

**Public Safety  
Long Term Incentive Plan (LTIP)  
Target Setting**

**January 11, 2021**



Together, Building  
a Better California

**PG&E** Evolution of the LTIP metric from units of work completed to amount of risk being reduced

	2020-2022 LTIP Plan	2021-2023 LTIP Plan
<b>System Hardening</b>	<ul style="list-style-type: none"> <li><b>Risk Exposure</b> - Count of circuit miles system hardening in High Fire Threat Districts (HFTD) and High Fire Risk Areas (HFRA). Goal was ~1,021 circuit miles over 3 years; 235 miles hardened YTD in 2020</li> </ul>	<ul style="list-style-type: none"> <li><b>Risk Exposure</b> - Count of circuit miles system hardened in the HFTD and HFRA</li> <li><b>Risk Profile</b> - 80% of system hardening miles have to be highest-risk miles; highest risk miles include - 1) Top 20 % of the risk buydown curve, 2) fire rebuilds and, 3) PSPS mitigation miles</li> <li><b>Risk Effectiveness</b> - Prioritizes higher risk reduction mitigation options (Undergrounding and Line removals)</li> </ul>
<b>Substation Enablement</b>	<ul style="list-style-type: none"> <li>Number of substations out of possible 64 substations that are "energizable" during a Transmission-Level PSPS event</li> <li>62 high priority substations are now operationally ready within 48 hours (LTIP 3-yr 2.0 target = 50 substations)</li> </ul>	<ul style="list-style-type: none"> <li>Replace the Substation Enablement metric for the 2021-2023 LTIP Period with EVM Risk Reduction Public Safety Metric</li> <li><b>Rational:</b> <ul style="list-style-type: none"> <li>3 Year target has been achieved</li> <li>Improved weather forecasting capabilities reduces the criticality of number of substations needed to reduce PSPS impact</li> </ul> </li> </ul>
<b>Enhanced Vegetation Management (EVM)</b>	<ul style="list-style-type: none"> <li>No metric was established for EVM</li> </ul>	<ul style="list-style-type: none"> <li><b>Risk Exposure</b> - Count of EVM miles worked in the HFTD and HFRA</li> <li><b>Risk Profile</b> - 80% of EVM miles worked in the top 20% of the HFTD's includes Fire impacted areas</li> <li><b>Risk Effectiveness</b> - Execute work consistent with defined EVM scope</li> </ul>



### Why System Hardening and Enhanced Vegetation Management?

System Hardening (SH) and Enhanced Vegetation Management (EVM) focus on mitigation of potential wildfire risk from Distribution Overhead Assets, which have resulted in a significantly higher number of ignitions (nearly 90% of the total CPUC Reportable ignitions from 2015 – 2020 YTD)

- Distribution assets represent high ignition risk due to a combination of high exposure area (overhead assets traversing HFTDs), proximity to risk factors (vegetation), and intrinsic asset characteristics
- SH and EVM mitigation work focus on mitigating these risk factors on Distribution Assets and are key mitigation programs to continue addressing potential wildfire risk

Initiating Cause	2015 - 2020 YTD <sup>1</sup> CPUC Reportable Ignitions in HFTD		Estimated Ignitions per 1,000 Circuit Miles in HFTD <sup>2</sup>	
	Distribution	Transmission	Distribution	Transmission
Equipment – PG&E	217	30	8.5	5.4
Vegetation	305	11	11.9	2.0
All Other <sup>3</sup>	195	34	7.6	6.1

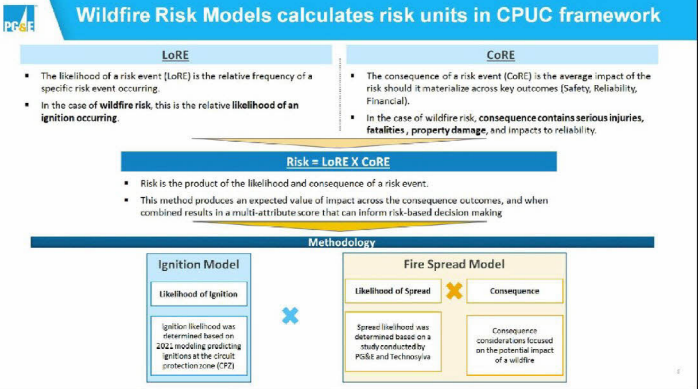
For Equipment driven ignitions, the Distribution ignitions per Mile rate is 1.6x greater than Transmission

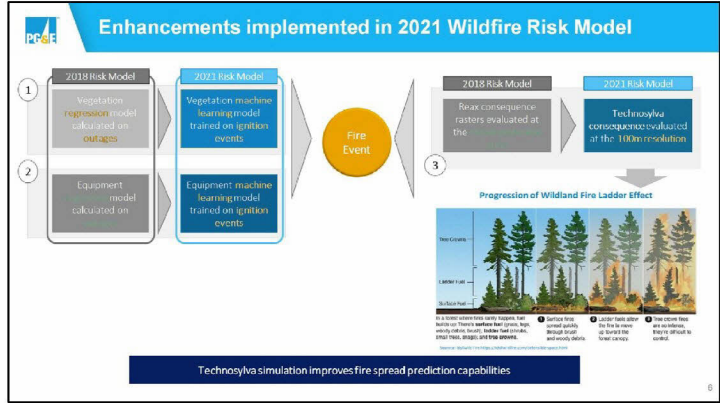
For Vegetation driven ignitions, the Distribution rate is 6x greater than Transmission

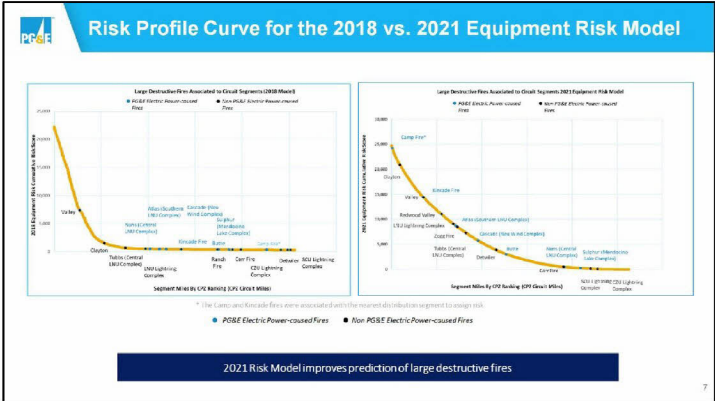
1. YTD represents data as of the end of September, 2020  
 2. Circuit mileage in HFTD area source: 2020 wildfire safety Plan – 25,598 of distribution overhead mileage in HFTD area, 5,542 of transmission overhead mileage  
 3. Other includes ignitions primarily driven by 3<sup>rd</sup> party and animals

## Risk Model and Risk Quantification

1/1/2009



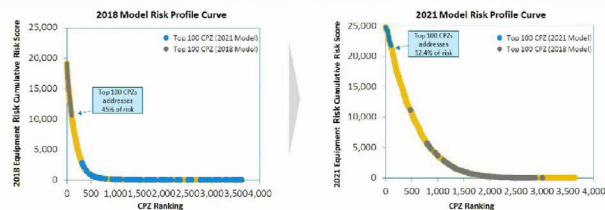






## Risk models provide risk profile curves to guide workplan

The risk profile curve shows *the amount of risk that can be addressed* with every subsequent mile within a Circuit Section or CPZ that is mitigated. This view illustrates the relative magnitude of risk associated with the top 100 CPZs and the visualization highlights the consolidation of risk by CPZ as you move down the prioritization list.

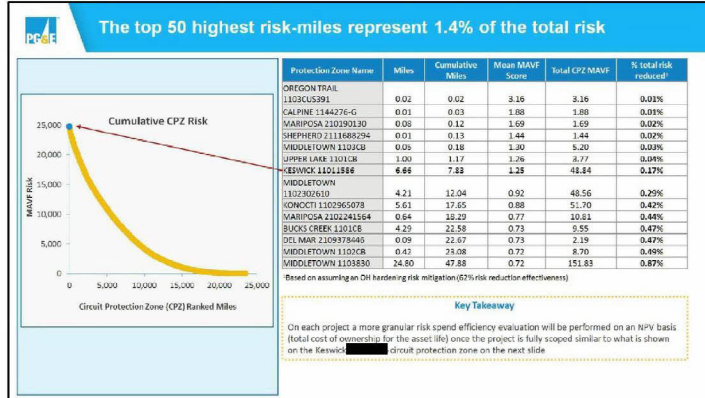


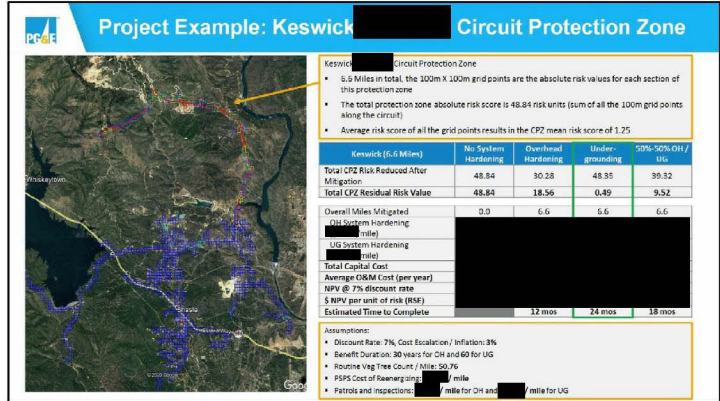
The improvement in the Risk Model results in a significant shift in the highest risk circuit protection zones

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**Project Example**





## Target Setting

12/20/2024



# System Hardening

## Conditions

**Condition 1: 80% of system hardening miles have to be highest-risk miles over the three-year period or LTIP is 0**

**Risk Profile (Highest Risk Miles defined as)**

1. Top 20% of risk buydown curve
2. Fire rebuild miles
3. PSPS mitigation miles



**Condition 2: Minimum percentage of miles mitigated with either Line Removal or Undergrounding over the three-year period or LTIP is 0**

**Risk Effectiveness**

- 10% of Undergrounding or Line Removal work in the System Hardening project portfolio<sup>1</sup>

**Risk Exposure**

- Count of circuit miles system hardened in the HFTD and HFRA

## System Hardening Targets (Risk Miles)

	LTIP 0.5	LTIP 1.0	LTIP 2.0
2021	180	199	208
2022	423	464	485
2023	423	464	485
2021-2023	1,026	1,127	1,178

1. Basis of the 80% is to allow for operational execution considerations including permitting, weather related access, and mob/demob efficiencies  
 2. Basis of the top 20% correlates to ~70% of the risk on the risk buydown curve  
 3. Risk mitigation effectiveness for Overhead Hardening is estimated at 62% and Undergrounding or Line Removal is estimated at 90%

**System Hardening targets are set based on 2021 risk miles and program funding assumptions**

**Program Funding**

- Forecast of [redacted] and [redacted] Wildfire Mitigation capital spend in 2021 and 2022, respectively, consistent with the Proposed Decision Revision for the 2020-2022 GRC. 2023 Wildfire Mitigation capital spend is forecasted at the 2022 level.

**Unit Costs**

- Assumes [redacted] per circuit miles of Overhead S11 work and [redacted] for Underground work.

**Program Pace**

- Get to steady pace of 450-500 high risk miles / year.

System Hardening LTIP Targets

	LTIP 0.5	LTIP 1.0	LTIP 2.0
2021	180	199	208
2022	423	464	485
2023	423	464	485
2021-2023	1,026	1,127	1,178

Targets are miles of system hardening work for specific risk-prioritized work

- The total mileage of the proposed 2021 Project Portfolio was set as the threshold goal (LTIP 0.5) for 2021.
- LTIP 0.5 goal in 2022 reflects escalation of program funding level; the 2023 LTIP 0.5 goal is set equal to the 2022 level based on the 2023 GRC funding level forecast.
- The target and stretch goals (LTIP 1.0, 2.0) were set as 10% and 15% higher, respectively.

[redacted] includes scoping and engineering costs for future system hardening projects beyond 2021 and additional minor capital spend for other Wildfire Mitigation Programs

**Enhanced Vegetation Management (EVM)**

**Conditions**

**Condition 1: 80% of EVM miles have to be highest-risk miles over the three-year period or LTIP is 0**

**Risk Profile (Highest Risk Miles defined as)**

- Top 20% of risk model buydown curve
- Five impacted miles

**Risk Effectiveness**

- Execute work consistent with defined EVM scope
  - Achieve 2.2' recommended radial clearance
  - Assess prime potential trees including high-risk species
  - Remove overhangs above and within 4 feet of power lines
  - Mitigate vegetative fuels under and adjacent to powerlines on targeted basis

**Risk Exposure**

- Count of EVM miles worked in the HFTD and HFRA

**EVM Targets (Risk Miles)**

	LTIP 0.5	LTIP 1.0	LTIP 2.0
2021	1,800	1,890	2,070
2022	1,800	1,890	2,070
2023	1,800	1,890	2,070
2021-2023	5,400	5,570	6,210

1. Basis of the 80% is to allow for operational execution considerations including permitting, weather-related access and customer approvals  
 2. Basis of the top 20% correlates to ~85% of true risk on the risk buydown curve

**EVM targets are set based on work to be completed over the remaining twelve years of the program**

**Program Duration**

- Assumes execution of the 12-year Enhanced Vegetation management Plan (2021-2032)
- Evaluating viability of 10-year pace (2021-2030)

**Program Funding**

- Forecast of [redacted] and [redacted] spend on EVM program in 2021, 2022 and 2023 respectively (in alignment with POR)

**Unit Costs**

- Assume [redacted] per miles of EVM work.

Enhanced Vegetation Management LTP Targets

	LTP 0.5	LTP 1.0	LTP 2.0
2021	1,800	1,890	2,070
2022	1,800	1,890	2,070
2023	1,800	1,890	2,070
2021-2023	5,400	5,670	6,210

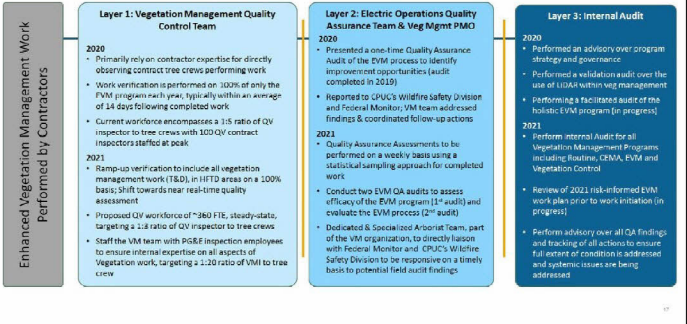
Targets are miles of EVM work for specific risk-prioritized work.

- The total mileage of the proposed 2021 Project Portfolio was set as the threshold goal (LTP 0.5) for 2021
- The target and stretch goals (LTP 1.0, 2.0) were set as 5% and 15% higher, respectively





### EVM Quality Control – Layers of Defense





## Governance and Oversight

### Wildfire Risk Governance Committee

- System Hardening project lists (by CPZ) consistent with the Target Setting methodology will be formally approved annually by the Chief Risk Officer
- Enhanced Vegetation Miles (by CPZ) consistent with the Target Setting methodology will also be formally approved annually by the Chief Risk Officer

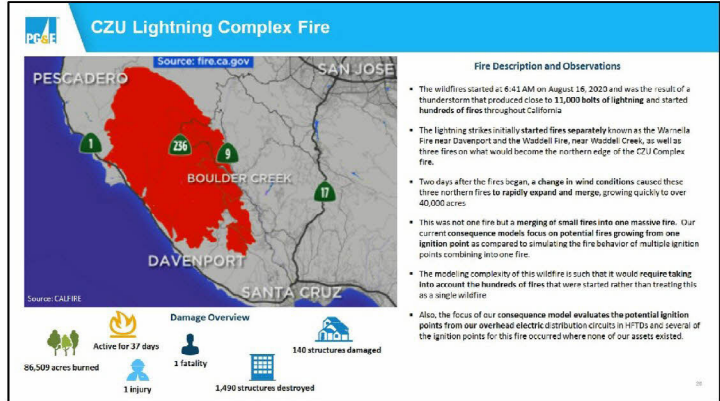
### PG&E Board – SNO and Compensation Committees

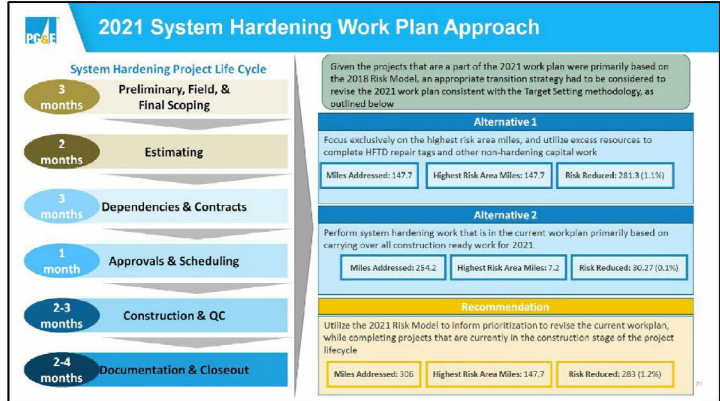
- Annual submission of a) System Hardening project list and b) specific locations of the Enhanced Vegetation Management miles to the SNO and Compensation Board Committees by the Chief Risk Officer
- Monthly progress updates on plan vs. actual for both System Hardening and Enhanced Vegetation Management including completed work quality performance will be submitted to the SNO and Compensation Board Committees by the Chief Risk Officer

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## Appendix

11/1/2024





**Selected list of most destructive fires in the past thirty years**

Fire Name	Cause	Date	County	Acre	Structures Damaged	Deaths	PGE/Electric Power caused
Alvord - Oldman Falls	Arson	Oct-08	Deschutes	1030	27500	25	No
Conza	Uninvestigated	Oct-09	Shasta	26200	354	3	No
Oriskany	Human Related	Oct-03	Siskiyou	272340	2800	15	No
OKI	Human Related	Oct-03	St. Bernard/Orin	91,281	1,003	0	No
Waco	Power/Bus	Oct-01	San Diego	151,000	1,400	2	No
Yuba	Electrical (Transformer)	Sept-25	Lake, Nevada, Oregon	70,607	1,900	4	No
Buho	Power/Bus	Sept-22	Arizaba, Colima/Spain	70,608	323	2	Yes
Chaparral	Arson	Aug-04	Yuba	1,919	400	0	No
Lawton	Firearm	Jun-27	Maricopa	81,000	133	0	No
La Brea	Electrical (Transformer)	Oct-17	Monte and Serrano	20,000	1520	12	No
Delta	Power/Bus	Oct-17	Sonoma	24,000	1,200	3	Yes
Delta	Power/Bus	Oct-17	Maricopa	32,638	183	0	Yes
Redwood Valley	Power/Bus	Oct-17	Glenn/Colusa	46,518	148	0	No
Coos Bay (New West Campus)	Power/Bus	Oct-17	Yuba	5,000	204	4	Yes
La Brea	Power/Bus	Oct-17	Yuba	2,000	100	0	Yes
Elmwood	Power/Bus	Oct-17	Yuba	2,000	100	0	No
Car	Human Related	Jul-18	Shasta County, Trinity	275,000	1,600	8	No
Complex	Power/Bus	Nov-16	Yuba	110,000	1,000	0	Yes
Woodbury	Under Investigation	Nov-18	Vernon	96,000	1,600	3	No
Woodbury	Power/Bus	Oct-19	Sonoma	27,100	178	0	Yes
Woodbury	Human Related	Nov-18	Yuba	2,500	0	0	No
Aught Complex	Under Investigation	Aug-22	Maricopa, Humboldt, Trinity, Shasta, Glenn, Lake, Colusa	1,000,000	900	2	No
East Complex	Under Investigation	Aug-22	Butte, Plumas, Yuba	1,000,000	2,000	15	No
1401 Lighting Complex	Under Investigation	Aug-22	Lake, Yuba, Sonoma, Trinity, Glenn	100,000	1,400	0	No
1711 Lighting Complex	Under Investigation	Aug-22	Maricopa, Humboldt	80,000	1,400	1	No
1511 Lighting Complex	Under Investigation	Aug-22	Santa Clara, Alameda, Stanislaus	80,000	1,400	0	No
Chase Fire	Under Investigation	Sept-30	Butte, Sonoma	67,000	1,000	0	No
Creek Fire	Under Investigation	Sept-20	Francis, Medina	177,000	800	0	No

\*All fires listed here were caused by electrical power unless otherwise noted.  
 \*\*Fire caused by PGE Electric power