competency**  
Demuestra la competencia

**Fail (Fracaso)**

**Needs Experience**  
Necesita experiencia

**Needs Training**  
Necesita capacitación

Evaluator's Name: \_\_\_\_\_ Evaluator Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Standard-Based Grading Scale

- 4 - Demonstrates Proficiency; meets expectations of target with efficiency and advanced knowledge or skill
- 3 - Demonstrates Competency; meets expectations of target
- 2 - Needs Experience; partial understanding or can perform portions of target with evaluator assistance
- 1 - Needs Training; CANNOT perform portions of target, even with evaluator assistance

## Safety Violations

During all portions of the evaluation that require demonstration testing, operators will be assessed for any safety violations. Any individual receiving 3 or more safety violations will be unsuccessful. Success will be based upon evaluator discretion. Examples:

- Performing an unsafe act / drop-start
- Failure to implement corrective actions when given opportunity
- Taking more than 2 steps while chain break is disengaged
- Comply/failure command-response communication techniques
- Missing/forgets to utilize PPE
- Taking hand off running saw while chain break is disengaged/chain break high five

\*A safety violation not mentioned above, however, deemed grossly negligent by the evaluator can still result in a noted violation.

For scores 1 & 4 the evaluator SHOULD provide examples in the notes column supporting the circled score.

## Escala de evaluación basada en el estándar

- 4 - Demuestra la competencia; cumple con expectativas del objetivo con eficiencia y un conocimiento o habilidades avanzadas
- 3 - Demuestra la competencia; cumple con expectativas del objetivo
- 2 - Necesita experiencia; conocimiento parcial o puede realizar partes del objetivo con ayuda del evaluador
- 1 - Necesita la capacitación; NO PUEDE realizar partes del objetivo, aun con la ayuda del evaluador

## Violaciones de seguridad

Durante todas las partes de la evaluación que requieren pruebas para la demostración, los operadores serán evaluados por cualquier violación de seguridad. Cualquier persona que reciba 3 o más violaciones de seguridad se considerará sin éxito. El éxito se basará según la discreción del evaluador. Ejemplos:

- Realizar una acción que es peligrosa/drop-start la motosierra
- Fallar en implementar acciones correctivas cuando se le provee la oportunidad
- Tomar más de 2 pasos mientras que el freno de cadena está desconectado
- Cumple/falla en responder con técnicas de comunicación
- No tiene/se le olvida utilizar el EPP
- Remueve la mano de una sierra activa mientras que el freno de cadena se encuentra desactivado/high five el freno de cadena

\*Sin embargo, una violación de seguridad no que no se mencione arriba, y que el evaluador considera como extremadamente negligente todavía puede resultar en una violación.

Para puntuaciones de 1 y 4, el evaluador DEBERÍA proveer ejemplos en la columna de notas, respaldando la puntuación encerrada en un círculo.

**PPE and Tools (EPP y Herramientas)**

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z87 Eye Pro w/ Side Protection<br>(ANSI Z87 Protección de ojos con protección lateral) | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chaps/Saw Pants UL Certified<br>(Chaparrera/pantalones para sierra – Certificados UL) |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Hearing Protection<br>(Protección de oídos)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | First Aid/Blood Stopper<br>(Primeros auxilios/tapón para sangre)                      |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Long Sleeve Shirt<br>(Camisa de manga larga)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Whistle/Radio/Cell Phone<br>(Silbato/radio/teléfono celular)                          |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Class 2 or 3 Hi-Vis Apparel<br>(ANSI Clase 2 o 3 Ropa de alta visibilidad)             | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Axe & Guard<br>(Hacha y protector)  |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Gloves<br>(Guantes)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw Tool / Srench<br>(Herramienta para motosierra/Srench)                        |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Round & Flat File<br>(Lima circular y plana)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw & Scabbard<br>(Motosierra y funda)   |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Wedges<br>(Cuñas)   |   |   |

Support Person Name (Nombre de la persona de apoyo)		ISN#	Date (Fecha)
Company (Compañía)		Location (Ubicación)	
Previous Certification(s) (Certificaciones previas): <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No			
Type(s) (Tipo[s]):			
Assessing on Bolt (Evaluación en SafeTree) #		First Aid (Primeros auxilios)/CPR: <input type="checkbox"/> Yes <input type="checkbox"/> No	Expiration Date (Fecha de vencimiento)
Language (Idioma): <input type="checkbox"/> English (Inglés) <input type="checkbox"/> Spanish (Español) <input type="checkbox"/> Bilingual (Bilingüe)			
Job Classification (Clasificación de trabajo)			
Start Time (Hora de Inicio)	End Time (Hora de Finalización)	Years Experience (Años de experiencia)	

**PPE and Tools (EPP y Herramientas)**

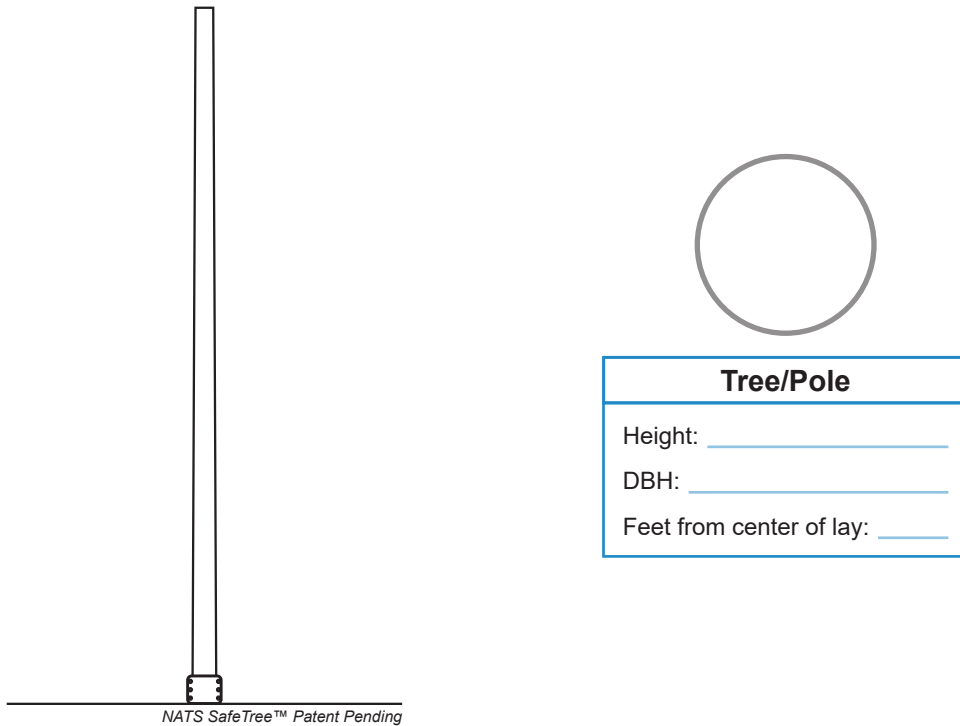
- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Z89 Helmet / Hardhat<br>(ANSI Z89 Casco)   | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Work Boots<br>(Botas de trabajo)  |
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| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Long Sleeve Shirt<br>(Camisa de manga larga)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Whistle/Radio/Cell Phone<br>(Silbato/radio/teléfono celular)                          |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | ANSI Class 2 or 3 Hi-Vis Apparel<br>(ANSI Clase 2 o 3 Ropa de alta visibilidad)             | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Axe & Guard<br>(Hacha y protector)  |
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| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Round & Flat File<br>(Lima circular y plana)  | <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Chainsaw & Scabbard<br>(Motosierra y funda)   |
| <input type="checkbox"/> Yes/Sí <input type="checkbox"/> No | Wedges<br>(Cuñas)   |   |   |

Task (Tarea)	Score (Puntuación) <small>(circle one)</small>	Notes (Notas)
<b>Chainsaw Safety &amp; Work Area Safety (Seguridad de la motosierra y de la zona de trabajo)</b>		
1. Demonstrate a pull test as a tree risk assessment method prior to cutting. (Demuestra una prueba de jalar como método para evaluar el riesgo del árbol antes de podarlo.)	1 2 3 4	_____
2. Demonstrate tree height & lean assessment. (Demuestra la evaluación de la altura del árbol e inclinación.)	1 2 3 4	_____
3. Demonstrate proper escape route. (Demuestra la ruta adecuada para escapar.)	1 2 3 4	_____

Task (Tarea)	Score (Puntuación) (circle one)	Notes (Notas)
4. Demonstrate establishment of drop zone for tree felling. (Demuestra establecer la zona de caída al podar el árbol.)	1 2 3 4	_____
5. Demonstrate three-way communication prior to cutting. (Demuestra la comunicación de tres maneras antes de podar el árbol.)	1 2 3 4	_____
<b>Rigging for Tree Felling (Cableado para podar el árbol)</b>		
6. Demonstrate installation of tree-pulling rope. (Demuestra la instalación de la cuerda para jalar el árbol.) <i>Note: NATS will provide a throwline and the candidate must install a rope suitable for tree felling. (Nota: NATS proveerá una línea de tiro y el candidato debe instalar la cuerda que sirva para podar el árbol.)</i>	1 2 3 4	_____
7. Demonstrate establishment of an anchor point for tree felling. (Demuestra establecer el punto de anclaje para podar el árbol.) <i>Note: Example includes a portawrap with whoopie sling on a tree more than 1.5x to 2x distance away, depending upon the site and hazards. (Nota: Ejemplo incluye un portawrap con eslinga whoopie en un árbol que esté a una distancia de más de 1.5x a 2x, dependiendo en el sitio y los peligros existentes.)</i>	1 2 3 4	_____
8. Demonstrate proper setup of mechanical advantage tree pulling kit with progress capture. (Demuestra la preparación adecuada de la ventaja mecánica de un juego para jalar el árbol con captura del progreso.) <i>Note: Evaluator shall document which type of MA is used. (Nota: El evaluador deberá documentar qué tipo de MA se utiliza.)</i>	1 2 3 4	_____
9. Demonstrate proper setup of side guy to prevent tree hinge failure. (Demuestra la preparación adecuada de la cuerda de apeo para prevenir que la bisagra del árbol falle.) <i>Note: NATS will provide a guy rope and the candidate must establish an anchor and install properly. (Nota: NATS proveerá una cuerda de apeo o guy rope, y el candidato debe establecer un punto de anclaje y e instalarlo adecuadamente.)</i>	1 2 3 4	_____
<b>Technical Tree Cutting &amp; Felling (Cortar y podar técnicamente al árbol)</b>		
10. Demonstrate a safe chainsaw starting procedure. (Demuestra el procedimiento seguro para arrancar una motosierra.)	1 2 3 4	_____
11. Demonstrate use of felling sights. (Demuestra utilizar la vista para podar el árbol.)	1 2 3 4	_____
12. Demonstrate cutting an open face notch. (Demuestra cortar un corte de cara.) <i>Note: Notch must be 70° or greater and shall allow the tree to remain attached to the stump during most of its fall. (Nota: El corte debe ser de 70° o mayor y deberá permitir que el árbol permanezca conectado al tocón durante la mayor parte de su caída.)</i>	1 2 3 4	_____
13. Demonstrate notch depth, no more than 1/3 DBH. (Demuestra la profundidad del corte, no más de 1/3 DBH.)	1 2 3 4	_____
14. Demonstrate back cut (prefer bore cut w/ backstrap). (Demuestra el corte final (preiere corte de control con backstrap).) <i>Note: A conventional back cut is acceptable resulting in a maximum score of 2 only. (Nota: Un corte trasero convencional se puede aceptar y resulta solamente en una máxima puntuación de 2.)</i>	1 2 3 4	_____
15. Demonstrate an adequate hinge. (Demuestra una bisagra adecuada.)	1 2 3 4	_____
16. Demonstrate proper escape route. (Demuestra la ruta adecuada para escapar.)	1 2 3 4	_____
<b>Stump Analysis (Análisis del tocón)</b>		
17. Evaluate notch. (Evaluar el corte.) <i>Note: Face notch level in desired direction and adequate for tree size. (Nota: Nivel del corte de cara en la dirección adecuada y el correcto para el tamaño del árbol.)</i>	1 2 3 4	_____

Task (Tarea)	Score (Puntuación)	Notes (Notas)
18. Evaluate bypass. (Evaluar el desvío/sobre paso.) <i>Note: If bypass is present, was it corrected? More than 0.25" results in a reduction in score. (Nota: Si el desvío está presente, ¿lo hizo correctamente? Más de 0.25" resulta en una reducción de la puntuación.)</i>	1 2 3 4 _____	
19. Evaluate back cut. (Evaluar el corte final.) <i>Note: A conventional back cut is acceptable resulting in a maximum score of 2 only. Back cut should be level and even with the face notch, regardless of method. (Nota: Un corte final convencional se puede aceptar y resulta solamente en una máxima puntuación de 2. El corte final debería ser nivelado y parejo con el corte de cara, sin importar el método usado.)</i>	1 2 3 4 _____	
20. Evaluate hinge/holding wood. (Evaluar la bisagra/aguantar la madera.) <i>Note: Hinge even, no taper, 5-10% thickness of tree dia., hinge length 80% of tree dia. (Nota: La bisagra debe ser pareja, no estrechada, 5-10% en grosor del diámetro del árbol., bisagra 80% del diámetro del árbol.)</i>	1 2 3 4 _____	
21. Evaluate trigger/backstrap. (Evaluar gatillo/backstrap.) <i>Note: Trigger offset towards escape route, adequate size for tree. (Nota: La compensación del gatillo se debe hacer hacia la ruta de escape, adecuado para el tamaño del árbol.)</i>	1 2 3 4 _____	

**Evaluator should illustrate on the diagrams below the results of the cutting attempts and any additional information to provide clarity:**



Task	Score (circle one)	Notes
<b>Observations (Observaciones)</b>		
22. Demonstrate correct bar tip use when boring. (Demuestra el uso correcto de la punta de barra cuando taladra.)	1 2 3 4	_____
23. Demonstrate consistent use of chain-break. (Demuestra el uso correcto de la punta de barra cuando taladra.)	1 2 3 4	_____
24. Demonstrate wedging procedure / placement. (Demuestra el procedimiento y ubicación del corte de cuña.)	1 2 3 4	_____
25. Demonstrate appropriate exposure time while cutting. (Demuestra el tiempo de exposición adecuado mientras que poda.)	1 2 3 4	_____

**Competency Determination (Determinación de la competencia)**

- Add up all scores circled above to determine your final score. (Sume todas las puntuaciones encerradas en un círculo arriba para determinar su puntuación final.)
- A minimum final score of **63** is required to be determined competent. (Una puntuación mínima final de **63** se requiere para determinar al candidato como competente.)
- **88-100**: Demonstrates Proficiency (Demuestra la habilidad)
- **63-87**: Demonstrates Competency (Demuestra competencia)
- **38-62**: Needs Experience (Necesita experiencia)
- **25-37**: Needs Training (Necesita capacitación)

**Final Score (Puntuación final):** \_\_\_\_\_

**Evaluator Name (Nombre del evaluador):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Candidate Name (Nombre del candidato):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_

**Support Name (Nombre del proveedor de apoyo):** \_\_\_\_\_

**Signature (Firma):** \_\_\_\_\_



# Ignitions



FOR INTERNAL USE ONLY

# CPUC Reportable Ignitions in HFTD > 100 Acres

YTD Total	
<b>0</b>	
<b>2021</b>	<b>3</b>
<b>3-yr Average</b>	<b>2</b>
<b>2022 Target</b>	<b>1</b>

Under Investigation					
<i>Index ID</i>	<i>Name</i>	<i>Date</i>	<i>Size (acres)</i>	<i>Status</i>	<i>Cause</i>

# CPUC Reportable Ignitions in HFTDs



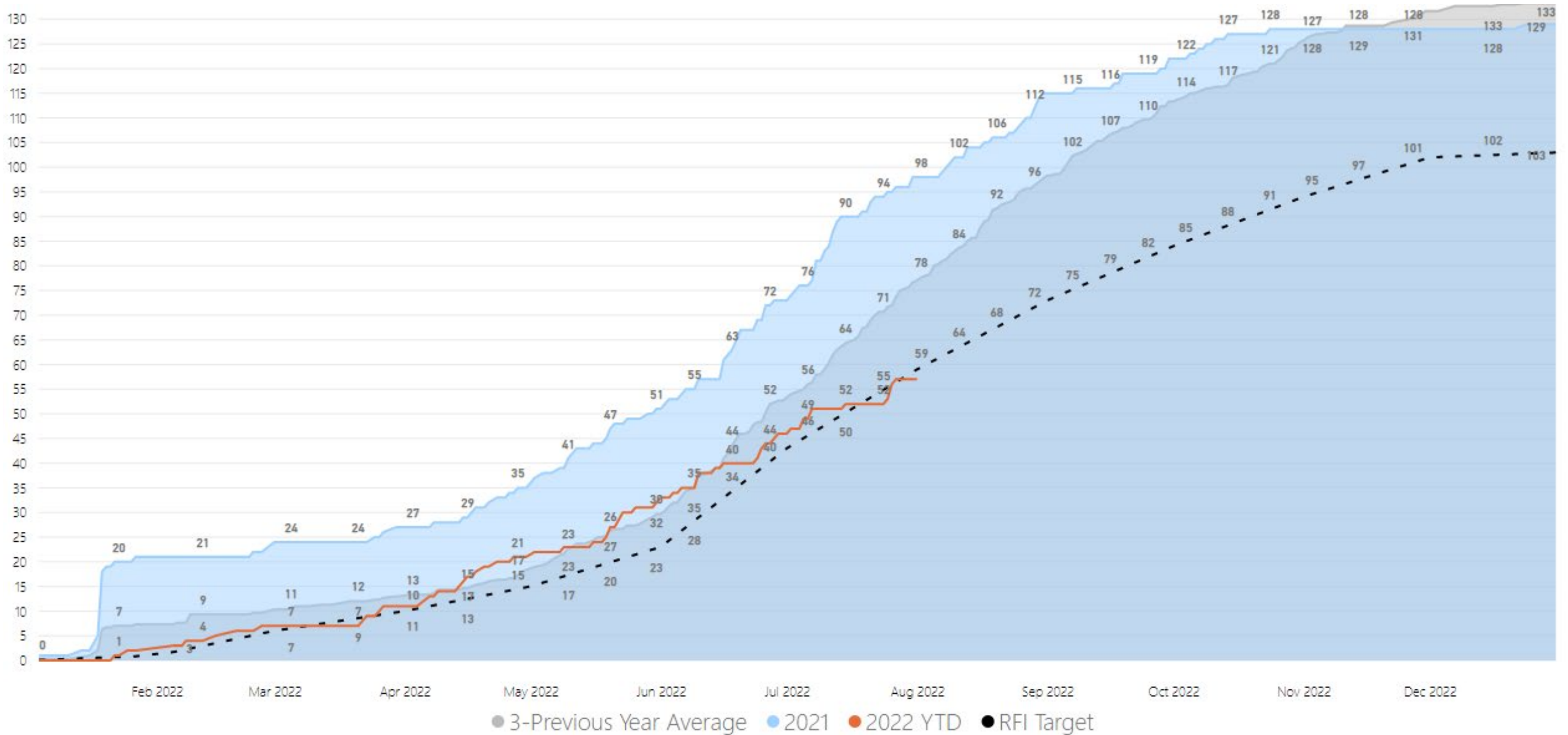
<b>YTD Total</b> <i>Through 07/31/22</i>		<b>Month to Date</b> <i>07/01/22 – 07/31/22</i>
<b>57</b>		<b>11</b>
<b>2021</b>	100	25
<b>3-yr Average</b>	78	24
<b>2022 Target</b>	103	N/A

# PG&E Facility Ignitions in HFTDs

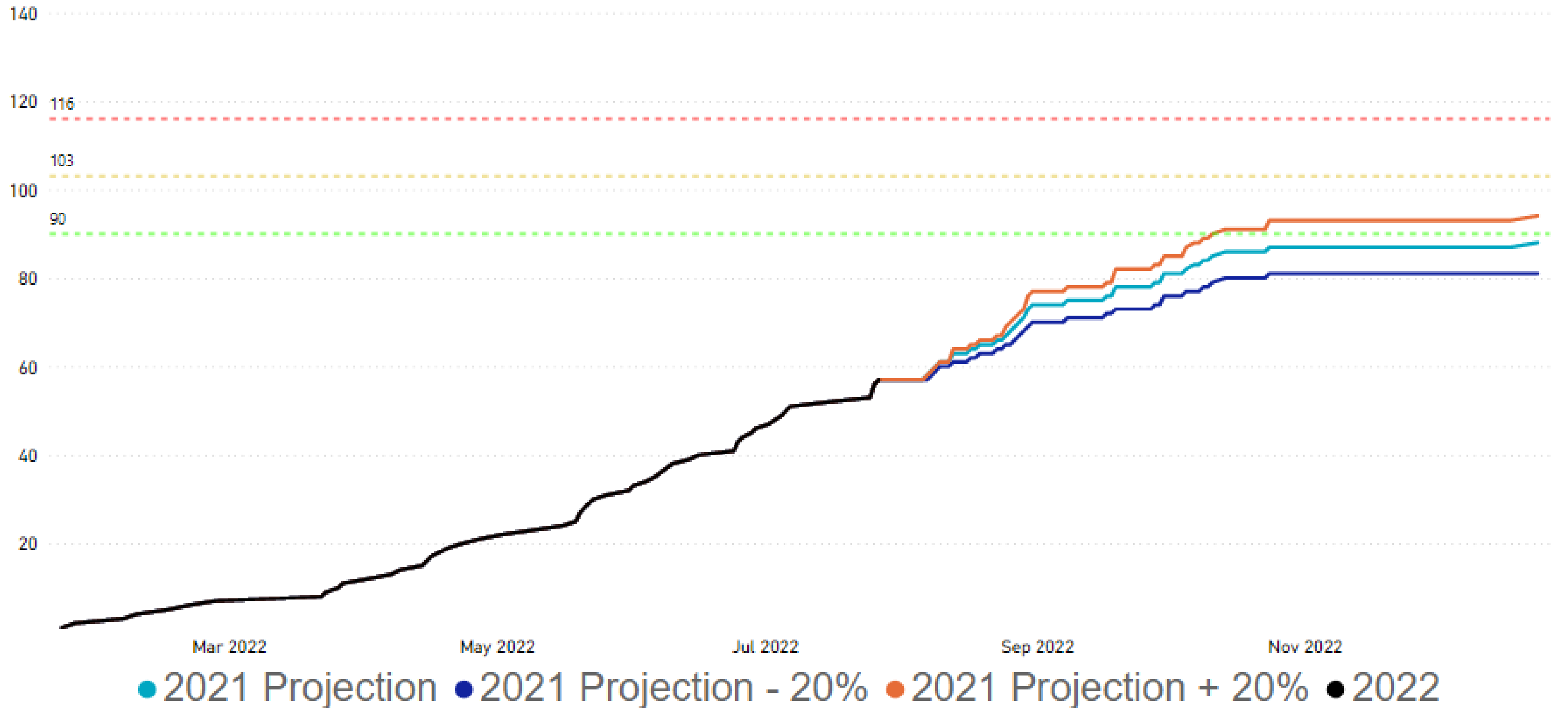


<b>YTD Total</b> <i>Through 07/31/22</i>		<b>Month to Date</b> <i>07/01/22 – 07/31/22</i>	
<b>77</b>		<b>16</b>	
<b>2021</b>	133		28
<b>3-yr Average</b>	117		31

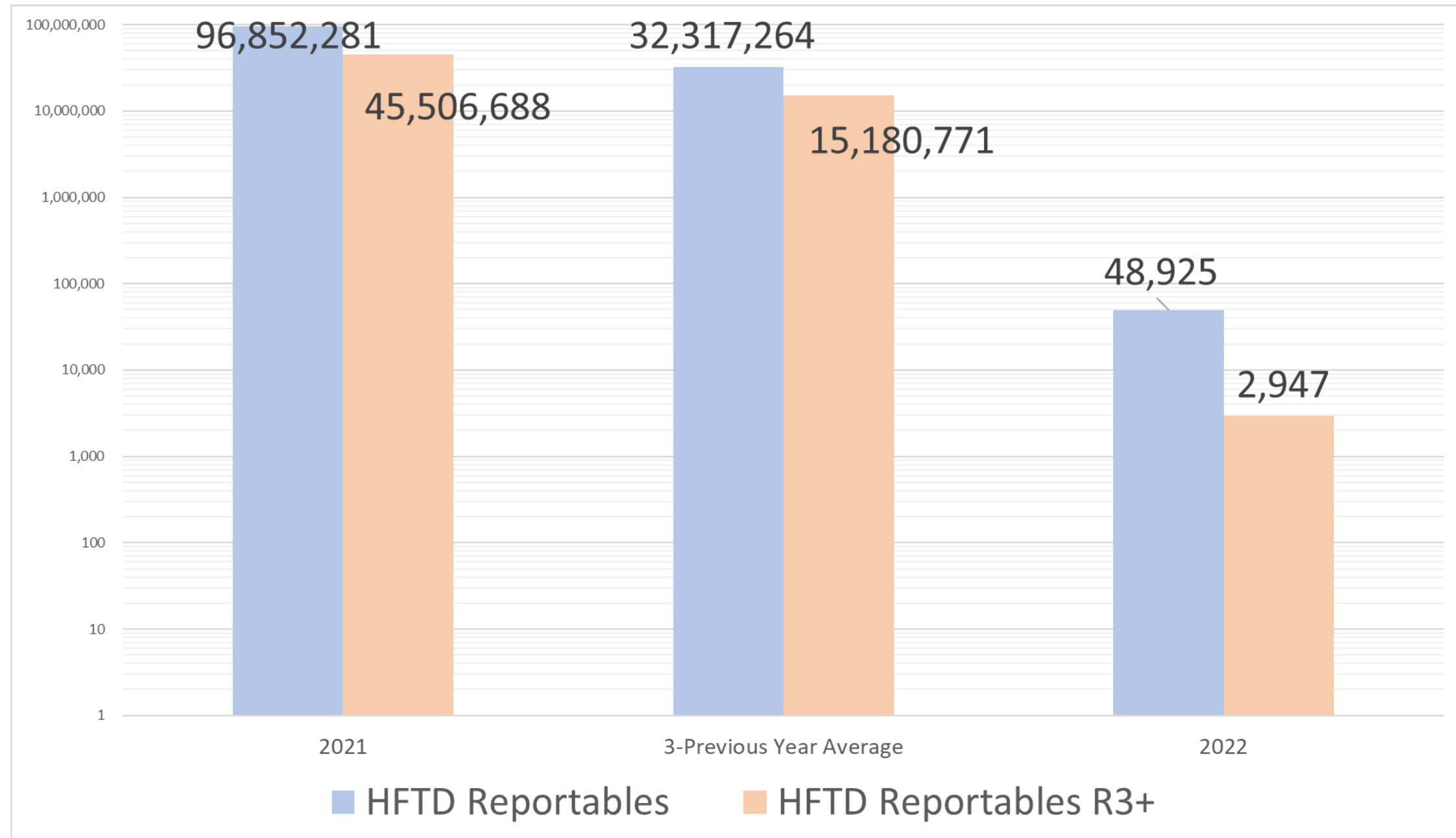
# Reportable Fire Ignitions vs Target



# Reportable Fire Ignition Projections vs Target



# High Fire Threat Ignition Size Index



# Ignition 1264 – Olema 1101



- Complete tree failure causes one-span of primary wire down, resulting in a small fire >3 meters in size
- The outage occurred in R1 conditions, EPSS profiles were not enabled on the circuit
- The subject tree was a dead Douglas Fir with internal rot, last inspected in May 2022



# Ignition 1265 – Big River 1101



- Third-party tree trimmer fells tree into two-phase primary distribution circuit, resulting in a wire-down and a fire <0.25 acre in size.
- The outage occurred in R1 conditions, EPSS profiles were not enabled on the circuit

# Ignition 1267 – Silverado 2104



- Improperly sealed aluminum secondary connectors made contact, resulting in an arcing, metal loss, and a ~0.25 acre fire
- Pole had been recently replaced by a contractor in May, issue was identified in a QA field inspection
- Contractor failed to complete all warranty go-back items prior to ignition

# Ignition 1276 – Narrows 2101

- 40" DBH Oracle Oak shed large limb onto service drop, large cavity of branch failed due to internal rot
- Resulting fire was ~50 acres
- 7 additional trees were identified for removal



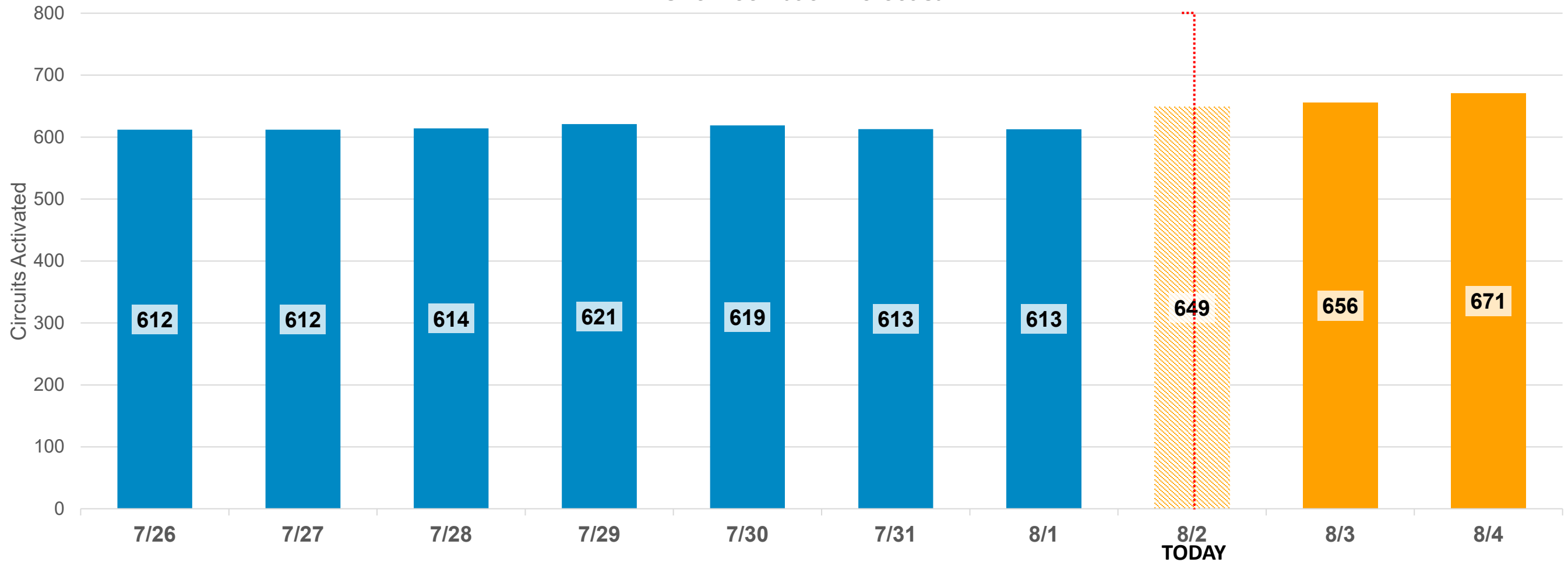
# EPSS



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# EPSS Enablement 1-Week Back / Forecast

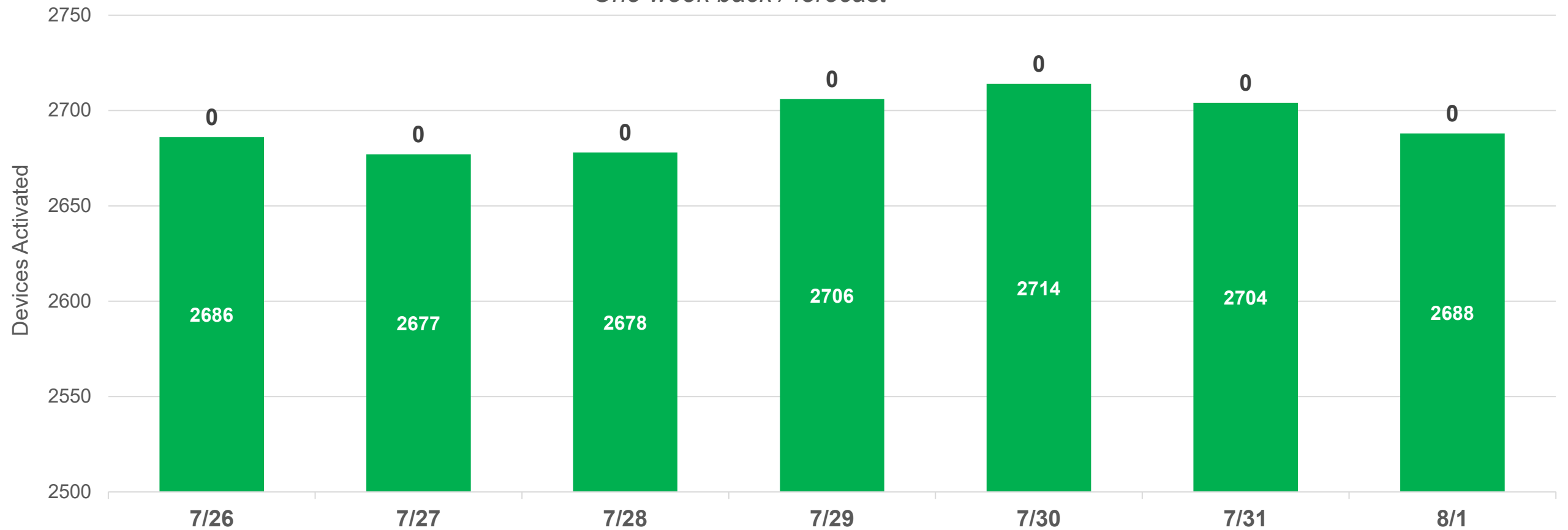
EPSS Enablement – Circuit Counts  
*One week back / forecast*



<b>Customers Protected</b>	<b>903,324</b>	<b>894,127</b>	<b>895,305</b>	<b>898,444</b>	<b>910,154</b>	<b>905,755</b>	<b>895,178</b>	<b>970,461</b>	<b>1,001,456</b>	<b>1,037,566</b>
<b>Miles Enabled</b>	<b>31,691</b>	<b>31,622</b>	<b>31,674</b>	<b>31,870</b>	<b>31,723</b>	<b>31,732</b>	<b>31,669</b>	<b>32,786</b>	<b>33,038</b>	<b>33,486</b>

# EDPI / DMS EPSS Device Enablement Balance

EPSS Enablement Balance – Device Counts  
One week back / forecast



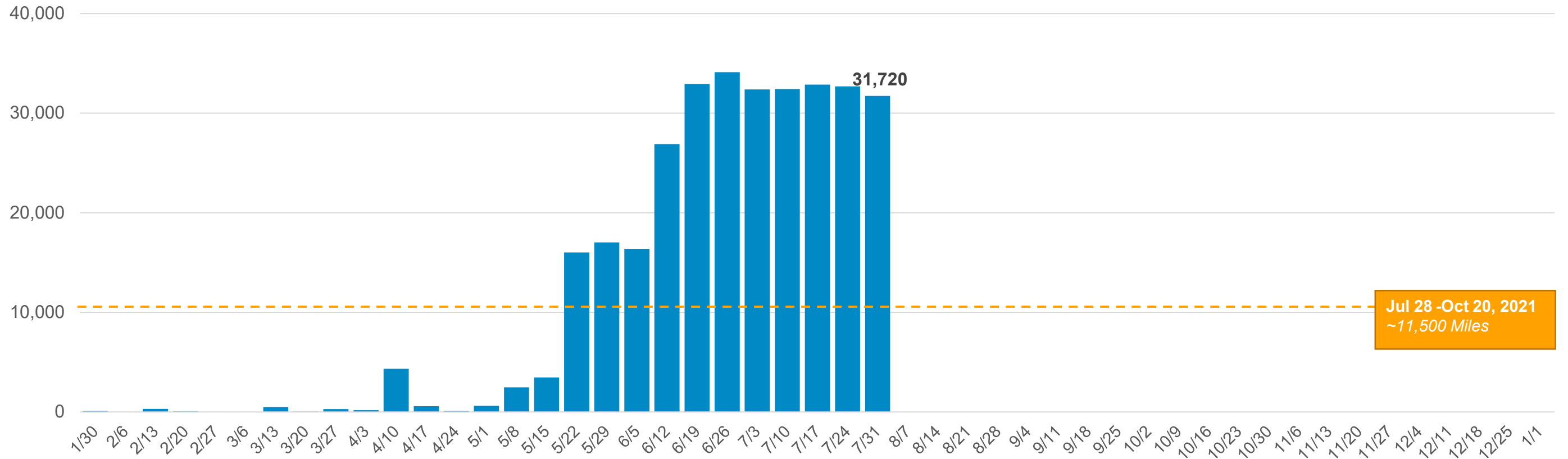
	7/26	7/27	7/28	7/29	7/30	7/31	8/1
<b>Playbook Devices</b>	2686	2677	2678	2706	2714	2704	2688
<b>DMS Validated</b>	2686	2677	2678	2706	2714	2704	2688
<b>Field Disabled</b>	0	0	0	0	0	0	0

# Current EPSS Scope



	<b>Circuits</b>	<b>Customers</b>	<b>Miles</b>
<b>HFRA / HFTD</b>	827	1,230,590	34,919
<b>Non-HFTD Buffer</b>	188	605,952	9,421
<b>Total</b>	<b>1,015</b>	<b>1,836,542</b>	<b>44,339</b>

# Average Daily Miles Enabled by Week



Jul 28 - Oct 20, 2021  
~11,500 Miles

#	Action	Description	Date	Owner	Status
1	Automated Device Validation	<ul style="list-style-type: none"> <li>Develop data pipeline / infrastructure for daily validation that all EPSS devices are providing protection when scoped in PESS playbook</li> <li>Develop progress reporting &amp; documentation via Foundry</li> </ul>	9/1/22	John Birch	In Progress



# HFTD Reportable Fire Ignitions on Enabled Zones



<b>Weekly EPSS Ignitions</b> <i>7/26/22 through 8/1/22</i>	<b>2022 YTD EPSS Ignitions</b> <i>Since 1/1/22</i>
<b>0</b> <i>Ignitions<sup>1</sup></i>	<b>17</b> <i>Ignitions</i>
<i>Target :</i>	<b>12.5<sup>2</sup></b>

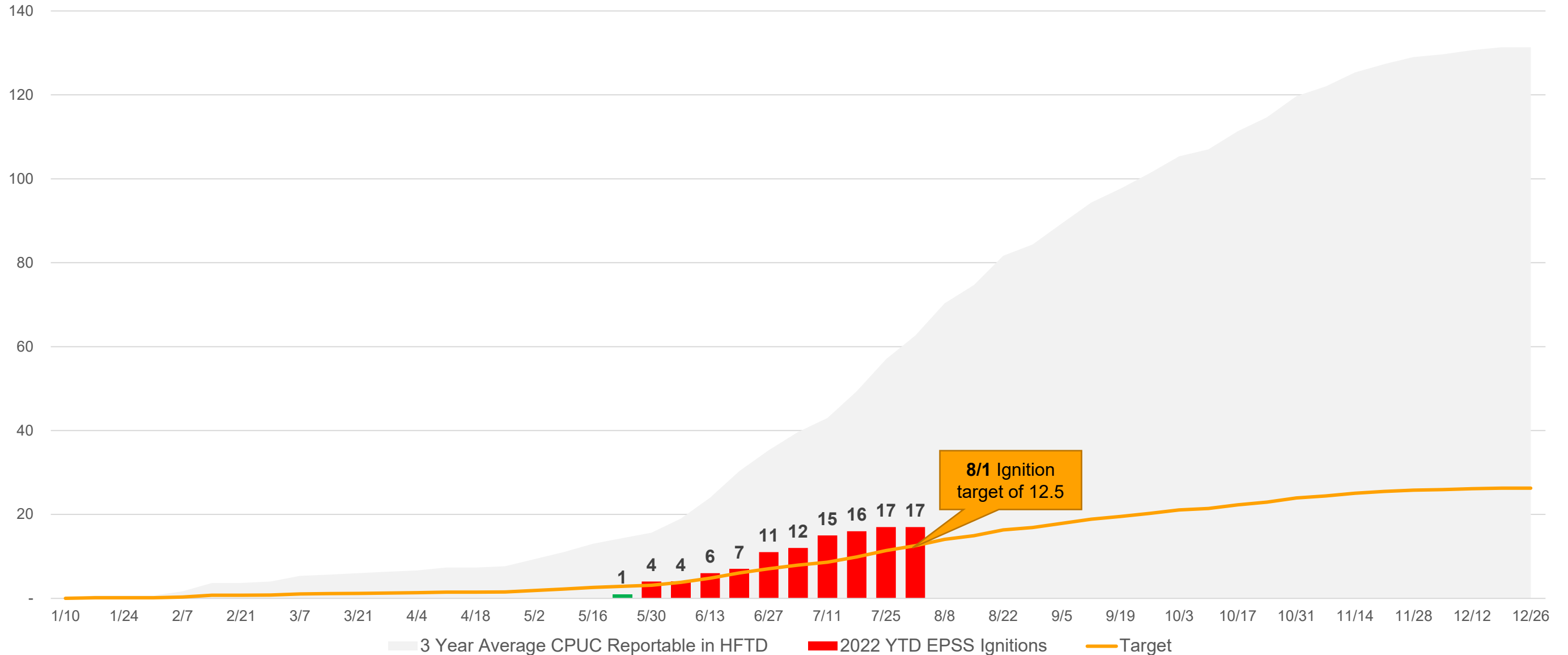
<sup>1</sup> PRELIMINARY – Incidents under investigation and ignition confirmation is not yet determined

<sup>2</sup> Target based on 80% YTD Reduction of 3-year average 2018-2020 CPUC Reportable Ignitions on Primary Distribution and Transmission Conductor in HFTD

# YTD Ignitions in EPSS Enabled Zones



## Ignitions in EPSS Enabled Zones



Data YTD through 8/1/22 as of 8/2/22.

PRELIMINARY – Incidents under investigation and ignition confirmation is not yet determined

Date	Event / Circuit	HFTD	Size	Fault	Review Findings	Actions & Extent of Condition	Status
5/20/22	<b>Golden Fire</b> Pike City 1101	Tier 2	20	Hi-z	<b>Privileged and Confidential</b> 1. EPSS Settings operated as programmed (~34 millisecond clearing time) 2. High-Z Fault (10 amp) visible 2 minutes prior to outage in ground leakage 3. PG&E observed recent tree failure outages in January 4. Subject tree was inspected in March – no work prescribed - No visible defect on trees	1. Remove 5 strike potential trees 2. Work Management Issue: Repair Data for January Grey Pine Fall 3. Explore: Trunk with no visible defect failures (Proposal to expand Veg XOC investigation process to all veg outages in HFTD) 4. Understand quarantined veg work at location (USFS)	Complete
5/23/22	<b>Santa Ynez 1104</b>	Tier 2	<0.25 Acres	LTL	1. Crew working in HLT mode (fault cleared in 230 milliseconds) – line to line fault energy enough for spark 2. Insulating blankets disturbed in wind – making line to line contact possible 3. Contract crew was in compliance with TD-1464S	1. Update to TD-1464S to include clarifying information regarding location of tools and equipment. 2. Change to TD-1464S to change language to add exception for dedicated fire watch in R4 conditions for work activity involving energized equipment.	Complete
5/23/22	<b>Highland Fire</b> North Dublin 2103	Tier 2	91.9	LTL	1. Circuit was protected by EPSS but circuit breaker did not operate (fuse cleared in 45 milliseconds) 2. AT&T owned telecom package struck by vehicle – causing line to line fault, 91-acre fire, damaging 2 poles 3. PG&E identified the telecom package as unauthorized attachment in 2019, sent multiple follow ups to AT&T 4. LiDAR data: no clearance issues in 2019	1. Circuit breaker time delay shortened to 0.5 cycles 2. Ongoing Apparent Cause Evaluation (ACE) on 8 2022 telecom line strikes (includes analysis on LiDAR Data and unauthorized attachment issues systemwide)	Complete
5/23/22	<b>Pope Fire</b> Silverado 2102	Tier 3	5	LTL	1. EPSS operated as programmed (fault cleared in 2 cycles) – line to line fault energy enough for spark/failure of chance clamp 2. Fire Department confirms city employee struck guy - probable cause of line slap 3. Additional assets presumably damaged in line-to-line fault identified in SCAR	1. Work management issue: missing tie-wire identified in SCAR with pre-existing EC tag that was created as an b tag then incorrectly downgraded to an E tag in review (escalated to a B tag in SCAR process) 2. Work Management Issue: removed dead end shoe connector presumably damaged in LTL fault that was left in service	In Progress
6/10/22	<b>Redwood Fire</b> Morgan Hill 2105	Tier 3	8	Hi-Z	1. Unknown cause – line sagging into conductor or conductor bird caging at fire origin	1. Analyze Fault Data 2. Further investigate cause of fault	In Progress
6/10/22	<b>Mcgall Fire</b> Hopland 1101	Tier 2	1	Hi-Z	1. Tree into lines – causing energized conductor down 2. High-impedance fault visible in DCD alarm	1. Enable Beckwith trip based on DCD alarm	In Progress
6/14/22	<b>Soquel Fire</b> Paul Sweet 2106	Tier 3	<0.25 Acres	LTG	<i>In Progress</i>	<i>In Progress</i>	In Progress

Date	Event / Circuit	HFTD	Size	Fault	Review Findings	Actions & Extent of Condition	Status
6/24/22	<b>Hibbard Fire</b> Philo 1101	Tier 2	20' x 20'	Hi-Z	Fir tree from abandoned Christmas Tree Farm calls into conductors.	No additional strike potential tree issues identified 10 closest spans on circuits.	In Progress
6/25/22	<b>Redwood Fire</b> Los Gatos 1106	Tier 3	<0.25 Acres	Hi-Z	Pending EPSS Engineering Analysis	One additional Coastal Live Oak removed from incident location	In Progress
6/25/22	<b>Rock Fire</b> Camp Evers 2106	Tier 3	TBD	Hi-Z	Coastal Live Oak tree with no visible defects falls into conductors.	No additional strike potential tree issues identified 10 closest spans on circuits.	In Progress
6/26/22	<b>Farrell Fire</b> Vacaville 1111	Tier 2	<0.25 Acres	No Fault Targets identified	E-Fuse failure causes ignition at base of pole.	<ol style="list-style-type: none"> <li>1. Remove sister units from service and conduct failure analysis.</li> <li>2. Inform ongoing E-Fuse failure analysis conducted by Asset Failure Analysis</li> </ol>	In Progress
6/28/22	<b>Atascadero 1103</b>	Tier 2	<0.25 Acres	Hi-Z	Regulator Bushing cover melts, causing fire at the base of pole.	Ignition team is coordinating removing the regulator from service for failure analysis, suspects regulator overload.	In Progress
7/5/22	<b>Kelsey Fire</b> Konocti 1102	Tier 3	<100 acres	TBD	Oak tree trunk failure cause fire less than 100 acres in size.	Pending the Vegetation Extent of Condition Report	In Progress
7/5/22	<b>Redwood Fire</b> Rob Roy 2104	Tier 2	<0.25 Acres	TBD	Fire with unknown cause, fire at the base of facilities with no wire down. Evidence of previous bird line strikes on span. Neighbors heard turkeys prior to fire.	Waiting on agency fire report to inform cause.	In Progress
7/7/22	<b>Vista Fire</b> Philo 1101	Tier 2	Less than 3 meters	Suspected High-Z	VM contractor caused a lint-strike due to improper work methods. Contractor did not see evidence of fire until 40 minutes after wire down.	Vegetation Management required the contractor to stand-down on 7/11 and implement corrective actions.	In Progress
7/15/22	<b>Leporte Fire</b> Challenge 1101	Tier 3	<0.25 Acres	TBD	Veg Contact: Fallen Madrone tree leaning against overhead conductor	TBD	In Progress

Date	Event / Circuit	HFTD	Size	Fault	Review Findings	Actions & Extent of Condition	Status
7/25/22	Knights Fire CALISTOGA 1101	Tier 3	<10 acres	TBD	Privileged and Confidential Pending EPSS engineering Analysis Animal Contact	TBD	In Progress

# Partial Voltage Force Out

2022 YTD PV Force Outs <i>Since 1/1/22</i>	Identified Field Hazards	Average Response Time
<b>16</b> <i>Outages</i>	<b>6</b>	<b>14</b> <i>Minutes</i>

# Partial Voltage Force Out



Date	Circuit	PV Call	Force Out	PV Alarm to Force Out	CESO	CAIDI	Outage Cause	Outcome
6/18/22	Rincon 1101	06:34	06:40	7 Minutes	3,735	69	Animal at riser	No ignition (false positive)
6/24/22	Curtis 1703	05:32	05:47	15 Minutes	3,071	274	Unknown	No ignition (false positive)
6/30/22	Rio Dell 1102	16:29	16:41	12 Minutes	254	388	Vegetation	No ignition
7/7/22	Green Valley 2101	01:29	01:35	6 Minutes	1,884	399	Unknown	No ignition (false positive)
7/8/22	Wyandotte 1109	15:28	15:31	3 Minutes	1,431	103	Vegetation	Non-HFTD spot ignition
7/8/22	Philo 1101	14:51	14:57	6 Minutes	2,215	92	Vegetation	Non-RFI ignition
7/9/22	Brunswick 1110	06:24	07:09	45 Minutes	2,974	99	Animal	No ignition (false positive)
7/15/22	Oleta 1101	19:42	19:44	2 Minutes	500	380	Equipment	No ignition (false positive)
7/16/22	Spring Gap 1702	12:26	12:35	9 Minutes	1,536	80	Equipment	No ignition (false positive)
7/19/22	Auberry 1101	1143	1209	26 Minutes	307	162	Unknown	No ignition (false positive)
7/25/22	Clear Lake 1101	1005	1017	12 Minutes	96	135	Unknown	No ignition (false positive)
7/29/22	Camp Evers 2106	1538	1549	11 Minutes	2,214	110	Equipment	No ignition (false positive)
7/31/22	Dunbar 1101	1041	1100	19 Minutes	2,162	171	Unknown	No ignition (false positive)
8/1/22	Flint 1101	625	645	20 Minutes	1,925	108	Animal	No ignition

7/17/22	West Sacramento 1109	1255	1315	20 Minutes	2,853	86	Equipment	Non-HFTD ignition
7/19/22	Lemoore 1104	1858	1905	7 Minutes	1393	135	Equipment	No ignition – Wires Down

# Down Conductor Detection Pilot



2022 Scope	Target Complete	YTD Complete
<p><b>~330</b></p> <p><i>Devices</i></p>	<p><b>20</b></p> <p><i>Locations</i></p>	<p><b>20</b></p> <p><i>Locations</i></p>

Phase		Devices	Target	Status
1	Initial Implementation	5	7/25	Complete
2	Expansion Ph 1	20	8/1	Complete
3	2022 Pilot Full Scope	300	8/21	In Progress



# Down Conductor Detection



Task		End	May	June	July	August
1.1	Finalize DCD specific default settings for Beckwith 7679	5/31	█			
1.2	Download Current Settings from 153 DIGI EPSS devices, Review and modify changes needed to enable DCD Trip. Upload setting using DIGIs (Planning and ATS)	6/15		█		
1.3	Enable TCP/IP Comm ability on EPSS Beckwith 7679 Devices	6/15		█	█	█
1.4	Upload DCD Trip settings using TCP/IP Comm ability on all EPSS Beckwith 7679 Devices	8/1			█	█
1.5	Training and procedure for Operators and update protocols/TIP	TBD				█
1.6	Radio deployment and IT support for additional Beckwith devices	9/1		█	█	█

TODAY

# Down Conductor Detection Actions



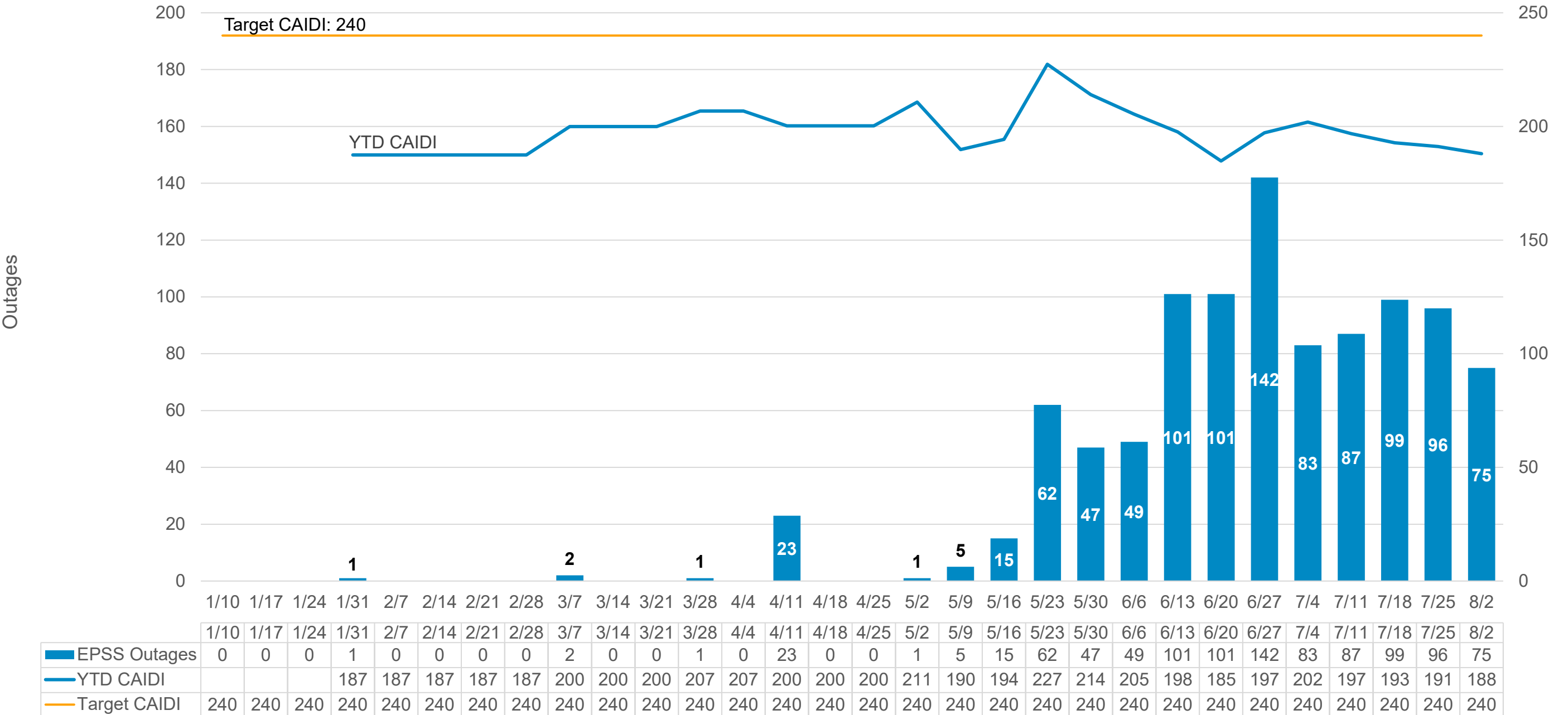
#	Action	Description	Date	Owner	Status
1	<b>Testing and Settings Refinement</b>	<ul style="list-style-type: none"><li>Review device tripping occurring due to normal circuit maintenance activities.</li><li>Identify root cause of nuisance trip on device to allow for full scale deployment.</li></ul>	8/8/22	James Tuccillo Neelofar Anjum	<b>At Risk</b>
2	<b>Parallel Path Rollout</b>	<ul style="list-style-type: none"><li>Establish parallel path rollout via field deployment and remote upload paths.</li><li>Impact to other critical field work.</li></ul>	<i>Ongoing</i>	Jim Gill Neelofar Anjum James Tuccillo	<b>In Progress</b>

# Outages in EPSS Enabled Zones



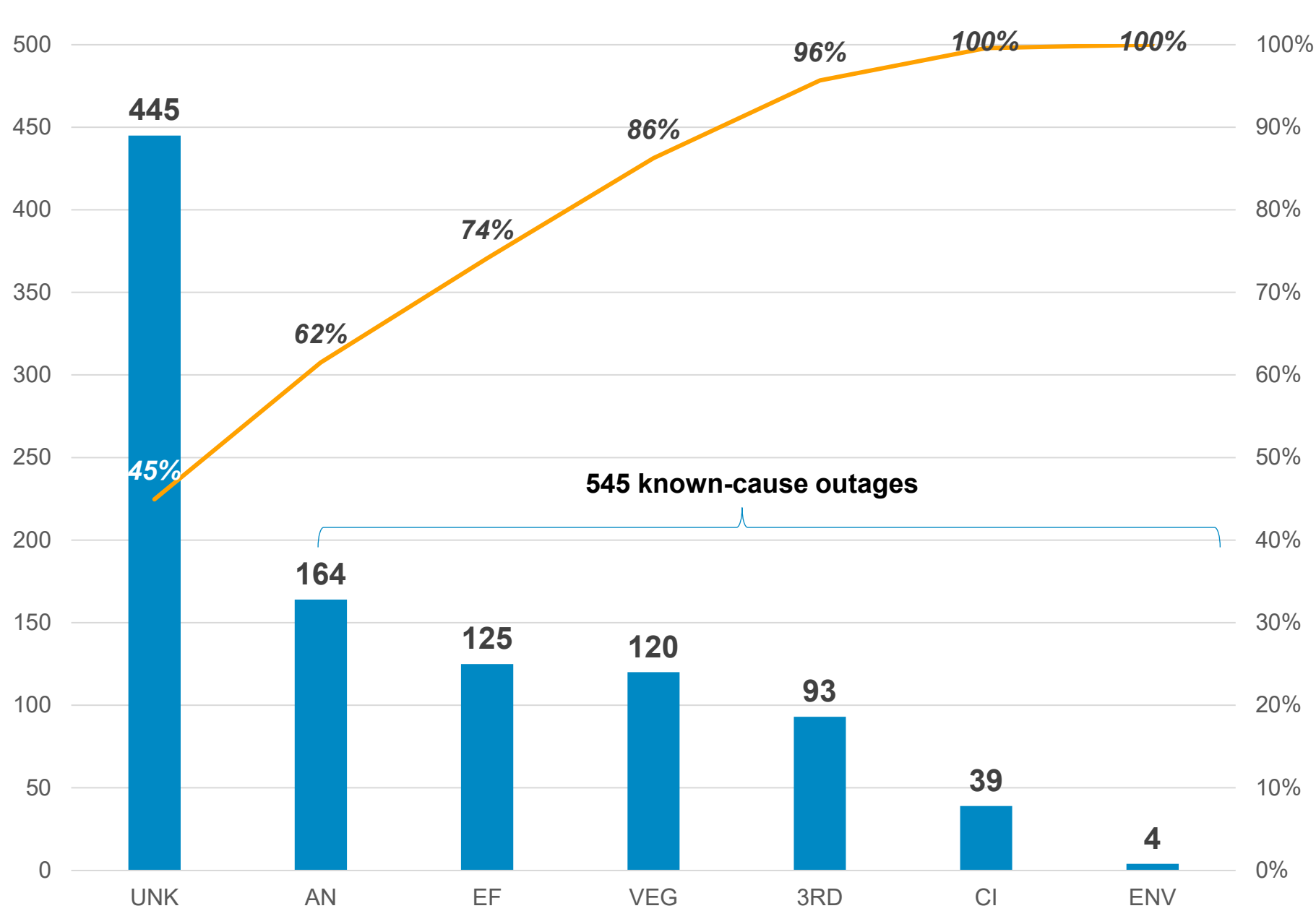
Period	Reliability Performance	
	Outages	Avg. CESO
2022 YTD	<b>990</b> <i>Outages</i>	<b>882</b> <i>Customers</i>
Last Week	<b>75</b> <i>Outages</i>	<b>816</b> <i>Customers</i>
Reference: 2021 Pilot	627	1,102
Reference: 2021 FTS Only	279	1,101

# YTD Outages on EPSS Enabled Zones



Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# Outages on EPSS Enabled Zones by Cause



Cause	No of Outages
<b>AN</b>	<b>164</b>
Bird found	106
Other	10
Squirrel	48
<b>EF</b>	<b>125</b>
Electrical Overload	10
Overhead	80
Substation	3
Underground	32
<b>VEG</b>	<b>120</b>
Tree - bark fell into line	1
Tree - branch fell on line	45
Tree - cutting, PG&E contractor	2
Tree - fell into line	69
Tree - grew into line	1
Tree - palm frond fell into line	2
<b>3RD</b>	<b>93</b>
Aircraft	2
Contact with High Voltage, 3rd party	1
Customer Equipment	9
Dig in, 3rd party	1
Fire, house or bldg.	2
Metallic Balloon	14
Other	4
Tree - cutting, 3rd party	18
Vandalism	1
Vehicle	41
<b>CI</b>	<b>39</b>
Construction Activity/equip, company	7
Contact with High Voltage, company	1
Coordination failure	10
Dig in, company	1
Improper Construction	1
Operating error	3
Personnel, company	13
Planned, capital	1
Return Circuit Normal	2
<b>ENV</b>	<b>4</b>
Lightning	4
<b>Grand Total</b>	<b>545</b>

Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# EPSS Circuits with 5+ Outages

Circuit	Outag	Average CESC	C_Min	Min CAID	Max CAID	Last Outage	2nd-to-last C	CAIDI	Recency Score	Multiple Outage Review	Escalation Level	Agency Outreach	Customer Outreach	Media Outreach
CAMP EVERS 2106	12	1,486	3,715,238	26	261	7/23/2022	7/23/2022	208	18.93	Complete	2	In Progress	Complete	
CAMP EVERS 2105	11	1,507	4,317,957	45	975	7/29/2022	7/29/2022	261	7.13	In Progress	2		Complete	Complete
POSO MOUNTAIN 2101	10	63	306,033	57	1,834	7/10/2022	6/22/2022	487	63.11	Complete	1			
SAN LUIS OBISPO 1107	10	1,256	939,348	40	234	6/20/2022	6/16/2022	75	88.50	Complete	-	Complete	Complete	Complete
MADISON 2101	10	678	2,726,864	16	654	7/29/2022	6/20/2022	402	46.59	Complete	1	Complete	Complete	Complete
NARROWS 2105	9	1,725	2,666,622	29	360	8/1/2022	7/25/2022	172	8.16	Complete	-			
APPLE HILL 2102	9	1,608	4,950,953	73	718	7/13/2022	7/1/2022	342	51.42	In Progress	0	Complete	Complete	
DUNLAP 1102	7	172	504,035	169	1,166	7/29/2022	6/30/2022	418	36.54					
TYLER 1105	7	740	1,320,525	141	550	8/1/2022	7/25/2022	255	7.43	In Progress	1	In Progress	Complete	
RESERVATION ROAD 1102	7	705	623,706	73	180	7/20/2022	7/18/2022	126	26.52	In Progress	0		Complete	
CORNING 1101	7	326	261,378	56	170	7/25/2022	7/11/2022	115	29.29	In Progress	0			
TIVY VALLEY 1107	7	655	1,010,588	134	363	7/30/2022	7/15/2022	220	19.43	In Progress	0			
ATASCADERO 1103	6	516	466,488	111	212	8/1/2022	7/17/2022	151	16.52		0			
SILVERADO 2104	6	1,175	2,584,372	181	613	7/17/2022	6/22/2022	367	56.04		1	Complete	Complete	Complete
SHINGLE SPRINGS 2109	6	1,596	1,810,384	94	273	7/31/2022	7/22/2022	189	12.10					
HALF MOON BAY 1103	6	1,035	1,068,270	27	823	6/28/2022	6/21/2022	172	75.97	In Progress	-			
PUEBLO 2104	6	230	398,453	122	628	8/1/2022	7/19/2022	289	14.47					
TEMPLETON 2113	6	1,493	1,965,580	55	445	7/30/2022	7/3/2022	219	32.19		1	Complete		
SHINGLE SPRINGS 2108	6	1,690	1,493,765	21	361	7/16/2022	7/2/2022	147	47.68	Complete	-			
BRENTWOOD 2105	6	141	312,146	37	893	7/13/2022	7/12/2022	368	40.30	Complete	0			
SILVERADO 2102	6	662	478,626	52	447	7/26/2022	6/18/2022	120	51.84		0			
CORRAL 1101	6	622	581,719	84	359	6/29/2022	6/27/2022	156	68.88		0			
GREEN VALLEY 2101	6	758	643,049	51	231	7/18/2022	7/5/2022	141	42.10	In Progress	1			
PANORAMA 1102	6	250	230,128	75	237	7/21/2022	7/19/2022	153	25.38	In Progress	0		Complete	
HICKS 2101	6	2,650	3,179,434	36	279	7/11/2022	7/9/2022	200	44.70	In Progress	2	In Progress	Complete	Complete
MIRABEL 1101	6	285	273,051	32	302	7/26/2022	7/15/2022	160	23.76					
MC ARTHUR 1101	6	295	711,089	191	906	7/29/2022	7/20/2022	402	15.87					
SONOMA 1102	5	115	250,125	129	870	6/10/2022	6/8/2022	435	106.69	Complete	0	Complete	Complete	Complete
HOPLAND 1101	5	231	322,627	191	691	7/4/2022	7/3/2022	280	57.72	In Progress	1			
MARIPOSA 2102	5	1,330	874,580	174	394	8/1/2022	7/20/2022	131	12.73					
BIG BASIN 1102	5	562	368,747	18	198	7/22/2022	7/22/2022	131	21.07					
LINCOLN 1104	5	396	279,499	65	242	7/30/2022	7/30/2022	141	5.10					
OCEANO 1104	5	1,110	579,148	65	135	7/22/2022	6/22/2022	104	51.39					
TEMPLETON 2111	5	436	333,170	50	182	7/19/2022	7/5/2022	153	40.76					
BIG BEND 1102	5	310	285,119	130	324	7/25/2022	7/25/2022	184	14.82		0			
VOLTA 1101	5	207	277,198	160	307	7/14/2022	7/10/2022	268	40.97					
PENRYN 1103	5	447	334,114	78	247	7/2/2022	6/30/2022	149	62.48	In Progress	0			
KONOCTI 1102	5	324	256,443	84	190	7/25/2022	7/17/2022	158	23.15					
PLACERVILLE 2106	5	1,603	1,570,529	126	379	7/24/2022	6/10/2022	196	61.20					
LOS GATOS 1106	5	613	491,925	64	229	7/27/2022	6/20/2022	160	47.98		0			
AUBERRY 1102	5	408	381,979	151	224	7/21/2022	7/21/2022	187	22.96					
STAFFORD 1102	5	890	368,069	59	156	7/30/2022	7/15/2022	83	20.67					
ELK CREEK 1101	5	417	580,351	155	581	8/1/2022	6/21/2022	278	42.43		0			
WOODACRE 1102	5	1,890	1,260,499	36	337	7/23/2022	7/6/2022	133	35.88	In Progress	1	Complete	Complete	
HOOPA 1101	5	212	744,350	100	989	7/16/2022	7/12/2022	702	37.04	In Progress	0			
BIG BASIN 1101	5	1,122	875,282	26	279	7/6/2022	6/25/2022	156	63.80					
ROB ROY 2104	5	1,166	572,176	66	194	7/5/2022	7/1/2022	98	58.84	Complete	2		Complete	
FITCH MOUNTAIN 1113	5	275	322,585	90	867	7/20/2022	6/29/2022	235	45.74					
BEN LOMOND 0401	5	462	270,659	60	198	7/12/2022	7/1/2022	117	51.60	In Progress	2		Complete	Complete
NARROWS 2102	5	710	1,474,796	53	801	7/30/2022	7/18/2022	415	17.31		1	Complete		

Data YTD through 08/01/22 as of 08/02/22. Excludes outages still open as of 0600

Circuit	Owner	Category	Problem	Action(s)	Resolution	Status
<b>PUTAH CREEK 1105</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>During restoration patrol customer informed PG&amp;E the power when large equipment is turned on in the mornings</li> <li>Consistent with our design parameters, the protection device had been set to trip below this in-rush current</li> </ul>	<ul style="list-style-type: none"> <li>Engineers reviewed device data and adjusted protection settings to be above inrush current and re-installed settings in field</li> </ul>	<b>5/24/22</b>	<b>Complete</b>
<b>SHINGLE SPRINGS 2108</b>	Carl Benner Shawn Fagen Adam Mello	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>Engineering reviewed data from protection devices and existing line sensors and identified abnormal pulses</li> <li>Installed additional line sensors and continued to monitor and troubleshoot to identify pulses.</li> <li>Field patrol of impacted zones to identify any abnormal conditions recommended installation of animal mitigations.</li> </ul>	<ul style="list-style-type: none"> <li>Bird guarding implemented at normal open</li> <li>Relay settings updated to increase coordination between devices</li> <li>Additional protection devices have been recommended to further sectionalize line</li> <li>No additional outages since 6/1</li> <li>Circuit is to be given an infrared inspection</li> </ul>	<b>6/8/22</b>	<b>Complete</b>
<b>TYLER 1105</b>	Tim Bedford Ola Lamidi	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>5 unknown outages have occurred on circuit since the beginning of June</li> <li>3 outages have been on the same SSD</li> </ul>	<ul style="list-style-type: none"> <li>Detailed patrol was performed and multiple EC tags were submitted on 6/6</li> </ul>	<b>6/30/22</b>	<b>Complete</b>
<b>SAN RAMON 2103</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>Potential issue is a component failing within the UG section and that sensitive EPSS settings are picking it up and locking out (similar to Shingle Springs 2108)</li> </ul>	<ul style="list-style-type: none"> <li>Load switching occurred, shifting from San Ramon 2103 to San Ramon 2016</li> </ul>	<b>6/30/22</b>	<b>Complete</b>
<b>CALISTOGA 1102</b>	Tim Bedford	Escalated Circuit	<ul style="list-style-type: none"> <li>On 6/21 at 14:21, Calistoga 1102 CB locked out on ground instantaneous overcurrent targets (i.e. "SGF"). At the same time, downstream LR 66730 also locked out. Customers were restored at 16:23. At 16:27, the same phenomena occurred, CB 1102 and LR 66730 locked out. At this point Alt 4 settings were deployed and all customers were restored at 17:56.</li> </ul>	<ul style="list-style-type: none"> <li>CT was replaced and SGF has been enabled.</li> <li>Standing Ground Current is validated at below 1 Amp</li> </ul>	<b>7/6/22</b>	<b>Complete</b>
<b>SILVERADO 2102</b>	Tim Bedford	Escalated Circuit	<ul style="list-style-type: none"> <li>Initial outages occurred in April and May. Detailed patrols by Tmen found several locations with conductor separation issues</li> </ul>	<ul style="list-style-type: none"> <li>Tags were generated for the locations of concern.</li> <li>Fault indicators were requested to be installed at multiple locations but were unable to ultimately be installed.</li> </ul>	<b>7/12/22</b>	<b>Complete</b>

Circuit	Owner	Category	Problem	Action(s)	Resolution	Status
<b>SAN LUIS OBISPO 1107</b>	Tim Bedford Matthew Queen	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>Field patrol of impacted zones identified capacitor bank as a potential cause</li> <li>Hand-held infrared of underground cable identified potential no-good section of circuit (circuit zone had both UG and OH conductor).</li> <li>Installed line sensors and continued to monitor and troubleshoot.</li> </ul>	<ul style="list-style-type: none"> <li>Majority of customers were transferred to the Oceano 1105 circuit. The impacted reclosing protection device (V18) is in process of being replaced.</li> <li>Capacitor bank downstream of impacted recloser was placed on manual and added to the COE for replacement.</li> <li>Multiple underground issues have been addressed.</li> <li>Fault indicators and line sensors (downstream of recloser) are installed on the circuit.</li> <li>Significant progress has been made with vegetation patrol and clearing on impacted circuit zones.</li> </ul>	<b>7/19/22</b>	<b>Complete</b>
<b>SONOMA 1102</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>5 unknown outages have occurred on the same SSD, LR 441730, since the beginning of April</li> </ul>	<ul style="list-style-type: none"> <li>Engineering has raised the trip settings for the impacted fuse saver.</li> <li>Engineering has also directly taking a Cap Bank to off.</li> <li>Detailed patrols have been executed in parallel with the installation of 8 sets of fault indicators.</li> <li>Field Ops evaluating bringing forward EC tag work.</li> </ul>	<b>7/19/22</b>	<b>Complete</b>
<b>MADISON 2101</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>9 outages have occurred across multiple SSDs since mid-April.</li> <li>5 of those outages have occurred on device 1606.</li> </ul>	<ul style="list-style-type: none"> <li>Team has performed detailed patrols in this area. The area has historical challenges with birds. Engineering has reviewed relay settings.</li> <li>20+ fault indicators have been installed to accelerate id of trouble areas quicker.</li> <li>Accelerating a LR replacement project that will address a fairly large tap line with historically bird and unknown outages. Local and Cal Trans permits present a risk.</li> <li>Engineering reviewed locations for fuse saver installations and did not find locations for devices.</li> </ul>	<b>7/12/22</b>	<b>Complete</b>
<b>NARROWS 2105</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>Similar to Narrows 2102, the recloser on both sides of the auto bank were opened to prevent an unnecessary ground-related trip of the circuit</li> </ul>	<ul style="list-style-type: none"> <li>Engineering assessed the extent of condition and did not recommend actions post assessment</li> </ul>	<b>6/14/22</b>	<b>Complete</b>



Circuit	Owner	Category	Problem	Action(s)	Resolution	Status
<b>POSO MOUNTAIN 2101</b>	Tim Bedford Jose Jimenez	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>10 outages have occurred across multiple SSDs since mid-May (3<sup>rd</sup> most across all EPSS circuits)</li> <li>1 outage was identified as being bird related versus and its unknown outage cause code was updated</li> </ul>	<ul style="list-style-type: none"> <li>Historical challenging remote inaccessible circuit. Main issue is with crows and their nests located under poles. Fault indicators have been installed across this area. Bird guarding locations are being discussed with the local ORT team.</li> <li>Engineering reviewed System Hardening projects.</li> <li>Engineering reviewed relay protection settings and the need to install devices just upstream of primary metered equipment because of 3 customer primary meter-related outages.</li> </ul>	6/27/22	Complete
<b>FAIRVIEW 2207</b>	Tim Bedford William Salvador	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>4 outages have occurred on the circuit since 6/21</li> </ul>	<ul style="list-style-type: none"> <li>Team has reached out to see if there are ongoing coordination issues. Patrol zones were identified with relevant Fault Indicator installation locations</li> </ul>	7/12/22	Complete
<b>HICKS 2101</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>6 outages have occurred across 3 SSDs since mid-May</li> </ul>	<ul style="list-style-type: none"> <li>Detailed patrols were completed on 6/24 and 2 FIs were installed.</li> <li>Additional Fault Indicators were recommended to be installed on north and south of pole SAP ID 10383998 and on Fuse 6813.</li> <li>3 capital projects are currently being initiated by the protection team to limit EPSS exposure targeted as 2023 projects. An UG project is also being proposed which will support reduced exposure.</li> <li>Load was transferred from Hicks 2101 to Hicks 2105</li> </ul>	TBD	In Progress
<b>HALF MOON BAY 1103</b>	Tim Bedford Aaron Johnson	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>6 outages have occurred on the circuit since 6/10 with 3 outages on device 655644 and 1 outages on device H82</li> </ul>	<ul style="list-style-type: none"> <li>EPSS team is engaging with the local teams to provide support. Relay settings, fault indicator installations, projects, and veg management efforts are key focus areas.</li> <li>Dispatch request for additional Fault Indicator installations and for detailed patrols was made. Request to accelerate installation of Fault Indicators was made on 7/8.</li> <li>Bird-proofing Open-Delta and 3-Pot transformers on 6 small Fuse Taplines is in progress.</li> </ul>	TBD	In Progress
<b>ROB ROY 2104</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>5 outages have occurred on the circuit since the beginning of June</li> </ul>	<ul style="list-style-type: none"> <li>Review has been initiated with multiple actions to be explored by program teams.</li> </ul>	TBD	In Progress

Circuit	Owner	Category	Problem	Action(s)	Resolution	Status
<b>APPLE HILL 2102</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>9 outages have occurred on the circuit and a request for a review of the circuit has come from Customer as well.</li> </ul>	<ul style="list-style-type: none"> <li>Review has been initiated with multiple actions to be explored by program teams.</li> <li>Fault Indicators have been installed</li> </ul>	<b>TBD</b>	<b>In Progress</b>
<b>RESERVATION ROAD 1102</b>	Sukhdeep Singh Christian Mercado	Escalated Circuit	<ul style="list-style-type: none"> <li>7 outages have occurred across 4 SSDs since 7/9</li> <li>Burned open jumper could have caused the outages</li> <li>Customers were impacted multiple times</li> </ul>	<ul style="list-style-type: none"> <li>EPSS team is engaging with the local teams to provide support. Relay settings, fault indicator installations, projects, patrol dispatch efforts are key focus areas.</li> <li>Recommendations for targeted patrol zones and Fault Indicator installation locations were requested to the engineering team on 7/19.</li> </ul>	<b>TBD</b>	<b>In Progress</b>
<b>CAMP EVERS 2105</b>	Matthew Queen Dave Casuncad	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>11 outages have occurred across 8 SSDs since 6/9</li> <li>Last 4 outages were caused by vegetation</li> </ul>	<ul style="list-style-type: none"> <li>EPSS team is engaging with the local teams to provide support. Request was sent to review possible additional projects and/or device installations. Device installation may extend over to 2023.</li> <li>Detailed patrol was completed on 6/28.</li> </ul>	<b>TBD</b>	<b>In Progress</b>
<b>CAMP EVERS 2106</b>	Bill Salvador Christian Mercado	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>12 outages have occurred across 8 SSDs since 5/23</li> </ul>	<ul style="list-style-type: none"> <li>19 Fault Indicators were installed.</li> <li>Patrol was completed on 6/28. Poles could be replaced and it is suggested to replace with tree wire.</li> </ul>	<b>TBD</b>	<b>In Progress</b>
<b>BRENTWOOD 2105</b>	Jose Jimenez Dave Casuncad	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>6 outages have occurred across 4 SSDs since 6/9</li> </ul>	<ul style="list-style-type: none"> <li>Fault Indicators have been installed on Load Side of LR 6512 on 7/14</li> <li>Reviewing and improving EPSS coordination scheme is recommended</li> </ul>	<b>TBD</b>	<b>In Progress</b>
<b>TIVY VALLEY 1107</b>	Tim Bedford Jay Patel	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>7 outages have occurred across 4 SSDs since 6/22</li> </ul>	<ul style="list-style-type: none"> <li>Review has been initiated with multiple actions to be explored by program teams.</li> </ul>	<b>TBD</b>	<b>In Progress</b>
<b>HOOPA 1101</b>	Mike Nzundi Christian Mercado	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>5 outages have occurred across 4 SSDs since 6/22</li> </ul>	<ul style="list-style-type: none"> <li>10 Fault Indicators have been tagged and completed.</li> <li>Migratory bird retrofit is under review to determine if retrofit could be performed in the outage area within 2022 fundings</li> </ul>	<b>TBD</b>	<b>In Progress</b>

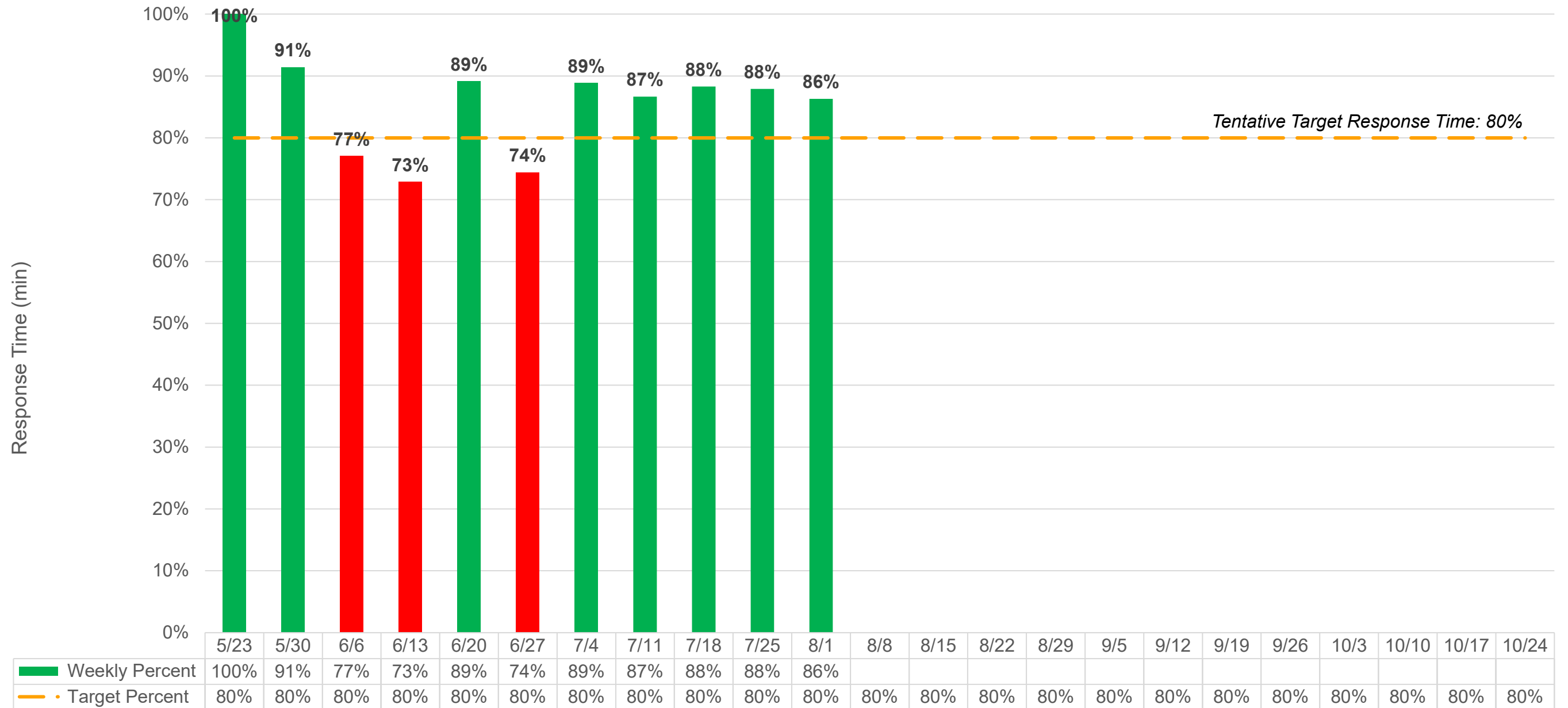
Circuit	Owner	Category	Problem	Action(s)	Resolution	Status
<b>BEAR VALLEY 2101</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>4 outages have occurred on device 4500</li> <li>Circuit was impacted by the Agua Fire and went out of service for ~24 hours affecting 40 customers.</li> </ul>	<ul style="list-style-type: none"> <li>Further details on the cause of the outage and relevant actions taken are under review.</li> </ul>	TBD	In Progress
<b>RED BLUFF 1104</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>4 outages have occurred across 2 SSDs since 6/3</li> <li>3 of the outages were on device 1302 and 1 on 952448</li> </ul>	<ul style="list-style-type: none"> <li>Detailed patrol was completed on 7/25 by Tman Aaron Reginato</li> <li>9 Fault Indicators were installed on 7/25</li> </ul>	TBD	In Progress
<b>PANORAMA 1102</b>	Ola Lamidi Christian Mercado	Escalated Circuit	<ul style="list-style-type: none"> <li>6 outages have occurred across 2 SSDs since 5/25</li> <li>Most recent outages on device 1526 were animal-caused</li> <li>Customers were impacted multiple times</li> </ul>	<ul style="list-style-type: none"> <li>Dispatch request for additional Fault Indicator installations will be sent after installation locations are identified.</li> <li>3 Fault Indicators are installed out of 5 that were tagged. Request is sent for accelerated installation of the 2 Fault Indicators that are not installed.</li> <li>Bird work is under review for additional bird work on circuit/devices beyond LR 1526. Funding status of Migratory Bird Retrofit should be checked for feasibility.</li> </ul>	TBD	In Progress
<b>CALISTOGA 1101</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>4 outages have occurred across 2 SSDs since 7/18</li> </ul>	<ul style="list-style-type: none"> <li>Review has been initiated with multiple actions to be explored by program teams.</li> </ul>	TBD	In Progress
<b>WOODACRE 1102</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>5 outages have occurred across 1 SSD since 6/9</li> </ul>	<ul style="list-style-type: none"> <li>Review has been initiated with multiple actions to be explored by program teams.</li> </ul>	TBD	In Progress
<b>CORNING 1101</b>	Tim Bedford	Multiple Outage Circuit	<ul style="list-style-type: none"> <li>7 outages have occurred across 3 SSDs since 6/20</li> </ul>	<ul style="list-style-type: none"> <li>Review has been initiated with multiple actions to be explored by program teams.</li> </ul>	TBD	In Progress

# Outage Response in EPSS Enabled Zones

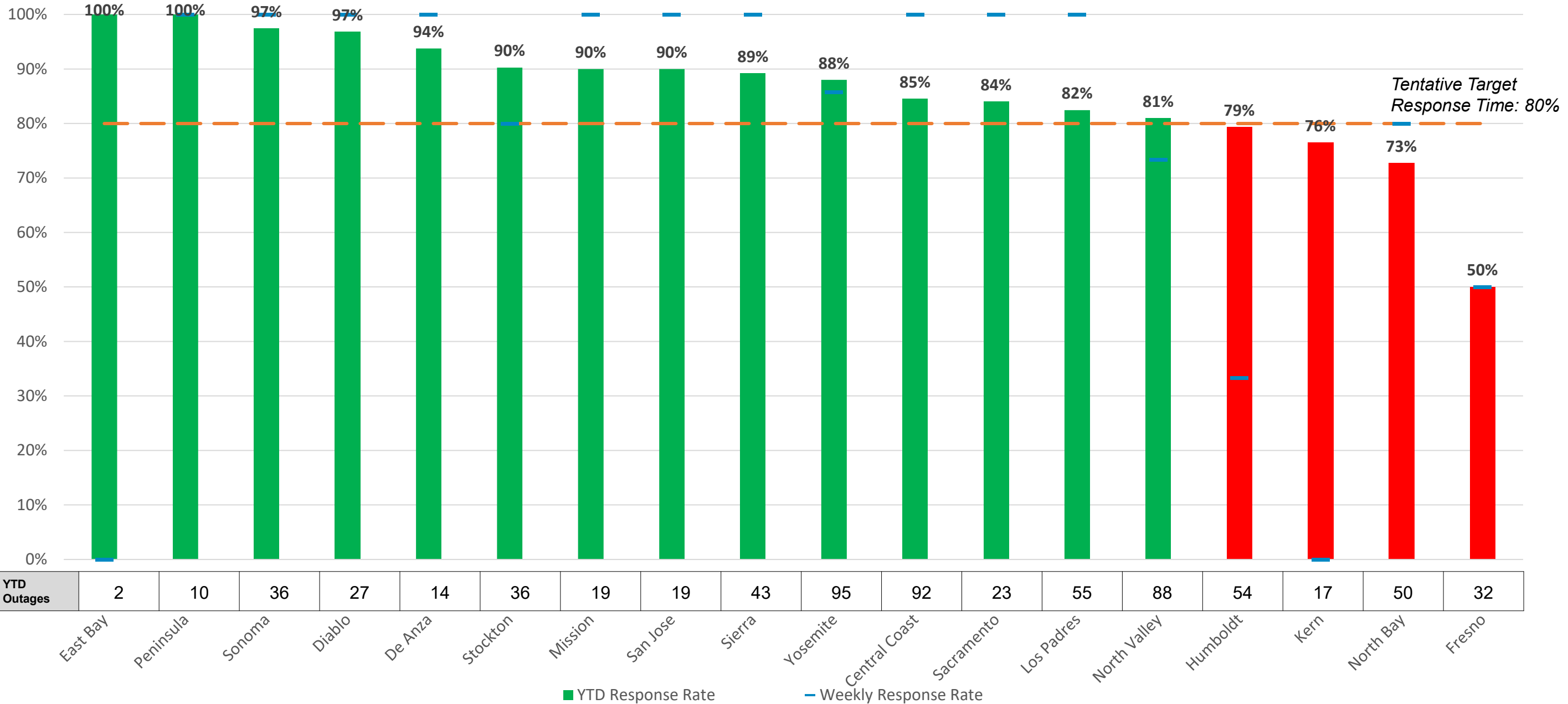


60 Minute Outage Response		
	2022 YTD	Last Week
Response within 60 Minutes	<b>84%</b>	<b>86%</b>
Target:	<b>80%</b>	<b>80%</b>
Average Response:	<b>47 min</b>	<b>42 min</b>

# Outage Response Within 60 Minutes



# Outage Response by Division



Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# Outage Response Actions



#	Division	Action	Description	Date	Owner	Status
1	North Bay	Coordinate with field supervisor to conduct review of extended outage response times.	<ul style="list-style-type: none"> <li>Resource constraints and extended drive time contributing to extended response times.</li> <li>Coordinate with Division supervisor to perform extent of issue review.</li> </ul>	8/3/22	Tim Bedford	In Progress
2	Fresno	Coordinate with field supervisor to conduct review of extended outage response times.	<ul style="list-style-type: none"> <li>Resource constraints and extended drive time contributing to extended response times.</li> <li>Coordinate with Division supervisor to perform extent of issue review.</li> </ul>	8/3/22	Tim Bedford	In Progress
3	Kern	Coordinate with field supervisor to conduct review of extended outage response times.	<ul style="list-style-type: none"> <li>Resource constraints and extended drive time contributing to extended response times.</li> <li>Coordinate with Division supervisor to perform extent of issue review.</li> </ul>	8/3/22	Tim Bedford	In Progress
4	Humboldt	Coordinate with field supervisor to conduct review of extended outage response times.	<ul style="list-style-type: none"> <li>Resource constraints and extended drive time contributing to extended response times.</li> <li>Coordinate with Division supervisor to perform extent of issue review.</li> </ul>	8/3/22	Tim Bedford	In Progress

# Reliability Metrics in EPSS Enabled Zones



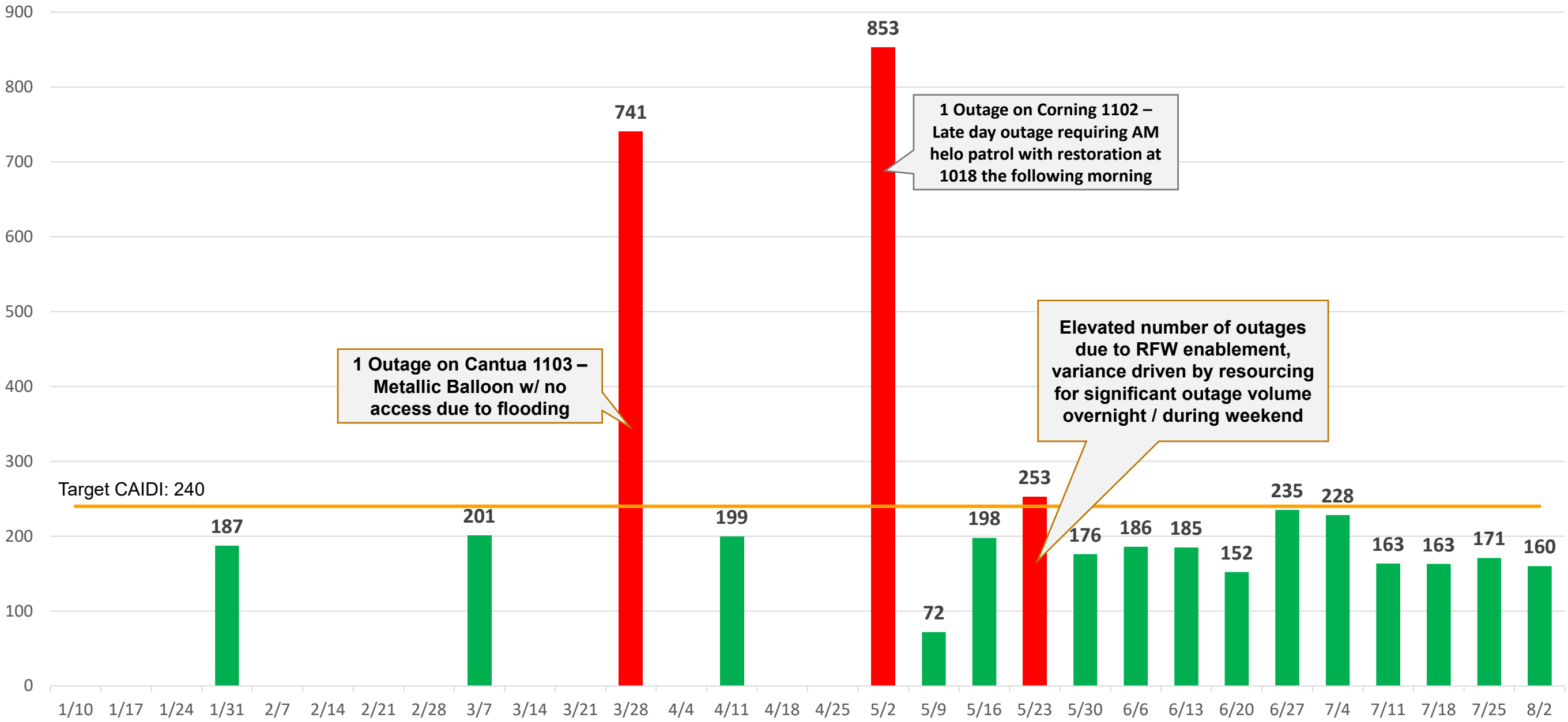
Period	CAIDI		EPSS Contribution to System SAIDI	EPSS Contribution to System SAIFI
	Last Week <i>Target: 240</i>	YTD <i>Target: 240</i>	YTD <i>Target: TBD</i>	YTD <i>Target: TBD</i>
2022	<b>160</b> <i>Minutes</i>	<b>188</b> <i>Minutes</i>	<b>28.97</b> <i>Minutes</i> <b>21% of System-wide</b>	<b>0.15</b> <i>Outages</i> <b>17% of System-wide</b>
	Max: 876	Max: 3,353	System-wide <sup>1</sup> : 141.25	System-wide <sup>1</sup> : 0.90
	Min: 23	Min: 7	-	-
vs. 2021	404 min <b>60% Reduction</b>	404 min <b>53% Reduction</b>	49.13 min <b>21% of System-wide</b>	0.12 outages <b>9% of System-wide</b>
vs. 2021 FTS	292 min <b>45% Reduction</b>	292 min <b>36% Reduction</b>	15.81 min <b>7% of System-wide</b>	0.05 outages <b>4% of System-wide</b>

<sup>1</sup>System-wide SAIDI and SAIFI metrics inclusive of Planned and Unplanned D-Line Outages as of 8/2/22 per Daily Reliability Scorecard.

Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

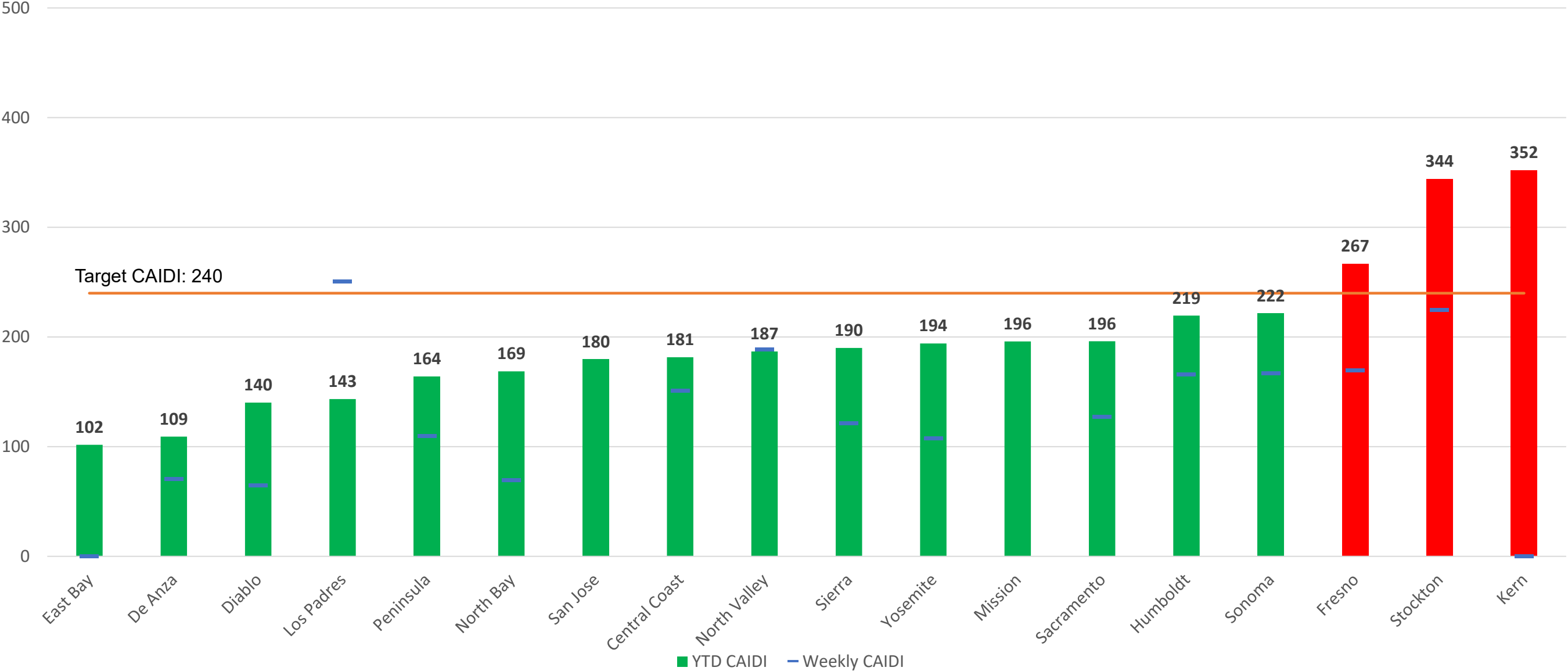


# EPSS CAIDI by Week



Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# CAIDI by Division



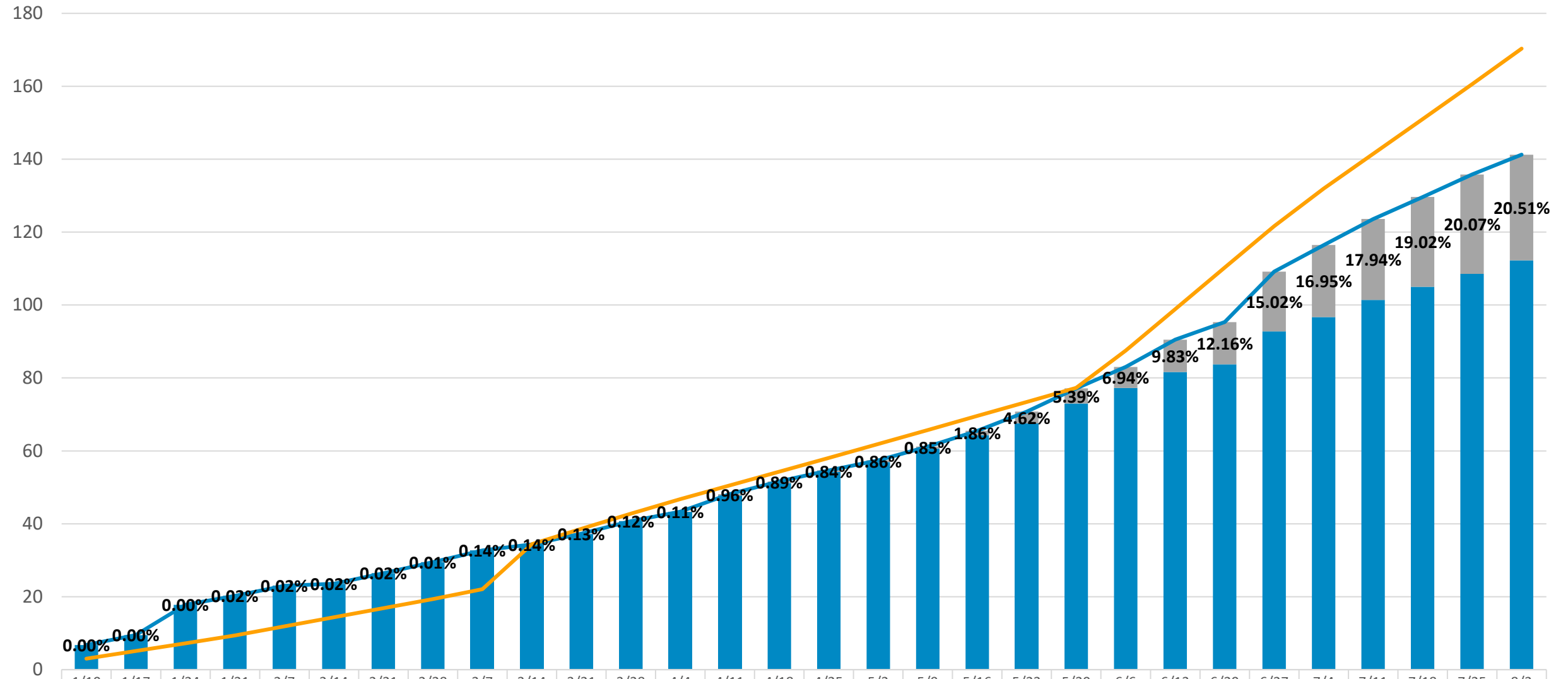
Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# Extended CAIDI Actions



#	Division	Action	Description	Date	Owner	Status
1	Sonoma	Coordinate with field supervisor to conduct review of extended outage response times for main drivers to CAIDI.	<ul style="list-style-type: none"> <li>Review current status of division outage restoration performance and program targets.</li> <li>Partner with field supervisor to establish plan to improve restoration times.</li> </ul>	8/3/22	Tim Bedford Joe Horak	In Progress
2	Fresno	Coordinate with field supervisor to conduct review of extended outage response times for main drivers to CAIDI.	<ul style="list-style-type: none"> <li>Review current status of division outage restoration performance and program targets.</li> <li>Partner with field supervisor to establish plan to improve restoration times.</li> </ul>	8/3/22	Tim Bedford	In Progress
3	Kern	Coordinate with field supervisor to conduct review of extended outage response times for main drivers to CAIDI.	<ul style="list-style-type: none"> <li>Review current status of division outage restoration performance and program targets.</li> <li>Partner with field supervisor to establish plan to improve restoration times.</li> </ul>	8/3/22	Tim Bedford	In Progress
4	Stockton	Coordinate with field supervisor to conduct review of extended outage response times for main drivers to CAIDI.	<ul style="list-style-type: none"> <li>Review current status of division outage restoration performance and program targets.</li> <li>Partner with field supervisor to establish plan to improve restoration times.</li> </ul>	8/3/22	Tim Bedford	In Progress

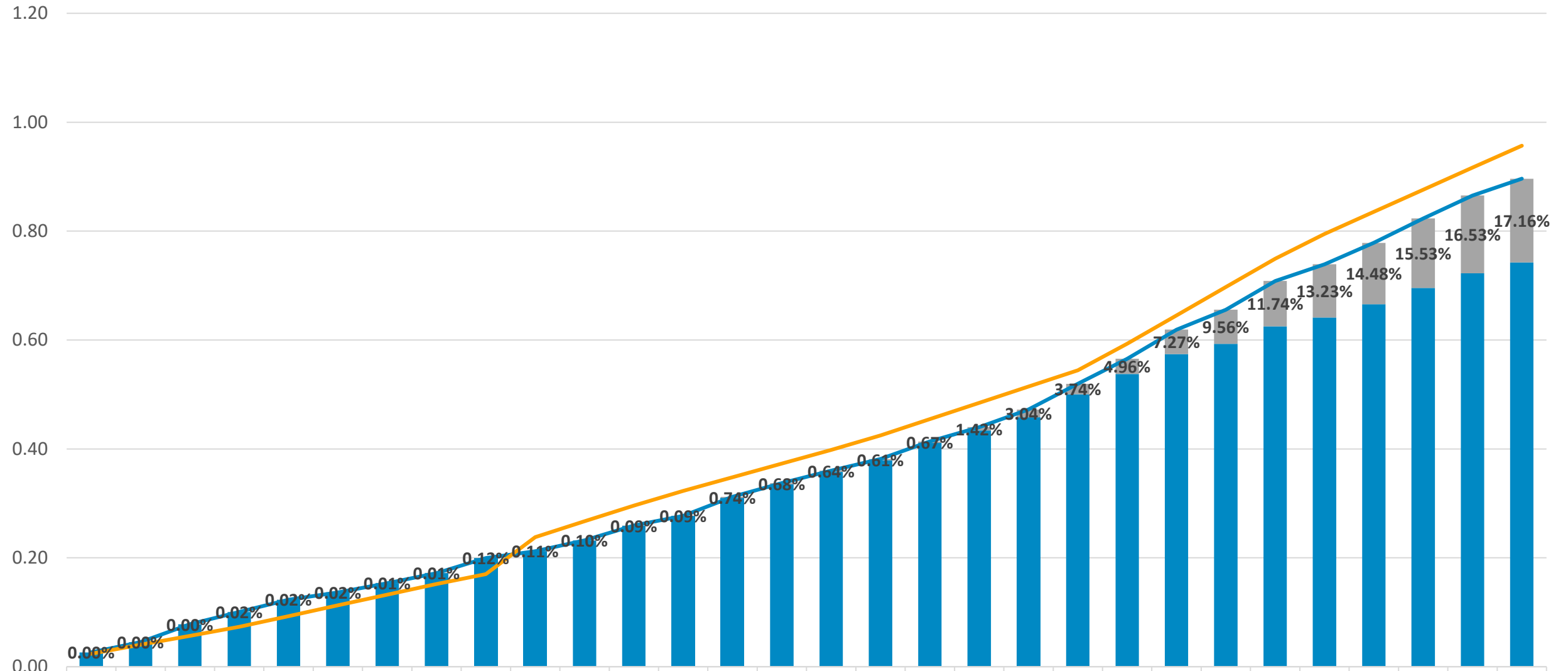
# EPSS Contribution to SAIDI by Week



	1/10	1/17	1/24	1/31	2/7	2/14	2/21	2/28	3/7	3/14	3/21	3/28	4/4	4/11	4/18	4/25	5/2	5/9	5/16	5/23	5/30	6/6	6/13	6/20	6/27	7/4	7/11	7/18	7/25	8/2
EPSS SAIDI	0	0	0	0.004	0.004	0.004	0.004	0.004	0.047	0.05	0.05	0.05	0.05	0.5	0.5	0.5	0.5	0.5	1.2	3.3	4.2	5.8	8.9	11.6	16.4	19.7	22.2	24.7	27.2	29.0
Non-EPSS SAIDI	6.8	9.5	17.8	20.2	23.0	23.5	26.5	29.5	32.7	34.3	37.2	40.7	43.3	47.7	51.2	54.2	56.9	60.7	64.3	67.5	73.0	77.3	81.6	83.7	92.8	96.7	101.4	105.0	108.6	112.3
System Wide SAIDI	6.8	9.5	17.8	20.2	23.0	23.5	26.5	29.5	32.7	34.4	37.3	40.8	43.3	48.1	51.6	54.7	57.4	61.2	65.5	70.8	77.1	83.0	90.5	95.3	109.2	116.5	123.6	129.6	135.8	141.3
System Wide SAIDI Target	3.0	5.1	7.2	9.4	11.9	14.4	16.9	19.4	22.1	34.4	38.6	42.8	46.8	50.5	54.3	58.1	61.9	65.7	69.6	73.4	77.3	87.6	98.9	110.3	121.6	132.0	141.5	151.0	160.6	170.3

Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# EPSS Contribution to SAIFI by Week



	1/10	1/17	1/24	1/31	2/7	2/14	2/21	2/28	3/7	3/14	3/21	3/28	4/4	4/11	4/18	4/25	5/2	5/9	5/16	5/23	5/30	6/6	6/13	6/20	6/27	7/4	7/11	7/18	7/25	8/1
EPSS SAIFI	-	-	-	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.002	0.002	0.002	0.002	0.003	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.15
Non-EPSS SAIFI	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
System Wide SAIFI	0.0262	0.045	0.0779	0.1004	0.1231	0.1365	0.1535	0.172	0.1995	0.2122	0.2321	0.2592	0.2771	0.3121	0.3371	0.3601	0.3815	0.4136	0.44	0.4723	0.5195	0.5655	0.6191	0.6557	0.7084	0.739	0.7784	0.8233	0.8654	0.8962
System Wide SAIFI Target	0.0236	0.0402	0.0567	0.0732	0.0929	0.1126	0.1322	0.1519	0.1698	0.2381	0.2671	0.296	0.3227	0.3479	0.373	0.3981	0.4246	0.4546	0.4846	0.5145	0.5445	0.5933	0.6453	0.6973	0.7492	0.7947	0.8354	0.8761	0.9167	0.9568

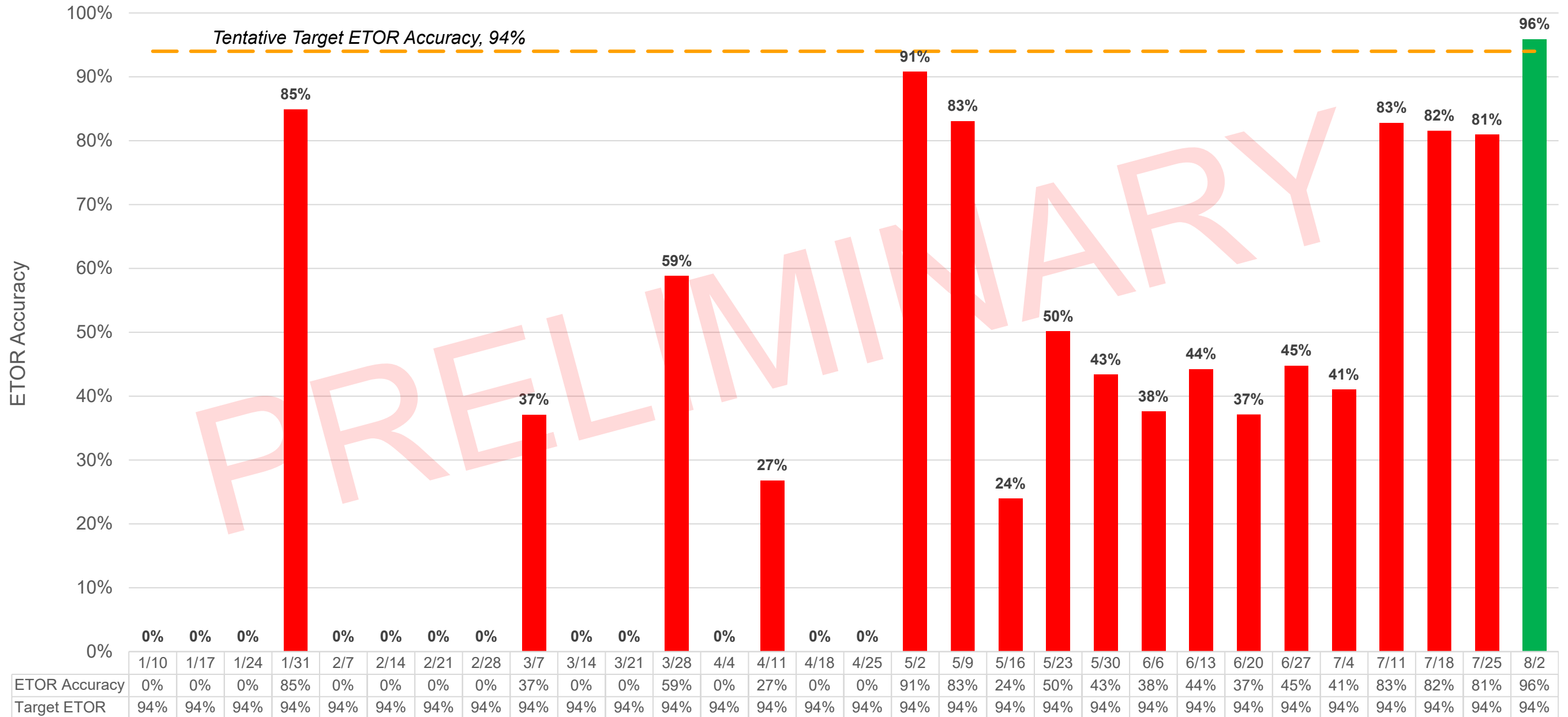
Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# ETOR Accuracy

ETOR	
2022 YTD	Last Week
<b>55%</b>	<b>96%</b>

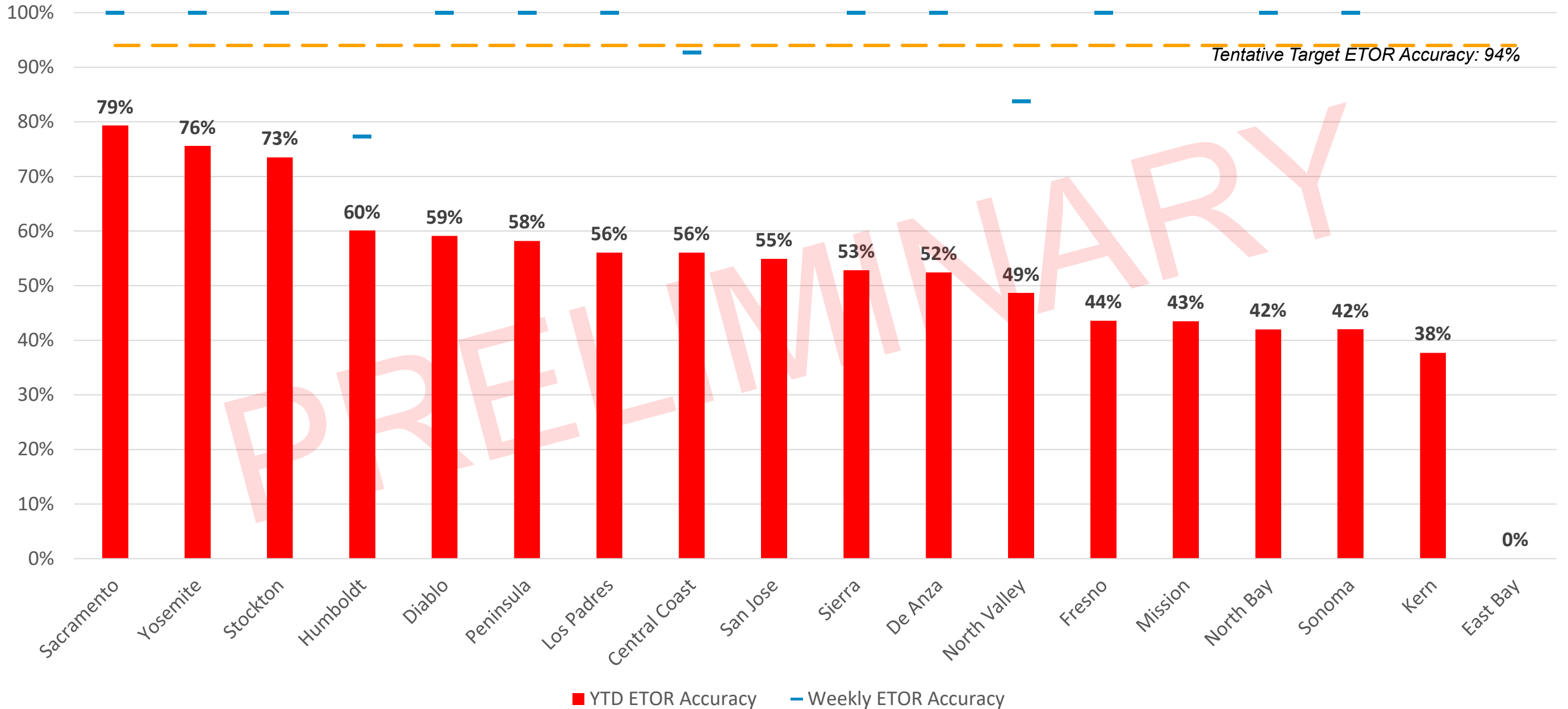
ETOR based on percentage of customers restored within first Auto / Manual ETOR communicated following outage

# EPSS ETOR Accuracy by Week



Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600

# ETOR Accuracy by Division



Data YTD through 8/1/22 as of 8/2/22. Excludes outages still open as of 0600



# ETOR Accuracy Actions



#	Action	Description	Date	Owner	Status
1	<b>ETOR Accuracy Improvement</b>	<ul style="list-style-type: none"><li>▪ Weekly ETOR showing significant improvement.</li><li>▪ Coordination with ETOR notification team for continued improvements to ETOR first auto and first manual notification.</li></ul>	8/15/22	Kari Chester Craig Kurtz	<b>At Risk</b>

# Fault Indicators Installed



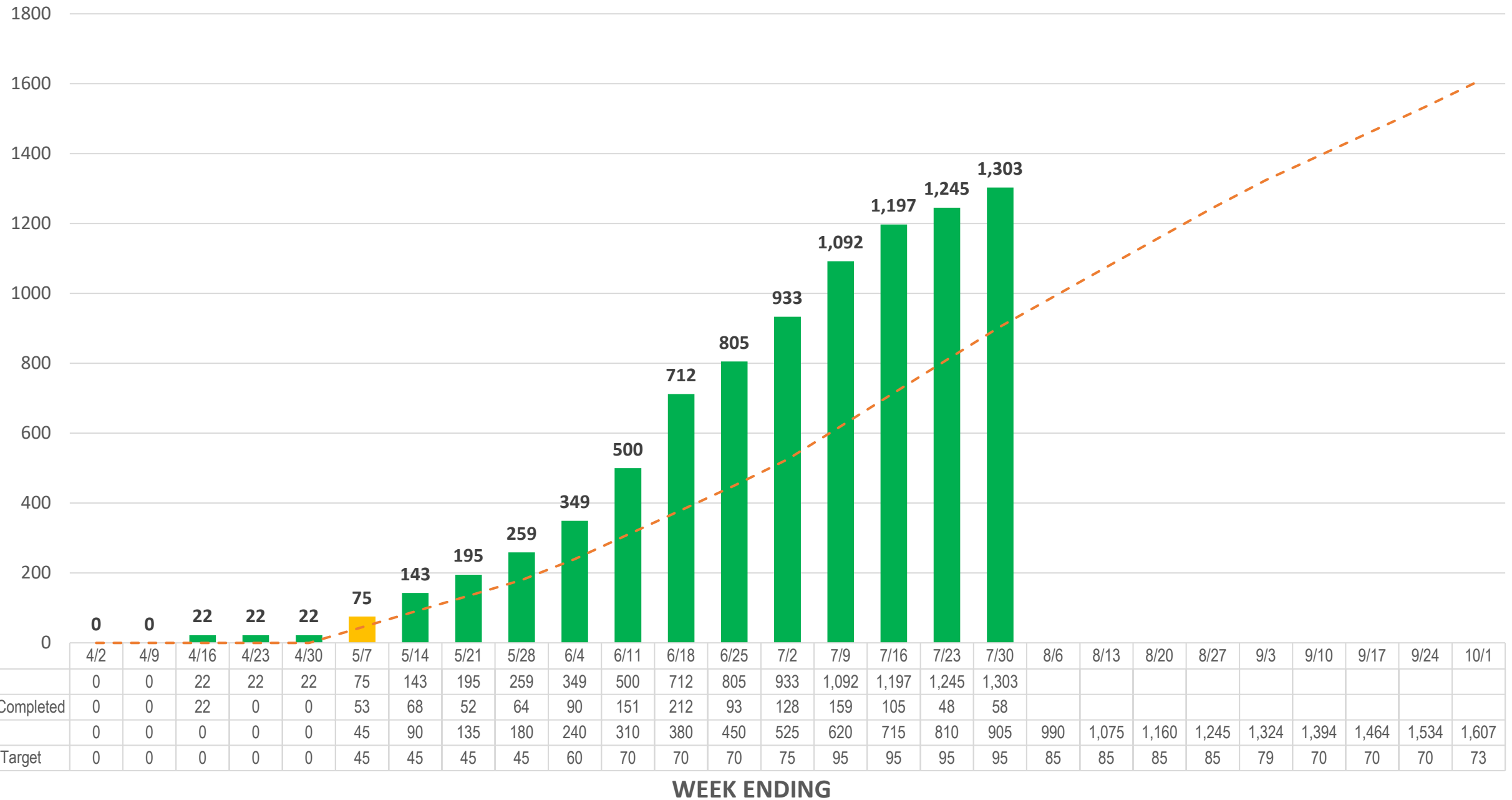
Scope	Weekly Complete	YTD Complete
<b>1,607</b> <i>Locations</i>	<b>58</b> <i>Locations</i>	<b>1,303</b> <i>Locations</i>
<i>Target:</i>	<b>95</b>	<b>905</b>

- *Scope includes 1,607 locations, and a total of 4,184 Fault Indicators to be installed across multiple phases*

# Fault Indicators Trend



Fault Indicator Installations



# Remaining EPSS Equipment Capability



2022 EPSS Remaining Non-Capable Scope	YTD Remaining "No Dependency" Device Scope	YTD Remaining HFRA / HFTD CB	YTD Remaining Non-HFTD CB	Remaining Access Issues <sup>1</sup>	Remaining COE / ER Tags
<b>334</b> <i>Devices &amp; Circuit Breakers</i>	<b>93</b> <i>Devices</i>	<b>17</b> <i>Circuit Breakers</i>	<b>158</b> <i>Circuit Breakers</i>	<b>1</b> <i>CBs / Devices</i>	<b>46</b> <i>CBs / Devices</i>

<sup>1</sup>Excludes permanent access issues due to previous fire activity.

# EPSS Capability Actions



#	Action	Description	Date	Owner	Status
1	<b>1A COE Device Prioritization</b>	<ul style="list-style-type: none"><li>Partner with CWSP and Work and Resource team to prioritize COE, S6 and ER jobs with no upstream EPSS device coverage.</li></ul>	8/1/22	Dave Canny Matt Pender Sandra Cullings	On Track
2	<b>Alternate Solution Risk Mitigation</b>	<ul style="list-style-type: none"><li>Review bypassed EPSS devices and devices with no upstream device coverage for alternate solutions for risk mitigation.</li></ul>	8/1/22	Dustin Dear	At Risk

# Coverage Mitigations - COE/ER on EPSS Devices

Scope	Full Year	Last Week - Completed	YTD – Completed	Pending Scheduling Date <sup>(2)</sup>	Total Remaining COE
Full Scope	<b>309</b> <i>Notifications in 2022 Scope</i>	<b>5</b> <i>Notifications</i>	<b>97</b> <i>Notifications</i>	<b>130</b> <i>Notifications</i>	<b>212</b> <i>Notifications</i>
<i>HFRA/ HFTD<sup>(1)</sup></i>	<b>262</b>	<b>4</b>	<b>79</b>	<b>113</b>	<b>183</b>
<i>Non-Tier Buffer</i>	<b>47</b>	<b>1</b>	<b>18</b>	<b>17</b>	<b>29</b>

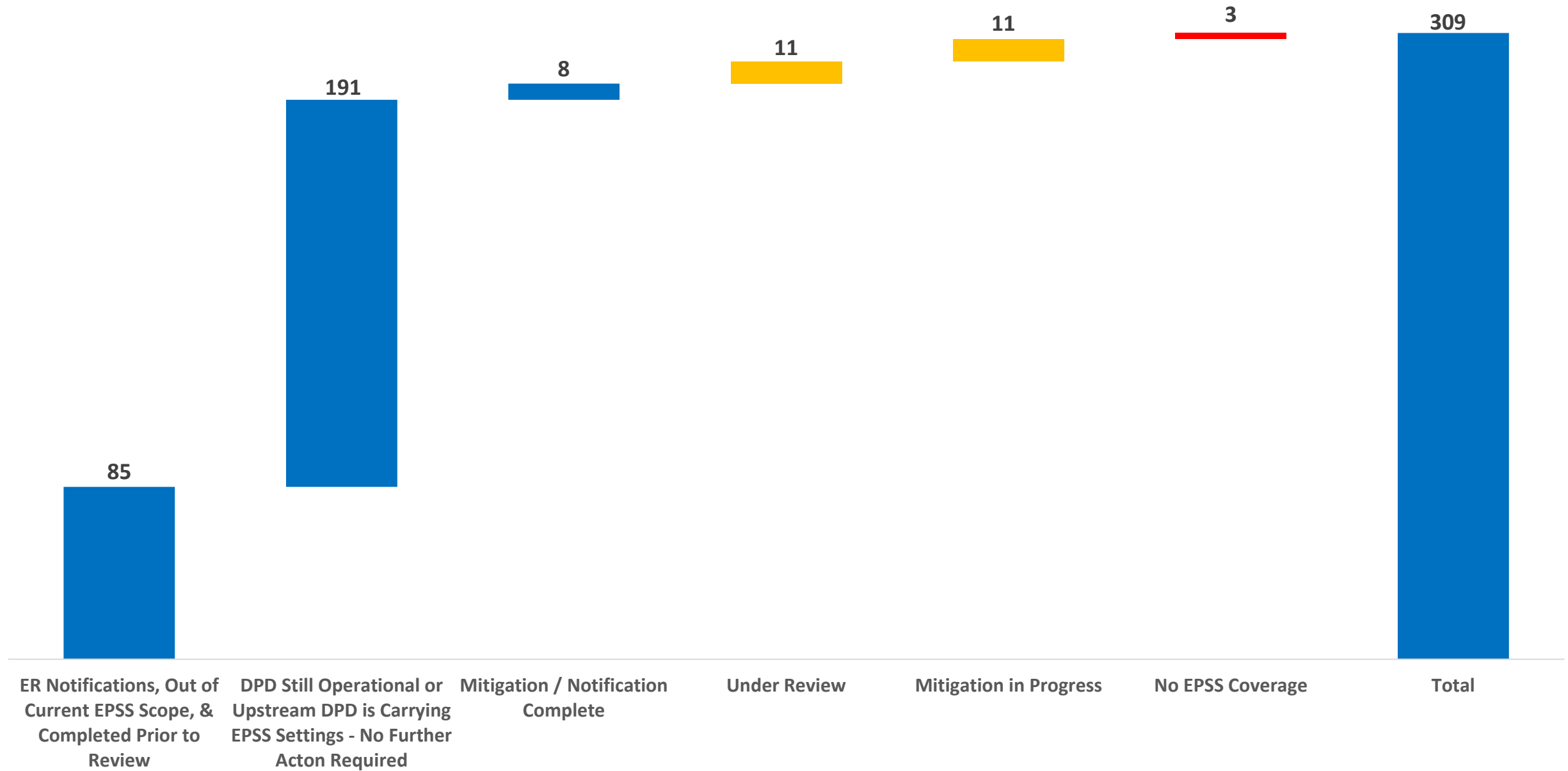
(1) Includes 45 devices with EPSS Planning Reason HFRA/HFTD/TIER 1 Buffer to be determined.

(2) Includes 37 staged notifications (S6).

# COE on EPSS Devices Plan Re-Cast



# COE Mitigation Progress





# COE Catch Back Plan

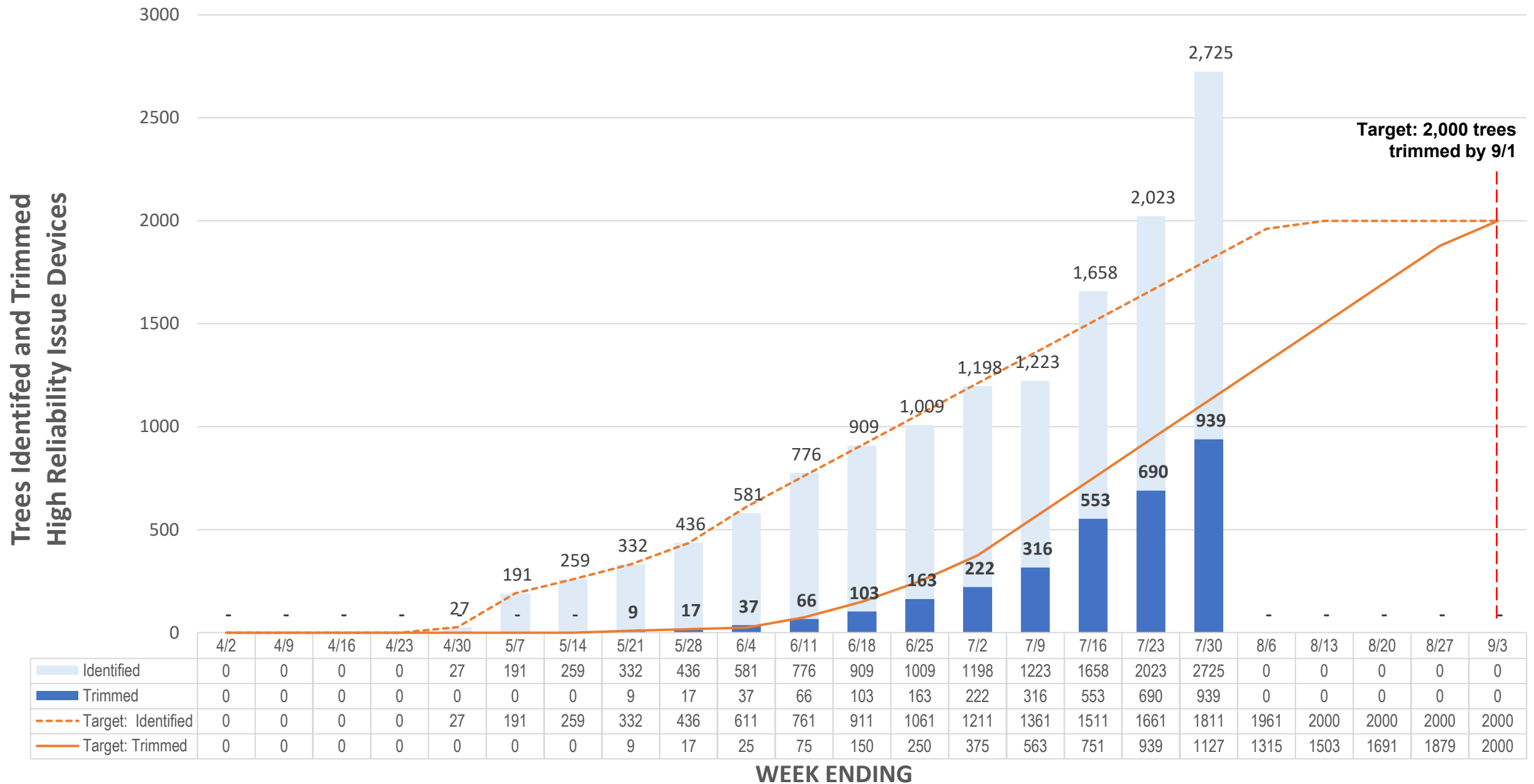
#	Date Raised	Problem / Cause	Point of Cause	Containment / Immediate Actions	Target Date	Owner	Status	Root Cause	Countermeasure	Target Date	Owner	Status
1	6/14/22	Slow progress on completion of Critical 1A CE / ER notifications on EPSS Devices. Currently there are 43 open Critical 1A notifications, with 36 scheduled in SAP through to the end of September, and with 7 remaining un-scheduled.	High volume of existing backlog causing delay in execution of EPSS COE repair work.	Partnering with CWSP and Work and Resource team to prioritize EPSS COE repair work.	8/1/22	Kim Vu	<b>At Risk</b>	Critical path steps in the process are disconnected, do not have time-tables for completion, and owners of steps do not have requirements to hand-off to the next step in the process.	Work with Work and Resource team, and various construction partners to complete Critical 1A notifications. Develop SLA for each critical path step to ensure the process for critical work is expedited going forward.	9/30/22	Kim Vu	<b>At Risk</b>

# Vegetation Clearance – 12 High Outage Circuits

Initial Scope	LiDAR Complete	Pre-Inspection	Vegetation Cleared
<p><b>214.7</b></p> <p><i>Miles</i></p>	<p><b>205</b></p> <p><i>Miles Complete</i></p>	<p><b>58.3</b></p> <p><i>Miles Complete</i></p>	<p><b>939</b></p> <p><i>Trees Complete</i></p>
	<b>Full Year 205.0 miles</b>	<b>Full Year 189.2 miles</b>	<b>YTD Identified 2,725 Trees</b>

- *LiDAR survey is complete on all accessible miles within the 205.0 circuit miles within scope*
- *Some device circuit segments will be completed as part of the VM program and therefore will not include LiDAR or Pre-Inspection work*

# Vegetation Clearance – 12 High Outage Circuits



# Vegetation Clearance – 12 Circuits Actions



#	Action	Description	Date	Owner	Status
1	<b>Funding assessment and risk prioritization</b>	<p>Risk is funded at approximately 2,000 trees trimmed, however, is supporting what we believe could grow to 14,000 trees requiring trimming along the 12 circuits based on to-date trees identified per mile inspected</p> <ul style="list-style-type: none"> <li>Assess cost performance to-date to identify full risk</li> <li>Determine risk prioritization through the WRGSC</li> </ul>	7/18/22	Tim Bedford Kevin Buteau	<b>At-Risk</b>
2	<b>ORT Response</b>	<p>Current uncertainty on ORT response requirements that will require Risk funded tree trimming – will continue to monitor ORT responses, that do not fit under current Vegetation Management programs</p>	TBD	Tim Bedford Kevin Buteau	<b>On-track</b>

# Customer & Agency Outreach



Task	Task	Start	End	May	June	July	August	
Customer & Agency Outreach	<b>1</b>	<b>Develop &amp; Enhance Customer Support Strategies &amp; Programs</b>						
	1.1	Complete switching and load shift analysis for school support	1-Apr	15-Jul	[Blue bar]			
	1.2	Complete on-site resiliency evaluations for top 27 school districts	1-May	30-Jun	[Blue bar]			
	1.3	Complete school temp gen / resiliency installations	1-May	1-Aug	[Orange bar]			
	<b>2</b>	<b>Conduct Customer Outreach</b>						
	2.1	Conduct outreach to forecasted high & low impact MBL customers	1-Apr	31-May	[Blue bar]			
	2.2	Develop comm strategy for actual high impacted customers	1-Apr	31-May	[Blue bar]			
	2.3	Develop outage escalation comms process for repeat impacts	15-Apr	31-May	[Blue bar]			
	<b>3</b>	<b>Coordinate City &amp; County Outreach</b>						
	3.1	Conduct outreach for City & County	2-Feb	31-Dec	[Green hatched bar]			
	3.2	Conduct outreach for Federal	2-Feb	31-Dec	[Green hatched bar]			
	3.3	Conduct outreach for State	2-Feb	31-Dec	[Green hatched bar]			
	3.4	Conduct outreach for State	2-Feb	31-Dec	[Green hatched bar]			
	<b>4</b>	<b>Issue EPSS Program Communication</b>						
	4.1	Twice-monthly newsletter	Ongoing	Ongoing	[Green hatched bar]			

TODAY

# Customer & Agency Outreach Actions

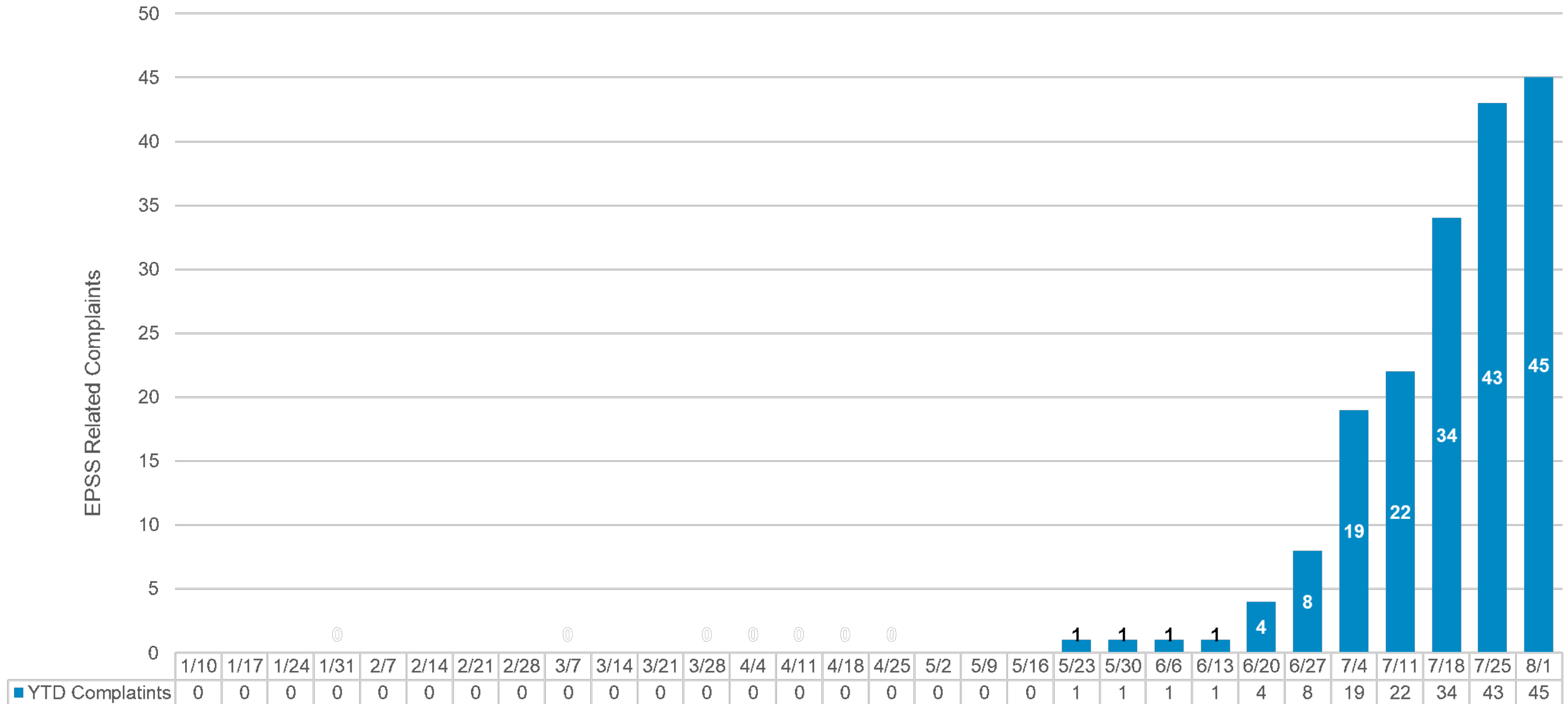


#	Action	Description	Date	Owner	Status
1	<b>Complete K-12 school temp gen / resiliency installations</b>	<p>Perform switching to non-EPSS circuits, Backup Power Transfer Meters, automatic transfer switches, and temporary generation support to K-12 schools that are highly impacted by EPSS outages in the 3-year lookback.</p> <p>Delays in the approved contract for temporary generation have pushed back installations 2-4 weeks. Generators at schools are being installed after hospitals and CRCs. Targeting 8/15 for wave 1 and 9/1 for wave 2.</p>	8/1/2022	Dave Meier	<b>At Risk</b>

# Customer & Agency Complaints

<b>Weekly EPSS Complaints</b> <i>7/26/22 through 8/1/22</i>	<b>2022 YTD EPSS Complaints</b> <i>Since 1/1/22</i>
<p><b>2</b></p> <p><i>Complaints</i></p>	<p><b>45</b></p> <p><i>Complaints</i></p>

# YTD EPSS Related CPUC Customer Complaints





# Customer Complaint Actions

Division / County	Circuit	Complaint Category	Description	Action(s)	Resolution
Los Padres	San Luis Obispo 1107	Multiple outages experienced	<ul style="list-style-type: none"> <li>Experienced higher volume of customer complaints due to repeat outages on San Luis Obispo 1107 circuit</li> </ul>	<ul style="list-style-type: none"> <li>Conducted two town hall meetings to discuss EPSS program and outage mitigation actions</li> </ul>	<ul style="list-style-type: none"> <li>Sent impacted customer email, 6/29</li> <li>Scheduled two agency outreach meetings, 6/21 &amp; 6/29</li> </ul>
North Bay	Woodacre 1101/1102	Multiple outages experienced	<ul style="list-style-type: none"> <li>Concerns elevated by Supervisor Katie Rice through Senator Mike McGuire regarding repeat outages in the Fairfax / San Anselmo area</li> </ul>	<ul style="list-style-type: none"> <li>LNO facilitated meeting between Senator McGuire, the Supervisors office, and the EPSS program to provide background on the program and detail on PMO tracking on outage causes</li> </ul>	<ul style="list-style-type: none"> <li>Supervisor was appreciative of engagement and requested PG&amp;E work to continue to keep customers informed about the program and available support</li> </ul>
Napa County	Silverado 2104 Calistoga 1102	Multiple outages experienced	<ul style="list-style-type: none"> <li>Concern from county residents and officials due to high volume of outages due to enhanced settings in 2021 and 2022.</li> </ul>	<ul style="list-style-type: none"> <li>Conducted media, agency, and customer outreach and performed escalated circuit reviews.</li> </ul>	<ul style="list-style-type: none"> <li>Sent social media post &amp; LGA email, and drafted but did not deploy a union LTE</li> <li>Presented to Napa County OES 7/12.</li> <li>Presented to Napa County Board of Supervisors 6/7 and 7/26.</li> </ul>
Santa Clara County	Hicks 2101	Multiple outages experienced	<ul style="list-style-type: none"> <li>Experienced higher volume of customer complaints due to repeat outages on Hicks 2101 circuit</li> </ul>	<ul style="list-style-type: none"> <li>Conducted media, agency, and customer outreach and performed escalated circuit reviews. Held customer webinar. Evaluating load transfer to non-EPSS circuit for some customers.</li> </ul>	<ul style="list-style-type: none"> <li>Issued IVR and LGA emails, held webinar for 319 customers on 7/21. Load transfer is being planned.</li> </ul>
Santa Cruz County	Ben Lomond 0401 Camp Evers 2105 / 2106 Rob Roy 2104 Green Valley 2102	Multiple outages experienced	<ul style="list-style-type: none"> <li>County experiencing higher volume of outages on EPSS circuits.</li> </ul>	<ul style="list-style-type: none"> <li>Schedule county-wide webinar and escalate all circuits experiencing an outage in the county.</li> </ul>	<ul style="list-style-type: none"> <li>Conducting multiple outage Ops reviews, issued IVRs and LGA emails, scheduling county webinar for 7/28.</li> </ul>

# Customer Complaint Actions

Division / County	Circuit	Complaint Category	Description	Action(s)	Resolution
<b>Contra Costa County</b>	Fairview 2207	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Performed escalated circuit review	No outreach at this time.
<b>Fresno County</b>	Tivy Valley 1107	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Performed escalated circuit review	No outreach at this time.
<b>Kern County</b>	Poso Mountain 2101	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Performed escalated circuit review	No outreach at this time.
<b>Mendocino County</b>	Hopland 1101	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Performed escalated circuit review	No outreach at this time.
<b>Nevada County</b>	Narrows 2102	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Conducted agency outreach.	Held County BOS / City Council Meeting.
<b>Placer County</b>	Halsey 1101 Penryn 1103	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Conducted customer outreach and performed escalated circuit review.	Issued IVR.
<b>Shasta County</b>	Panorama 1102	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Conducted customer outreach.	Issued IVR.
<b>Sonoma County</b>	Sonoma 1102	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Conducted media, agency, and customer outreach.	Sent impact customer email on 6/30, issued IVR, and posted NextDoor Post
<b>Tehama County</b>	Tyler 1105	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Conducted customer outreach.	Issued IVR.
<b>Yolo County</b>	Madison 2101	Multiple outage experienced	Experiencing higher volume of outages on EPSS circuits.	Conducted media, agency, and customer outreach.	Sent impact customer email on 7/1, issued IVR, and posted NextDoor Post

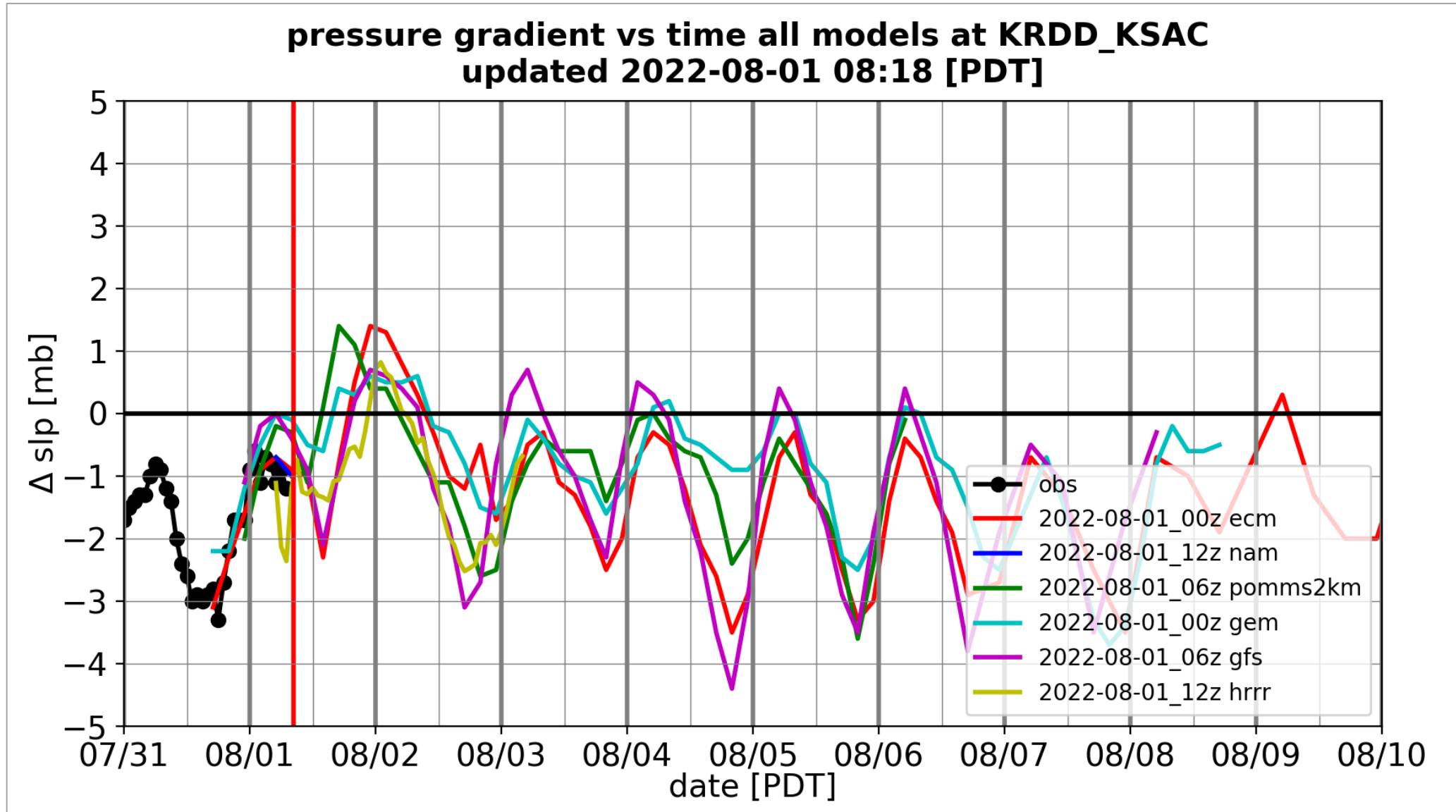
# PSPS



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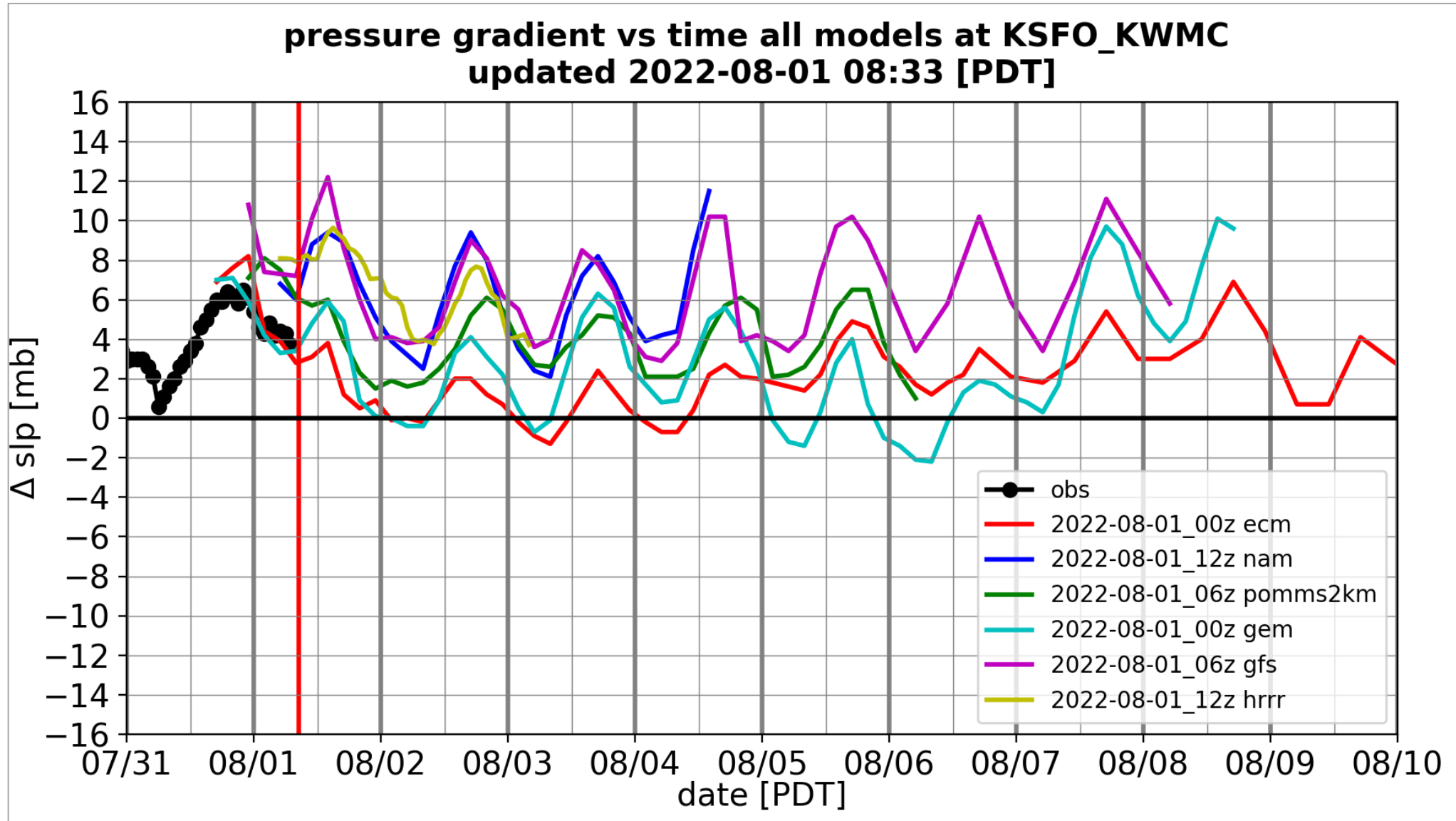
# Pressure Gradient Differential

RDD - SAC



# Pressure Gradient Differential

SFO - WMC



# Post-Event Data Report

## Corrective Actions - Catch Back Plan

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
<i>Program Name</i>	<i>Date issue identified</i>	<i>Description of the issue; What is the deviation between what should happen vs what actually happened?</i>	<i>Where the failure behind the problem occurred?</i>	<i>Immediate action to fix Point of Cause</i>		<i>Causation behind the Point of Cause</i>	<i>Action to fix the rootcause; Countermeasure not populated until root cause verified</i>	<i>Date for completion of Countermeasure</i>	<i>Name</i>	
Customer and PSP Notifications	7/7/22	AEO fine levied for not sending customer notifications at de-energization. Raised question of whether PG&E should continue practice of respecting courtesy hours and not sending notifications between 9pm-8am.	Feedback from AFN stakeholders and desire to minimize customer notification fatigue led to practice of respecting courtesy hours for PSPS event notifications, in line with SDG&E practice.	Refrain from respecting courtesy hours during 2022 PSPS season. Implementing EOC processes and staffing changes now.		Feedback from AFN stakeholders and desire to minimize customer notification fatigue led to practice of respecting courtesy hours for PSPS event notifications, in line with SDG&E practice.	Refrain from respecting courtesy hours during 2022 PSPS season. Implementing EOC processes and staffing changes now.	8/1/2022	Customer	

# WMP Delivery



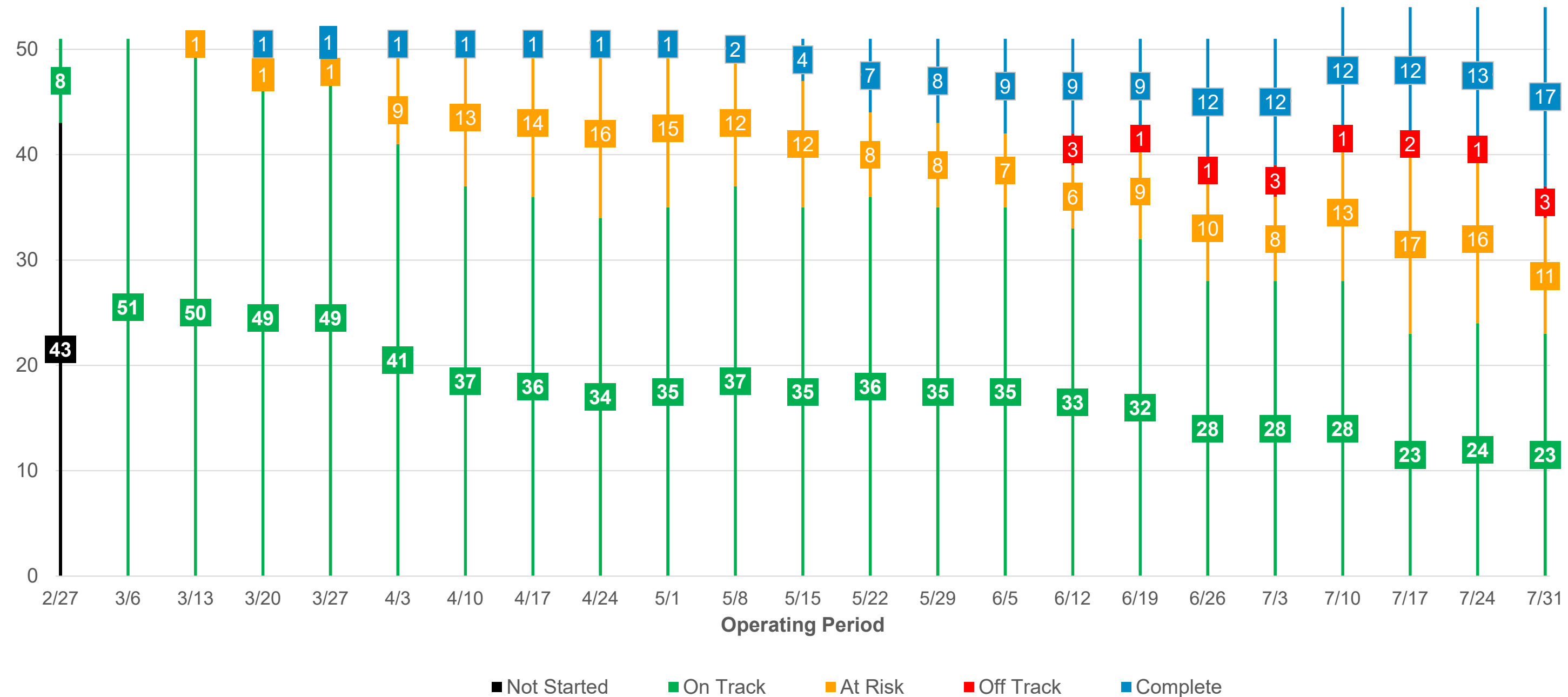
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# 2022 WMP Targets – Execution

On Track	At Risk	Off Track	Complete	Total
<b>23</b>	<b>11</b>	<b>3</b>	<b>17</b>	<b>54</b>



# 2022 WMP Target Delivery Trend

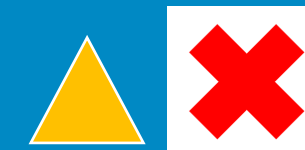


■ Not Started   
 ■ On Track   
 ■ At Risk   
 ■ Off Track   
 ■ Complete

# WMP Targets Due in Next 60 Days

ID	2022 WMP Target Name	Chief Sponsor (Execution)	Estimated Completion Date (Pending Validation)	WMP Target Due Date	Days until Due	BRAG Status
B.01	FPI and IPW Modeling - Revision Evaluation	Andy Abranches	7/31/22	9/1/22	30	
C.02	Distribution Sectionalizing Devices - Install and SCADA commission	Matt Pender	8/27/22	9/1/22	30	
C.03	Transmission Line Sectionalizing - Install and SCADA commission	Dave Gabbard	8/24/22	9/1/22	30	
H.01	Risk Spend Efficiency- Develop and Share Governance Process	Andy Abranches	9/15/22	9/30/22	59	
E.02	Pole Clearing Program	Peter Kenny	10/1/22	10/1/22	60	
E.10	Pole Clearing in State Responsibility Areas	Peter Kenny	9/30/22	10/1/22	60	

# WMP Targets At Risk/Off Track



10	WMP Target Name	Chief Sponsor (Execution)	Catch Back Plan	Meeting Catch Back	Estimated Completion Date (Pending Validation)	WMP Target Due Date	Change
C.02	Distribution Sectionalizing Devices - Install and SCADA Commission	Matt Pender	Yes	Yes	8/27/2022	9/1/2022	N/A
C.03	Transmission Line Sectionalizing - Install and SCADA commission	Dave Gabbard	No	N/A	8/24/2022	9/1/2022	New
A.02	Transmission Modeling Enhancements – Threat and Hazard Risk Drivers	Andy Abranches	Yes	Yes	11/9/2022	12/31/2022	N/A
B.02	Weather Stations -Installations and Optimizations	Matt Pender	Yes	Yes	12/10/2022	12/31/2022	N/A
B.03	High-Definition Cameras - Installations	Angie Gibson	Yes	Yes	10/29/2022	12/31/2022	N/A
C.04	Distribution Line Motorized Switch Operator (MSO) - Replacements	Matt Pender	Yes	Yes	12/17/2022	12/31/2022	N/A
C.05	SCADA Recloser Equipment - Installations	Matt Pender	Yes	Yes	12/10/2022	12/31/2022	N/A
C.06	Fuse Savers (Single Phase Reclosers) - Installations	Matt Pender	Yes	Yes	12/17/2022	12/31/2022	N/A
C.09	Emergency Back-up Generation – Equip PG&E Service Centers & Materials Distribution Centers	Andrew Williams	Yes	Yes	11/19/2022	12/31/2022	N/A
C.10	10K Undergrounding	Matt Pender	Yes	No	12/17/2022	12/31/2022	N/A
C.14	Remote Grid - Operate New SPS Units	Matt Pender	Yes	Yes	12/17/2022	12/31/2022	N/A
D.05	Infrared Inspections - Distribution	Martin Wyspianski	Yes	Yes	11/5/2022	12/31/2022	N/A
E.05	Vegetation Management - Quality Assurance	Janisse Quinones	No	N/A	12/15/22	12/31/2022	N/A
G.01	Data Governance - Identify and Centralize High Priority Data	Martin Wyspianski	Yes	Yes		12/31/2022	N/A



# WMP Data Requests

<b>Chief Sponsor</b>	<b>Due Today</b>	<b>Due Next Business Day</b>	<b>Due in 2 Business Days</b>
Jamie Martin	0	1	0
<b>Grand Total</b>	<b>0</b>	<b>1</b>	<b>0</b>

# 2022 WMP Targets – COA In Progress Validation

On Track	At Risk	Off Track
<b>3</b>	<b>5</b>	<b>2</b>

# COA WMP Target Validation 2 of 2

## Validated

Number	Section	Target	Target Due Date	Complete Date	COA Status	Command Center Status	Comment
C.02	7.3.3.8.1	Distribution Sectionalizing Devices - Install and SCADA commission	9/1/2022	7/19/2022	At Risk Catch Back Plan	At Risk	They are off track for the July target (CATCH BACK PLAN). AS to provide justification for prioritization (OPEN).
C.03	7.3.3.8.2	Transmission Line Sectionalizing - Install and SCADA commission	9/1/2022	7/14/2022	At Risk Catch Back Plan	On Track	They are off track for July target (CATCH BACK PLAN). AS to provide justification for prioritization (OPEN). Legal regulatory review of prioritization (OPEN).
C.10	7.3.3.16	10K Undergrounding	12/31/2022	6/30/2022	At Risk Catch Back Plan	At Risk	Miles reported in QIU did not meet unit completion definition (OPEN). Working with PMO on revising define phase language to align with units reported (OPEN).
C.11	7.3.3.17.1	System Hardening - Distribution	12/31/2022	6/30/2022	At Risk Catch Back Plan	On Track	Miles reported in QIU did not meet unit completion definition (OPEN). Working with PMO on revising define phase language to align with units reported (OPEN).
C.15	7.3.3.17.6	Butte County Rebuild - Undergrounding	12/31/2022	6/30/2022	At Risk Catch Back Plan	On Track	Miles reported in QIU did not meet unit completion definition (OPEN). Working with PMO on revising define phase language to align with units reported (OPEN).
D.01	7.3.4.1	Detailed Inspections - Distribution	7/31/2022	7/5/2022	Off Track	At Risk	Awaiting Playbook 7/22 (OPEN). Gaps in the validation of the base work plan (RESOLVED). We are not on track to complete required work by July 31, 2022 (RESOLVED).
D.02	7.3.4.2	Detailed Inspection Transmission – Ground	7/31/2022	7/5/2022	On Track	At Risk	CGI discrepancies being reconciled (RESOLVED). Play book to be provided by 7.18.22. (RESOLVED)
D.04	7.3.4.2	Detailed Inspection Transmission – Aerial	7/31/2022	7/5/2022	On Track	On Track	Play book to be provided by 7.18.22. (RESOLVED)
E.02	7.3.5.2	Pole Clearing Program	10/1/2022	6/13/2022	Off Track Pending Catch Back Plan	On Track	Data Incomplete (OPEN). Corrective Actions Provided (OPEN). LOB Response Received 6/27 , incomplete (OPEN).
F.04	7.3.6.8	EPSS - Reliability Improvements	8/1/2022	7/10/2022	On Track	At Risk	(blank)

# COA WMP Target Validation 3 of 2

## In Progress

Number	Section	Target	COA Status	Command Center Status	Comment
C.05	7.3.3.9.1	SCADA Recloser Equipment - Installations	In Progress	At Risk	
C.06	7.3.3.9.2	Fuse Savers (Single Phase Reclosers) - Installations	In Progress	At Risk	
C.13	7.3.3.17.3	Surge Arrestor - Removals	In Progress	On Track	
E.09	7.3.5.20	Utility Defensible Space - Distribution	In Progress	On Track	

## Upcoming

Section	Number	Target
7.3.2.1.3	B.02	Weather Stations -Installations and Optimizations
7.3.2.2.3	B.04	Distribution Fault Anticipation (DFA) - Installations
7.3.2.2.3	B.05	Early Fault Detection (EFD) - Installations
7.3.2.2.5	B.06	Line Sensor - Installations
7.3.3.7	C.01	Expulsion Fuse - Removal
7.3.3.8.3	C.04	Distribution Line Motorized Switch Operator (MSO) - Replacements
7.3.3.11.3	C.09	Emergency Back-up Generation – Equip PG&E Service Centers & Materials Distribution Centers
7.3.4.4	D.05	Infrared Inspections - Distribution
7.3.5.2	E.01	Enhanced Vegetation Management
7.3.5.7	E.03	LiDAR Ground Inspections - Distribution
7.3.5.13	E.05	Vegetation Management - Quality Assurance
7.3.8.3	H.01	Risk Spend Efficiency - Develop and Share Governance Process



# 2022 WMP Targets – Closure Validation

On Track	At Risk	Off Track	EDRS Complete
<b>12</b>	<b>0</b>	<b>0</b>	<b>3</b>

# COA WMP Target Validation 1 of 2



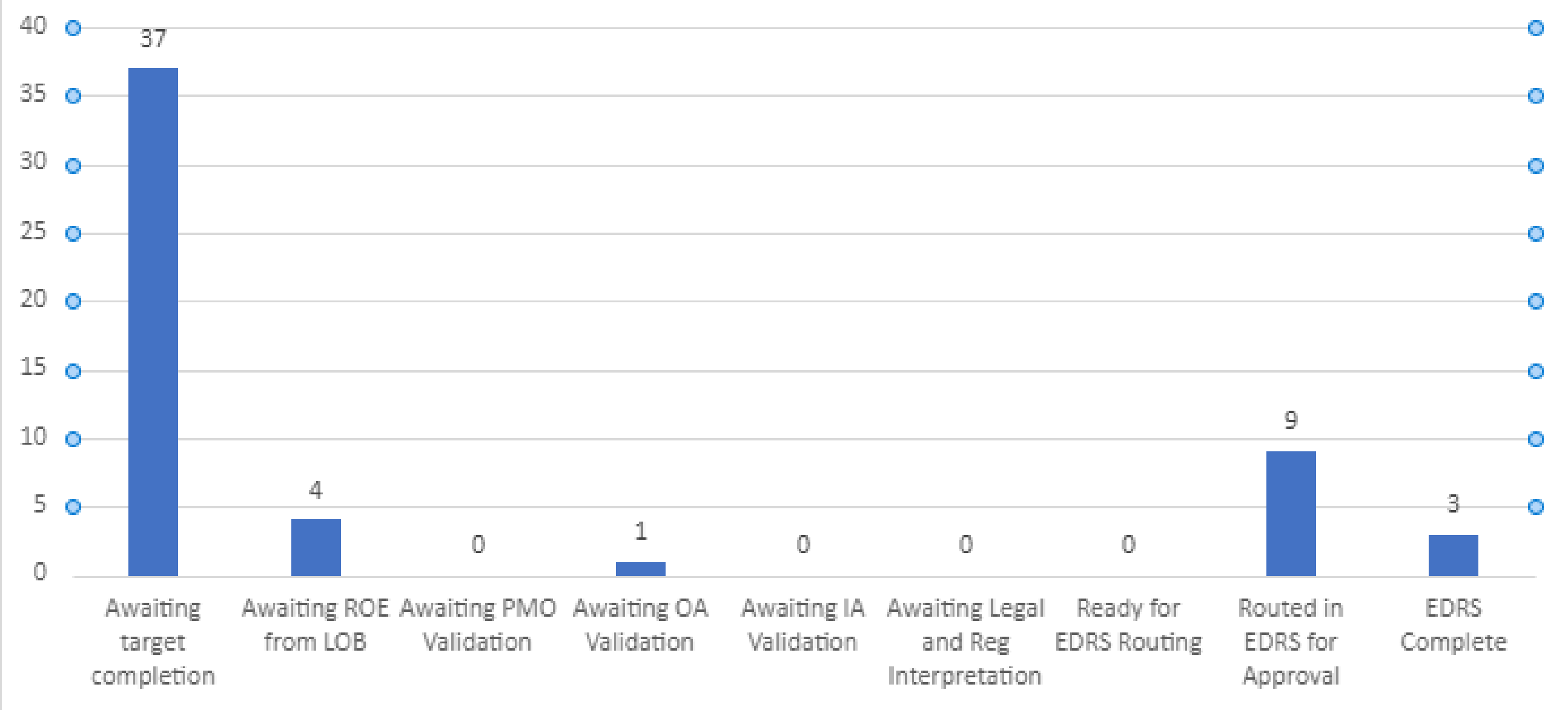
Progress		Status	Catch Back Plan
	YTD	On Track	The team will be back on track with the validation effort by August 5 <sup>th</sup> , 2022.
Completed	22		
Planned	25		

## Validated

Number	Section	Target	Target Due Date	Complete Date	COA Status	Command Center Status	Comment
A.03	7.3.1.4	PSPS Consequence Model	6/1/2022	5/23/2022	On Track	Complete	Support conditional approval dependent on completion of 3 corrective actions from WRGSC (OPEN).
C.08	7.3.3.11.2	Rincon Transformer Fuse - Replacement	6/1/2022	6/16/2022	On Track	Complete	LOB provided as-built on 6/30 (RESOLVED).
D.03	7.3.4.2	Detailed Inspection Transmission – Climbing	7/31/2022	7/5/2022	On Track	Complete	Play book to be provided by 7.18.22. (RESOLVED)
D.06	7.3.4.15	Supplemental Inspections - Substation Distribution	7/31/2022	7/5/2022	On Track	Complete	Play book to be provided by 7.18.22 (RESOLVED). Playbook and FLIR certification provided (RESOLVED).
D.07	7.3.4.15	Supplemental Inspections - Substation Transmission	7/31/2022	7/5/2022	On Track	Complete	Play book to be provided by 7.18.22 (RESOLVED). Playbook and FLIR certification provided (RESOLVED).
D.08	7.3.4.16	Supplemental Inspections - Hydroelectric Substations and Powerhouses	7/31/2022	7/5/2022	On Track	Complete	Play book to be provided by 7.18.22 (RESOLVED). Playbook and FLIR certification provided (RESOLVED).
E.04	7.3.5.8	LiDAR Routine Inspections - Transmission	6/30/2022	6/9/2022	On Track	Complete	Inspections include dates in 2021 recommend adding inspection cycle dates to WMP for next year.
E.06	7.3.5.17.1	Defensible Space Inspections - Distribution Substation	12/31/2022	7/21/2022	On Track	Complete	Technology issue, records need to be put in SAP to remain On Track (OPEN).
E.07	7.3.5.17.2	Defensible Space Inspections - Transmission Substation	12/31/2022	7/21/2022	On Track	Complete	Technology issue, records need to be put in SAP to remain On Track (OPEN).
E.08	7.3.5.17.3	Defensible Space Inspections - Hydroelectric Substations and Powerhouses	12/31/2022	7/21/2022	On Track	Complete	
F.01	7.3.6.8	EPSS - Settings Design and Test	4/1/2022	3/31/2022	On Track	Complete	
F.03	7.3.6.8	EPSS - Develop Enablement Standards and Procedures	5/4/2022	5/4/2022	On Track	Complete	Correct attachment naming convention for procedure (RESOLVED). Document training with rosters.

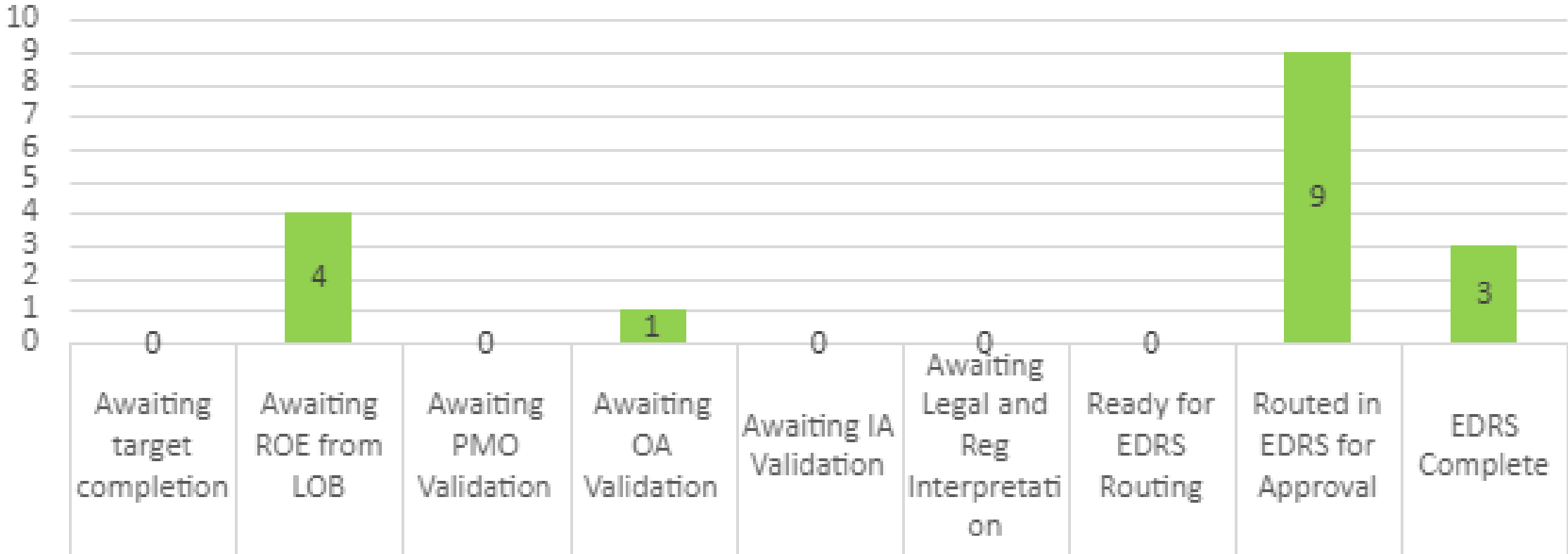
# WMP Closure Validation

## Validation Process



# Closure Aging Status

Aging Chart



■ Late ( > 6 Days )	0	0	0	0	0	0	0	0	0
■ On Time ( 1-5 Days )	0	4	0	1	0	0	0	9	3

■ On Time ( 1-5 Days )    ■ Late ( > 6 Days )

# A.02

## Transmission Modeling Enhancements – Threat and Hazard Risk Drivers



Activity #	Activity	15-Jan	22-Jan	29-Jan	5-Feb	12-Feb	19-Feb	26-Feb	5-Mar	12-Mar	19-Mar	26-Mar	2-Apr	9-Apr	16-Apr	23-Apr	30-Apr	7-May	14-May	21-May	28-May	4-Jun	11-Jun	18-Jun	25-Jun	2-Jul	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	12-Nov	19-Nov	26-Nov	3-Dec	10-Dec	17-Dec	24-Dec	31-Dec	Task Status	Task Status Notes		
		A.02.1	Develop model set for Asset Strategy review																																																			Complete	<ul style="list-style-type: none"> <li>- Total of 17 models committed to Judge Alsup/Federal Monitor. 17th model completed on 5/31</li> <li>- 16 models developed and delivered as planned by Exponent.</li> <li>- Version 1 of the <b>Insulator contamination model</b> did not meet expectations and a revised approach and rebuild is targeted for 7/31. First draft of revised insulator contamination model was reviewed this week and passed initial review.</li> </ul>	
A.02.2	Iterate on draft model with Asset Strategy																																																					On Hold	Transmission Asset Strategy <b>resources not available</b> - Risk is hiring a Transmission modeler - in the interim KPMG consultant has been onboarded to support	
A.02.3	Assess model fit for purpose																																																					Complete		
A.02.4	Incorporate in to the WTRM composite model																																																						Complete	
A.02.5	Productionalize Model in WTRM																																																					Complete		
A.02.6	Present model assessment results to the WRGSC																																																					Future Steps	Not started	

# A.02 Transmission Modeling Enhancements - Threat and Hazard Risk Drivers Catch Back Plan

Catch Back Plan Due Date: 9/6/22 (1 change) - WMP Target Due Date: 12/31/22

Chief Sponsor: Andy Abranches

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Transmission Composite Model	4/18/2022 Updated 5/23/2022	Iterate on draft model with Asset Strategy	Need Transmission modeling resources	Transmission Asset Strategy resources not available - Risk is hiring a Transmission modeler - in the interim KPMG consultant has been onboarded to support.		Combination of inability to locate expertise and approval to hire.	Obtain resources. Update Preferred (external) candidate decline offer and took another job outside of PG&E. Reposting the position..	5/20/2022	Paul McGregor	



# B.02 Weather Stations Catch Back Plan

Catch Back Plan Due Date: 8/30/22 - WMP Target Due Date: 12/31/22

Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Weather Stations	6/21/22	<p>Weather Station Project was unable to meet weekly targets for the week of 6/18.</p> <p>Project does not have enough sites cleared thru the approval process to meet forecasted numbers for 2022.</p>	<ol style="list-style-type: none"> <li><b>Land Environmental Permits:</b> Land/Environmental/Permits process can take months/years for some sites before ERTC is released. There are 19 sites surveyed in 2019 and 25 sites surveyed in 2020 that are still waiting Agency Approvals.</li> <li><b>Stand-alone poles:</b> Stand-alone pole installs take months to construct.</li> <li><b>Lack of potential sites:</b> The project does not have enough potential install / Optimizations sites in the pipeline to meet our WMP commitment.</li> </ol>	<ol style="list-style-type: none"> <li><b>Land Environmental Permits:</b> PG&amp;E Senior Leadership assistance needed to work with senior agency leadership to expedite approval processes and remove roadblocks.</li> <li><b>Stand-alone poles:</b> Gain Construction resource commitments or contracting as a solution to expedite getting new stand-alone poles installed.</li> <li><b>Lack of potential sites:</b> Meteorology to identify additional sites that can turn around in 60-days or less for install/optimization for 2022 build.</li> </ol>		<ol style="list-style-type: none"> <li><b>Land Environmental Permits:</b> PG&amp;E has too many initiatives that involve the US Forestry department. US Forestry does not have enough resources to support all of PG&amp;E's requests. PG&amp;E needs to provide a priority list to US Forest department. <ul style="list-style-type: none"> <li>Land/Environmental/Permitting have a long cycle time to clear dependencies. i.e. US Forest service resources pulled during fire season.</li> </ul> </li> <li><b>Stand-alone poles:</b> New Program with non-electric assets on the pole. Team is working on streamlining the process.</li> <li><b>Lack of potential sites:</b> Meteorology is focusing on areas where PG&amp;E does not have weather station coverage. Most of the new locations from meteorology require new pole installs. These average a year plus for installations. Most of these areas are remote, wilderness with limited road access.</li> </ol>	<ol style="list-style-type: none"> <li><b>Land Environmental Permits:</b> Officer level engagement with US Forest service to help release 52 sites.</li> <li><b>Stand-alone poles:</b> Secure contracting resources for stand-alone pole installs or prioritize these poles so they can be installed sooner.</li> <li><b>Lack of potential sites:</b> Need 60 new potential sites on PG&amp;E existing assets from meteorology.</li> </ol>	<ol style="list-style-type: none"> <li><b>Land Environmental Permits:</b> 8/30/22</li> <li><b>Stand-alone poles:</b> 7/31/22</li> <li><b>Lack of potential sites:</b> 7/31/22</li> </ol>	<ol style="list-style-type: none"> <li><b>Land Environmental Permits:</b> Matt Pender</li> <li><b>Stand-alone poles:</b> Matt Pender</li> <li><b>Lack of potential sites:</b> Scott Strenfel</li> </ol>	





# B.03 HD Camera – Installations Catch Back Plan

Catch Back Plan Due Date: 8/31/22 (2 changes) - WMP Target Due Date: 12/31/22

Chief Sponsor: Angie Gibson

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
High Definition Cameras	6/13/22	1. Missed the targeted camera installation for operational period 7/31/2022 (9 cameras).	<ol style="list-style-type: none"> <li>1. Applications now moving through approval procedure for various acceptance of FCC Microwave License to transmit and permit issuances</li> <li>2. Further efforts to access several installation sites demonstrated challenges to environmental conditions that prohibits clear vantage view and stability of equipment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify and pursue contingent camera sites to offset delayed installations.</li> </ol>	In Progress	<ol style="list-style-type: none"> <li>1. Stantec Contract Delay caused a 2+ month delay in USFS work. This has since been cleared and Stantec is once again moving to push our sites with the USFS</li> <li>2. Archeological review may cause some USFS sites to be no-go</li> </ol>	<ol style="list-style-type: none"> <li>1. The team has re-evaluated stand with installing single cameras vs 2 cameras per site and will be adding more 2 camera sites to help meet camera installation goals.</li> <li>2. Additional Site Proposal - Vendors working on list of additional sites that may be required above 600 to build in some contingency where possible if things don't go perfectly to new plan</li> <li>3. Identified up to 25 camera site locations for installation over the next 4 weeks to achieve YTD target of 80 camera installation.</li> </ol>	8/31/22	Jim Ridgway	In Progress



# C.02 PSPS – New Devices Catch Back Plan

Catch Back Plan Due Date: 8/31/22 (1 change) - WMP Target Due Date: 9/1/22

Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Target Date	CP Owner	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
<b>PSPS – New Devices</b>	7/1	Delays in pre-commissioning of controllers	DLT prioritizing EPSS 1A over PSPS	DLT and Construction working to pre-commission and construct by 7/31	7/31	MaryAnn Dillahunty Mike Kress		Program was not allocated resources and materials until 6/1	Commission at least 100 new devices by 8/31	8/31	MaryAnn Dillahunty Mike Kress	





# C.04 PSPS – MSO Devices Catch Back Plan

Catch Back Plan Due Date: 8/31/22 - WMP Target Due Date: 12/31/22  
 Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
PSPS – MSO Devices		1. Vipers materials availability	1. Prioritization of PSPS New Devices	1. Expedite delivery of Viper Reclosers and meet requirement dates per the Standard’s tracker		1. Demand for Vipers for EPSS program was greater than initially forecasted, delaying deployment of Vipers for PSPS jobs	1. Materials priority given to New PSPS Devices program. Expect stock to be caught up to demand by end of August	8/31	Dan Quinn	
PSPS – MSO Devices		1. Pre-Commissioning delays	1. DLT resources focused on EPSS program	1. Work with DLT to complete at least 24 jobs pre-commissioning dependencies		1. Lack of DLT resource availability to pre-comm and commission devices	1. Develop plan to ramp up DLT resourcing to ensure adequate DLT resources to meet all workplan needs. (Off Track w/ Plan: CM Target Date now end of August)	8/31	MaryAnn Dillahunty	





# C.05 Wildfire Non-Reclose Catch Back Plan

Catch Back Plan Due Date: 8/31/22 (2 changes) - WMP Target Due Date: 12/31/22

Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Wildfire Non-Reclose	3/28/22	1. Pre-Commissioning delays	1. DLT resources focused on EPSS program	1. Complete the EPSS Circuit Work so that DLT resources can shift back to other work. (Off Track w/ Plan: CP Target Date now end of August)		1. DLT prioritizing EPSS circuit work	1. Develop plan to ramp up DLT resourcing to ensure adequate DLT resources to meet all workplan needs. (Off Track w/ Plan: CM Target Date now end of August)	8/31	MaryAnn Dillahunty	



# C.06 Fuse Savers Catch Back Plan

Catch Back Plan Due Date: 8/31/22 (2 changes) - WMP Target Due Date: 12/31/22

Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
FuseSavers	3/28/22	1. Pre-Commissioning delays	1. DLT resources focused on EPSS program	1. Complete the EPSS Circuit Work so that DLT resources can shift back to other work. (Off Track w/ Plan: CP Target Date now end of August)		1. DLT prioritizing EPSS circuit work	1. Develop plan to ramp up DLT resourcing to ensure adequate DLT resources to meet all workplan needs. (Off Track w/ Plan: CM Target Date now end of August)	8/31	MaryAnn Dillahunty	



# C.09 Emergency Back-up Generation – Equip PG&E Service Centers & Materials Distribution Centers Catch Back Plan

Catch Back Plan Due Date: 8/27/22 - WMP Target Due Date: 12/31/22

Chief Sponsor: Andrew Williams

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Emergency Back-Up Generation	7/18/22	Construction delays on several sites that impacted schedules by several weeks/months.	Several contributing factors for falling behind in July include a Covid-19 outbreak amongst crew, gas service pressure issues causing delay in generator commissioning, delays in generator retrofit for Tier 4 emissions compliance, and unknown UG utilities causing several design changes. These factors have played a role in impacting construction schedules that impacted our July completion projections.	We are currently behind in our monthly forecast projections for July, but we are in a good spot to get back on track in August and still on track to complete our target by EOY.		Covid-19 outbreak, delays from generator manufacturer, unknown UG utilities causing last minute design changes, and gas service pressure issues.	Issues are being addressed and should put our program back on track in August 2022. No concerns with meeting our End Of Year completions.	8/27/22	Janice Wong	



# C.10 10K Undergrounding Catch Back Plan

Catch Back Plan Due Date: 8/1/22 - WMP Target Due Date: 12/31/22

Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
10K Undergrounding	7/11/22	The mileage target is slightly behind the goal set at the beginning of the year prior to having P6 schedules created for the individual projects.	The 2022 miles were not scoped in a timely manner which resulted in delays with the miles in estimating, dependencies, and not construction.	The anticipated mileage targets are being adjusted to reflected the actual forecasted mileage from the P6 schedules. Also attention is being given to ensure enough crews and materials to complete the 2022 work.		Delay in scoping	The 2023 mileage is being scoped earlier in the process to help ensure that mileage going into 2023 year is constructable.	The mileage for 2023 should be fully scoped by 8/1/22.	Linda Tripp	





# Remote Grid Operational Status by Phase



WMP ACTUAL/EOY TARGET		INTERNAL ACTUAL/EOY TARGET	
0/2		0/4	

Target Online	County	Remote Grid Project	Intake	Customer Outreach	Feasibility Study	Land Acquisition & Agreements	EPC Contracting	Engineering, Procurement & Permitting	Construction & Commissioning	Status
OPERATIONAL IN 2021	Mariposa	#360 Briceburg Circuit Name: Mariposa Remote 0001	✓	✓	✓	✓	✓	✓	✓	
WMP TARGET ONLINE BY DEC 2022	Tehama	#299 T/E Unit 2	✓	✓	✓	✓	✓			
	Tehama	#299 T/E Unit 1	✓	✓	✓	✓	✓			
INTERNAL TARGET ONLINE BY DEC 2022	Madera	#581 Miami Mountain	✓	✓	✓	✓	✓			
	Mariposa	#531 Slaughterhouse	✓	✓	✓	✓	✓			

TOTAL UNITS UNDERWAY	36	UNITS OPERATIONAL ITD	1
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# Appendix: Remote Grid Project Pipeline, 1 of 2



\*These projects are planned for EPC Contracting completion by the end of 2022.

The subsequent stages (i.e.; Engineering, Procurement & Permitting; Construction & Commissioning) will be completed in 2023.

INTERNAL ACTUAL/EOY TARGET

2/15

Forecast Online	County	Remote Grid Project	SPS Units	Intake	Customer Outreach	Feasibility Study	Land Acquisition & Agreements	EPC Contracting (EOY Target)	Status
ONLINE Q3 2023	Tulare	631 Berkeley Whitaker – Dunlap 1102	1	✓	✓	✓		✓	Green
	Lake	749 Anderson Springs – Middletown 1101	1	✓	✓				Yellow
	Madera	755 Melvin – Coarsegold 2104	1	✓	✓	✓	✓		Green
ONLINE Q4 2023	Shasta	757 Presleigh – Volta 1101	1	✓	✓	✓			Yellow
	Tehama	760 Wildcat – Volta 1101	2	✓	✓	✓			Yellow
	Tehama	761 Battle Creek – Volta 1101	1	✓	✓	✓			Green
	Lake	512 Forebay – Stanislaus 1702	1	✓	✓	✓	✓		Yellow
	Yuba	17 Ponderosa Way – Challenge 1102	1	✓	✓				Yellow
	Sonoma	44 Pepperwood – Fulton 1107	1	✓	✓	✓	✓	✓	Green
	Butte	773 Rich Bar – Bucks Creek 1102	1	✓	✓				Yellow
	Sonoma	436 Potter Valley – Potter Valley PH 1105	1	✓	✓				Yellow
	Butte	301 – Corning 1102	2	✓	✓				Yellow
	Marin	665 Mt Vision PRNS – Olema 1101	1	✓	✓	✓			Green
	Shasta	368 – Stillwater 1101	1	✓	✓				Green
	Shasta	499 – Pit No 7 1101	1	✓					Green
	Glenn	670 Valley View - Elk Creek 1101	2	✓	✓	✓			Green

# Appendix: Remote Grid Project Pipeline, 2 of 2



INTERNAL ACTUAL/EOY TARGET

2/15

Forecast Online	County	Remote Grid Project	SPS Units	Intake	Customer Outreach	Feasibility Study	Land Acquisition & Agreements	EPC Contracting (EOY Target)	Status
ONLINE Q1 2024	Butte	794 – Clark Road 1102	4	✓					Green
	Glenn	255 – Elk Creek 1101	1	✓	✓				Green
	Glenn	256 – Elk Creek 1101	2	✓	✓				Green
	Tehama	817 – Corning 1102	1	✓	✓				Yellow
ONLINE Q2 2024	SLO	629 Carrizo Plains – Fellows/Sisquoc	4	✓	✓	✓			Green

# C.14 Remote Grid Catch Back Plan

Catch Back Plan Due Date: 8/15/22 - WMP Target Due Date: 12/31/22

Chief Sponsor: Matt Pender

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Remote Grid	6/8/22	Delays to Estimating design of Remote Grid (RG) service facilities.	Misalignment in prioritization and lack of workflow for first application of new design standard for RG services, plus single-coworker resourcing bottleneck	<ul style="list-style-type: none"> <li>- Split simpler line removal scope to non-SME Estimators (<b>COMPLETE</b>)</li> <li>- Mgr/Sup/CW realignment talk on priority, need early flag on delays (<b>COMPLETE</b>)</li> <li>- Get Asset Strat/RG decision on RG531 (<b>COMPLETE</b>)</li> <li>- 2 of 3 JE's <b>COMPLETE</b> 3<sup>rd</sup> ETA by <b>7/30</b></li> </ul>		New dsgn standard not yet with clear/known process, and few SME resources ramped up to task	<ul style="list-style-type: none"> <li>- 1. Clarify RG service design standard including work flow process</li> <li>- 2. Train 1 add'l Estimator to support RG</li> </ul>	8/15/22	Tom Copeland	
Remote Grid	Updated 7/28/22	<p>At conclusion of 30% design, contractor notified that remainder of Engineer/ Procure/ Construct timelines longer than expected.</p> <p>On 7/28 we received notification of new delays (~3wk) to the generators.</p>	<ul style="list-style-type: none"> <li>• Global supply chain issues for generators</li> <li>• Extended design and contracting duration</li> <li>• Incremental civil scope identified on 2 projects</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Expedite long lead gensets (new escalation):</b> Generac delivery wk of 9/19 now delayed 3 wks to 10/3, PG&amp;E requesting Generac commit 3 unit (of 6) by the 9/19 date.</li> <li>- <b>Contingency Plan:</b> partial system commissioning for early interim ops w/ tempgen</li> </ul>		Major cause: Unexpected lengthening of lead times on equipment related to COVID	Request for Generac to commit delivery of 3 units by original date with escalation to Generac VP level through outreach by Joe Bentley	8/5/22	Bennett Chabot	



# D.05 Infrared Inspections – Distribution Catch Back Plan

Catch Back Plan Due Date: 8/27/22 - WMP Target Due Date: 12/31/22

Chief Sponsor: Martin Wyspianski

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Infrared Inspections – Distribution	7/18/22	Work has not started yet	Purchase Order was not issued in time to start	Contract will be issued 7/18/2022; updated work schedule created		Contract processing takes a long time (Ariba tool, vacations, numerous approval steps)	Contractor is adding more units to later months	8/27/22	Jim Gill	









# G.01

# Data Governance - Identify and Centralize High Priority Data



	Activity	Responsible	Accountable	Task Status	Task Status Notes	Recovery Plan Start	Recovery Plan End
3.1	Upgrade Ontology Object to Level II Distribution Transformer / Transformer Unit (2 objects)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	18-Jul	7/18 CB: Data Fidelity review completed 6/27 and settings recorded 7/18. 7/5 LJ: BDS is identified and onboarded. Next step is to schedule detailed walkthrough session and request acceptance from BDS. New Target date for the object is 7/22.	1/19/2022	7/22/2022
3.2a	Upgrade Ontology Object to Level II Distribution Primary Conductor (OH)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	18-Jul	7/18 CB: Data Fidelity review completed 6/27 and settings recorded 7/18.	1/19/2022	6/27/2022
3.2b	Upgrade Ontology Object to Level II Distribution Primary Conductor (UG)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	1-Aug	8/1 CB: pushing deadline to 9/15 7/25 CB: depend on BDS Lead assignment -> pushing deadline to 8/15 7/18 CB: delay BDS acceptance to 7/26 due to availability. 7/5 LJ: New Target date for the object is 7/22. 4/18 CB: UG Dx Conductor considered lower priority, not on the recovery plan. Object L1 ready, BDS to be identified.	1/19/2022	9/15/2022
3.3a	Upgrade Ontology Object to Level II Distribution Protective Device (Fuse, DPD) (2 objects)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	18-Jul	7/18 CB: Data Fidelity review completed 6/27 and settings recorded 7/18. 7/5 LJ: BDS is identified and onboarded. Next step is to schedule detailed walkthrough session and request acceptance from BDS. New Target date for the object is 7/22.	1/19/2022	7/22/2022
3.3b	Upgrade Ontology Object to Level II Distribution Protective Device (Switch)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	18-Jul	7/18 CB: Data Fidelity review completed 6/27 and settings recorded 7/18. 7/5: BDS is identified and onboarded. Next step is to schedule detailed walkthrough session and request acceptance from BDS. New Target date for the object is 7/22.	1/19/2022	7/22/2022
3.4	Upgrade Ontology Object to Level II Transmission Conductor and Switch (2 objects)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	1-Aug	8/1 CB: Based on GIS COE delivery 8/26 we can now commit to 9/15 7/18 CB: Dependency on GIS COE team - current ETA 8/15 6/23 CB: New target date (data fidelity): 8/15 to be confirmed 4/18 CB: Recovery plan involves Exec support to onboard BDS. Tx conductor & switch are on "Cohort 4" starting 5/17.	1/19/2022	9/15/2022
3.5	Upgrade Ontology Object to Level II Distribution Secondary Conductors (OH and UG) (2 objects)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	n/a	7/11 CB: Removed out of scope and replaced by 3.10 and 3.11. 4/18 CB: Feasibility questioned due to inherent low data quality of secondary conductors. Data Source SME needed.	1/19/2022	7/12/2022
3.6	Iterative Improvement to Level II object Dx Support Structure	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	18-Jul	7/18 CB: Data Fidelity review completed 6/27 and settings recorded 7/18. 4/18 CB: Support Structure is on BDS cohort 2. Work planned in PI10.	n/a	n/a
3.7	Iterative Improvement to Level II object System Inspection and Inspections answer (2 objects)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	18-Jul	7/18 CB: seek BDS to formalize Data Fidelity review by 11/18 4/18 CB: Object L2 Ready	7/13/2022	11/18/2022
3.8	Level 2 Ontology Object 8 to be defined in Planning Increment 10: Electric Transmission Support Structure; Child pole (object to be deprecated upon 7/21 busines request)	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	1-Aug	8/1 CB: Based on GIS COE delivery 8/26 we can now commit to 9/15 7/18 CB: Tx Data Fidelity dependent on GIS COE artifact 4/18 CB: Work planned in PI10. Tx Support Structure is on BDS cohort 1.	4/13/2022	9/15/2022
3.9	Level 2 Ontology Object 9 to be defined in Planning Increment 10: Electric Transmission Line	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	1-Aug	8/1 CB: Based on GIS COE delivery 8/26 we can now commit to 9/15 7/18 CB: Tx Data Fidelity dependent on GIS COE artifact 4/18 CB: Work planned in PI10. Tx Line is on BDS cohort 4.	4/13/2022	9/15/2022
3.10	Level 2 Ontology Object 10 to be defined in Planning Increment 10: Distribution Device Group	Gorokhov, Eugene; Yue, Sandra	Moazed, Ali; Robello, Elveera	1-Aug	8/1: pushing deadline to 9/15 7/25 CB: depend on Tech SME on vacation until 8/3 -> pushing deadline to 8/15 7/18 CB: work completed. Data Fidelity review to be confirmed with BDS. 4/18 CB: Work planned in PI10.	4/13/2022	9/15/2022

# G.01 Data Governance – Catch Back Plan

Catch Back Plan Due Date: 11/18/22 (4 changes) - WMP Target Due Date: 12/31/22

Chief Sponsor: Martin Wyspianski

Program	Date Raised	Problem	Point of Cause	Containment Action	Status	Root Cause	Countermeasure Action	Target Date	Owner	Status
Data Governance - Identify and Centralize High Priority Data	4/18/2022	Completion of Ontology objects identified in 3.1 – 3.5 have been delayed from Q1 (PI9) into Q2 (PI10). <b>ONLY Items from this group still incomplete as of 7/18: 3.2b, 3.4</b>	The 4/12 & 7/12 deadlines were initially set with the assumption that work delivered by Ontology team would be sufficient to meet L2 maturity with help from <b>BDS/SMEs</b> .	Major initiative across EO, EDMP, IT to align with development commitments.  Specific ontology object plans and dates have been revised in the TIP sheet to reflect current state.  <b>Refining standard process to facilitate BDS review of ontology objects and their data fidelity maturity.</b>		Evolving standard for ontology object L2 maturity.  Lack of defined BDS role and program support.  Lack of process to support BDS review of ontology objects.	BDS candidates have been identified and onboarded and roles have been defined.  BDS assigned to ontology objects currently under development.  Process for Ontology object review and acceptance is being <b>refined &amp; improved</b> .	Acceptance of 2 Dx objects (3.2b & 3.10) by BDS delayed to <b>9/15</b> due to resource availability.  Fidelity check for <b>Tx</b> objects (3.4, 3.8, 3.9) delayed to <b>9/15</b> due to dependency on GIS COE Team.	Ali Moazed	
	7/18/2022	Completion of Ontology objects identified in 3.7 – 3.10 have been delayed from Q2 (PI10) into Q3 (PI11)	Implementing data fidelity requirements has uncovered the need for additional integration with GIS source systems.	Tighter collaboration and synchronization with GIS COE is underway.			Next tranche of objects for development defined.	Review and acceptance of 2 Inspections objects (3.7) by BDS delayed to <b>11/18</b> .		

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

#### \*\*\*\*\*READ BEFORE STARTING WORK\*\*\*\*\*

BEFORE starting work on or near any forest-, brush-, or grass-covered lands, all work personnel must review this attachment and assess the required mitigations based on the [Utility Fire Potential Index Rating](#) produced by PG&E's Meteorology team (use this [link](#) to subscribe).

This "Wildfire Mitigation Matrix" (referred to as "Matrix" from here on) is set up with work activities and activity descriptions listed down the left, and generic mitigations based on the Utility Fire Potential Index Ratings across the top.

Activities requiring additional mitigations are referenced in the corresponding box in blue text.

Refer to [Utility Standard TD-1464S, "Preventing and Mitigating Fires While Performing PG&E Work,"](#) for detailed information on the general requirements and other mitigations listed in this document.



#### WARNING

When Red Flag Warnings are in effect, work personnel must perform R5 Fire Potential Index Rating mitigations.



Denotes a work activity that requires general mitigations (**R1, R2, and R3** Fire Potential Index Ratings mitigations).



Denotes a work activity that requires ALL general mitigations (**R1, R2, and R3** Fire Potential Index Ratings mitigations) AND the mitigations from **R4**.



Denotes a work activity that requires ALL general mitigations (**R1, R2, and R3** Fire Potential Index Ratings mitigations), mitigations required for **R4** Fire Potential Index Ratings, AND mitigations required for **R5** and **R5-Plus**.



Denotes the work activity that is **not** allowed.




**Blue Text** – Denotes mitigations required **in addition** to the respective mitigations listed at the beginning of the matrix.

IF there is a need for an exemption of work being performed during an R5-Plus Fire Potential Index Rating,

THEN contact the Hazard Awareness & Warning Center (HAWC) at [WildfireSOC@pge.com](mailto:WildfireSOC@pge.com) or 1-800-255-7593.

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

		
<p><b>General Mitigations for R1, R2, and R3</b></p> <ol style="list-style-type: none"> <li>1. Prepare for work (review standard, matrix, and checklist).</li> <li>2. Review the Fire Potential Index Rating each morning during tailboard.</li> <li>3. Evaluate weather conditions throughout the day to ensure work can be done safely. IF weather conditions warrant, THEN stop work or update mitigations, when necessary (e.g., wet down work area).</li> </ol> <p><b>TOOLS</b></p> <ol style="list-style-type: none"> <li>4. Jobsite <b>must</b> have enough tools to outfit all crew members at the operation.</li> <li>5. Tools and equipment must be located at the immediate work location.</li> <li>6. Major work operations must have a sealed box of tools as described in Section 2.8, including one serviceable chainsaw.</li> <li>7. Ensure that the proper tools are available on the vehicles listed below, as described in Section 2.6: <ul style="list-style-type: none"> <li>• <b>Passenger vehicles:</b> One dry chemical fire extinguisher and one shovel</li> <li>• <b>Trucks/4-wheel drive vehicles (1/2 ton or larger):</b> One dry chemical fire extinguisher, one shovel, one 5-gallon backpack pump</li> <li>• <b>Heavy machinery:</b> One dry chemical fire extinguisher, one shovel, and one 5-gallon backpack pump</li> </ul> </li> </ol> <p><b>TRAVEL and VEHICLES</b></p> <ol style="list-style-type: none"> <li>8. Maintain situational awareness when driving on unimproved roadways.</li> <li>9. Stationary vehicles (when parked or idling) must be parked safely as outlined in Section 2.6 of the standard.</li> </ol> <p><b>JOBSITE AND REPORTING</b></p> <ol style="list-style-type: none"> <li>10. While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (e.g., welding, cutting, grinding), all flammable material (e.g., grass, leaf litter, including snags) must be removed down to mineral soil for a minimum of 10 feet around the jobsite. <ul style="list-style-type: none"> <li>• IF the work is not stationary OR IF the work is being performed above ground, THEN follow the requirements in Section 2.9.4.a, Steps (1)–(6) of <a href="#">Utility Standard TD-1464S</a>.</li> </ul> </li> <li>11. If there is an ignition, THEN work personnel <b>must</b> call emergency services (9-1-1) to report it, even if the fire is extinguished. <ul style="list-style-type: none"> <li>• Call the HAWC at 1-800-255-7596 with the location, source, and impacted assets.</li> <li>• <b>Do not smoke</b>, unless there is a 3-foot cleared area (down to mineral soil), an extinguishing agent, and butt receptacle with water in the smoking area.</li> </ul> </li> </ol>	<p><b>R4 ratings</b> require all mitigations below, in addition to the mitigations for <b>R1, R2, and R3</b> ratings:</p> <ol style="list-style-type: none"> <li>a. 120 gallons of water with not less than 200 feet of hose, not less than 1 inch in diameter, and a minimum of 40 pounds per square inch (psi) at the nozzle. This water delivery system <b>must</b> be able to reach the immediate work location.</li> <li>b. Evaluate weather conditions to ensure it remains safe to work.</li> <li>c. <b>Working Fire Watch</b> assigned to the jobsite, <b>EXCEPT</b> when working with energized equipment which requires <b>Dedicated Fire Watch</b>.</li> </ol>	<p><b>R5 ratings</b> require all mitigations below, in addition to the mitigations for <b>R1, R2, R3, and R4</b> ratings:</p> <ol style="list-style-type: none"> <li>a. <b>Dedicated Fire Watch</b>.</li> <li>b. Must have a trailer-mounted water tank or alternative water delivery method with a hose long enough to reach the jobsite.</li> <li>c. Consider additional modification to the fuel sources surrounding jobsite.</li> <li>d. Suspend all planned work during an <b>R5-Plus</b> fire rating.</li> <li>e. During all emergency work being performed during an <b>R5-Plus</b> fire rating, work personnel <b>must</b> have SIPT on standby or a 300-gallon water tender available.</li> </ol>




## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Vehicle, Roads</b>						
1	<b>Vehicle travel on unimproved roadways</b>	Anything that propels, moves, or is drawn on unpaved surfaces. This includes the transportation of materials.	✓	✓	✓	✓
2	<b>Using heavy equipment</b>	General construction, water, bars, culvert cleaning/repair grading / excavation, digging  E.g., blades, dozers, skid steers, excavators, back hoes.	✓	✓	✓	✗
<b>Unmanned Aerial Vehicle (UAV)</b>						
3	<b>Unmanned Aerial Vehicle (UAV) Line of Sight (LOS)</b>	Comprehensive data collection within line of sight of UAV.	✓	✓  <b>Crew must have 5-gallon backpack pump (in place of the 120-gallon mitigation), and round-point shovel readily available during all flight operations.</b>  <b>When performing flight operations that require flight below the conductor level or operations within a congested area (i.e., crossing lines, guy wires, dense vegetation), UAV being flown must be immediately accessible by a working fire watch in the event of a downed UAV.</b>	✓  <b>In addition to R4 restrictions:  Flying between parallel conductors is prohibited when less than 60 feet apart (plus drone diameter).</b>	✗

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Electrical and Telecommunications Equipment/Maintenance</b>						
4	<b>Equipment repair and replacement (Electric operations, IT / Telecom)</b>	This includes tasks related to conductors, pole OH equipment, fiber splicing, and tower work from which a spark, fire, or flames may originate.	✓	<div style="text-align: center;">   <b>De-Energized</b> </div> <div style="text-align: center;">   <u>Energized:</u> <ul style="list-style-type: none"> <li>Dedicated Fire Watch.</li> <li>Fuels cleared to bare mineral soil in a 15-foot radius below the facility.</li> <li>Wet down a 50-foot radius around work area.</li> </ul> </div>	<div style="text-align: center;">   <u>Energized:</u> <ul style="list-style-type: none"> <li>Fuels cleared to bare mineral soil in a 15-foot radius below the facility.</li> <li>Wet down a 50-foot radius around work area.</li> </ul> </div>	✗
5	<b>Routine work for lone worker or 2-person crews (t-man, comm tech)</b>	This includes installing new services, disconnect and reconnect services, power connections, etc.	✓	✓ Crews should have a 5-gallon backpack pump within 25 feet of the work being performed.	✓ Crews should have a 5-gallon backpack pump within 25 feet of the work being performed.	✗
6	<b>Restoring and testing, Electric operations</b>	Replacing blown fuses.	✓	<div style="text-align: center;">✓</div> <p>Must patrol and clear the hazard. Ensure conditions at the base of the pole do not support ignition or the rapid spread of fire.</p>	<div style="text-align: center;">✓</div> <p>Must patrol and clear the hazard. Ensure conditions at the base of the pole do not support ignition or the rapid spread of fire.</p>	<div style="text-align: center;">✓</div> <p>Must patrol and clear the hazard. Ensure conditions at the base of the pole do not support ignition or the rapid spread of fire.</p>
7	<b>Switching</b>		✓	<div style="text-align: center;">✓</div> <p>When performing switching, ensure that work personnel have a 5-gallon backpack-style pump and a round-point shovel within 25 feet of the work location.</p>	<div style="text-align: center;">✓</div> <p>Analysis of the work (i.e., switching operation type, time of day, need for a dedicated fire patrol) must be performed. Consultation with a Public Safety Specialist is recommended.</p>	<div style="text-align: center;">✓</div> <p>Analysis of the work must be performed. The Task Force Leader (TFL) MUST consult a Public Safety Specialist.</p>

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning		R5-Plus
<b>Vegetation Management</b>							
8	Mowing, hot saw, feller buncher, stump grinding, and masticating equipment	This includes gas- and electric-powered equipment but does NOT pertain to portable tools noted in Work Activities #14 and #15.	✓ <i>**In the event a water buffalo cannot reach the immediate worksite due to inaccessible terrain, in lieu of the 120-gallon water buffalo, you MUST have a 5-gallon backpack-style pump and a round point shovel within 25 feet of the immediate work location. (This ONLY pertains to single- or two-person teams performing this operation).</i>	✓ **	✗		✗
9	Pole/tower ground clearance	10 feet of clearance around poles and tower structure (power tools).	✓	✓ **	✓ **		✗
10	Conductor vegetation clearance	Trim and, occasionally, remove trees to maintain required, mandated clearances. This includes the associated use of equipment such as chainsaws or woodchippers.	✓	✓ **	Extreme ✓ **	Red Flag Warning ✓ **	✗
11	Harvesting timber on PG&E lands	<b>Follow conditions and standards outlined in the Timber Harvest Plan. Ensure the mitigations in this matrix are followed based on work performed (e.g., using chainsaws).</b>					



## Preventing and Mitigating Fires While Performing PG&E Work

Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Other Activities</b>						
12	<b>Construction hot work</b>	Any temporary operation that involves open flames or produces heat and/or sparks. This includes, but is not limited to, <b>brazing, cutting, grinding, soldering, torch-applied materials, and welding.</b>	✓	✓ Wet down a 50-foot radius around work area.	✓ Wet down a 50-foot radius around work area.	✗
13	<b>Using equipment with an internal combustion engine requiring spark arrestor (excluding vehicles)</b>	This includes hand-held leaf blowers, chainsaws, weed whackers, woodchippers, etc.  Portable and stationary equipment includes compressors, generators, etc.	✓	✓	✓ Unstaffed generators may be used to ensure:  1. Public Safety. 2. Safety and maintenance of company assets.  Ensure a clearance of 10 feet down to mineral soil. Onsite water is NOT required.	✗ <u>Exception: Unstaffed generators used to ensure:</u>  1. Public Safety. 2. Safety and maintenance of company assets.  Ensure a clearance of 10 feet down to mineral soil. Onsite water is NOT required.
14	<b>Using portable tools powered by an internal combustion engine, power cord</b>	Using leaf blowers, chainsaws, weed whackers, drills, saws, mowers, and similar tools with engine or motor.	✓	✓	✓	✗
15	<b>Using battery-powered equipment</b>	Using mowers, weed whackers, leaf blowers, drills, survey equipment.	✓	✓	✓	✗
16	<b>Blasting (explosives)</b>		Must follow the mitigations identified in the State Fire Marshall's Use Permit.		✗	✗

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

Activity Number	Work Activity	Description	R1 / R2 / R3	R4	R5 OR Red Flag Warning	R5-Plus
<b>Burning</b>						
17	Open burning	Burning of any brush, stumps, logs, fallen timber, fallows, slash, grass-covered lands, brush-covered lands, or other flammable materials.	<p><b>Zone A – Always requires a burn permit and compliance with the permit’s terms.</b></p> <p><b>Zone A:</b> Includes the following counties:</p> <ul style="list-style-type: none"> <li>• Mono</li> <li>• Inyo</li> <li>• San Bernardino</li> <li>• Santa Barbara</li> <li>• Ventura</li> <li>• Los Angeles</li> <li>• Orange</li> <li>• Riverside</li> <li>• San Diego</li> <li>• Imperial</li> </ul> <p><b>Zone B – Permit, when required.</b></p> <p><b>Zone B:</b> Includes any county and portion of any county that is not included in Zone A.</p>	✗	✗	✗
<b>Substation</b>						
<b>NOTE: Activities listed below only pertain to situations where there is vegetation near the work being performed.</b>						
18	Activities that can produce arcing, sparks, or fire ≤ 15 feet from inside the substation fence.	Any substation activities.	✓	✓	✗	✗
19	Activities that can produce arcing, sparks, or fire > 15 feet from inside the substation fence.	Any substation activities.	✓	✓	✓	✗

## Preventing and Mitigating Fires While Performing PG&E Work

### Attachment 1, Wildfire Mitigation Matrix

#### REVISION NOTES

Where?	What Changed?
Page 2, General Mitigations, R1, R2, R3	Added clarifying location of tools and equipment to item 5.
Page 2, General Mitigations, R4.a	Added clarifying information regarding distance.
Page 2, General Mitigations, R4.c	Changed language to add exception for dedicated fire watch in R4 conditions for work activity involving energized equipment.
Page 5, Activity 8	Added statement in blue (**) under R1/R2/R3.
Page 5, Activities 8–10	Added ** under R4 and R5.



2021 12-Month Objectives	Progress in last 12-Months	Objectives for Next 12-Months
Implementation of the 2021 Workforce Safety Plan which includes:		
Development of 10-12 Technical Safety Standards for high risk tasks	Batch 1 complete batch 2 to be completed by EOY 2022	Complete batch 2 including gap analysis to essential controls.
implementation of a safety audit program,	Integration of Safety & Risk in 2022. Safety Audit toolkits developed, include the Audit Protocols, a draft Audit Plan and an Audit team proposal	Continue development of audit program and plan aligned with PSEMS
pre-task tailboard improvements,		Pre-job safety briefing updated to include refreshed preventative measures, essential controls, and Human Performance tools
strengthening contractor management,	Assigned a Director of Contractor Safety and developed 2022 Contractor Safety Plan	Execute on 2022 Contractor Safety Plan
including requirements for pre-qualification,	Piloted Contractor Skill Assessment in Vegetation Management	Expand skill assessment program
revising the safety leadership training course for supervising,	Kept current curriculum focused on frontline and crew leads. Began developing complementary program for leadership develop of all leaders.	Continue building out plan for new Leadership Development Program
industrial ergonomics plan for high risk tasks,	32 high-risk tasks identified for Task Analysis. Task Analysis completed and improvements implemented for 17 of 32.	Complete Task Analysis and implement solutions for remaining 15 high-risk tasks.
integrating safety in the talent management process	Aligned talent management including recruiting and goal processes to the purpose, virtues and stands	
increasing officers and directors time in the field having informal conversations with employees	Established enterprise operating cadence which includes Field Mondays	Establish a mechanism to track increased O&D field presence
The scope of the Health& Safety Management System was expanded in December 2021 beyond ISO 45001 to include ISO 55001 and API 1173. The name is the PG&E Safety Excellence Management System (PSEMS) and has completed Design and is now in the Build phase.	Design phase of PSEMS complete and Build phase is 50% complete	Complete build phase and begin implementation with a Pre-Assessment of the Enterprise against the requirements within PSEMS.
The software chosen for MOC, Enablon, was found to not meet the necessary technical requirements to be effective at management of change.	Appointed MOC lead in 2021 who then subsequently resigned. MOC was since build into the PG&E Safety Management Excellence System framework as an element with an element owner.	Establish and begin execution of a milestone based timeline