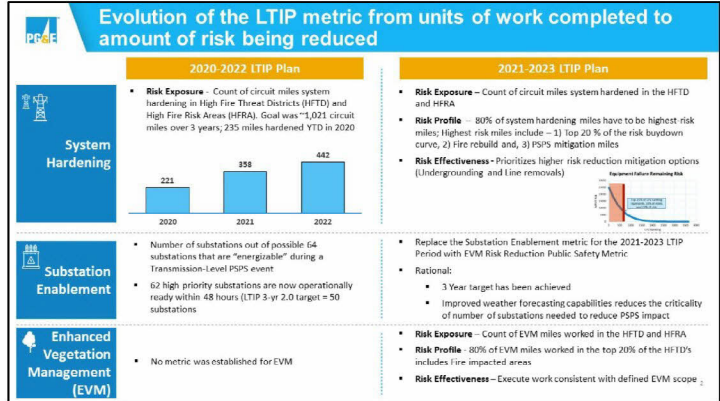


**Public Safety
Long Term Incentive Plan (LTIP)
Target Setting**

November 23, 2020







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 ¹ CPUC Reportable Ignitions in HFTD		Estimated Ignitions per 1,000 Circuit Miles in HFTD ²	
	Distribution	Transmission	Distribution	Transmission
Equipment – PG&E	217	30	8.5	5.4
Vegetation	305	11	11.9	2.0
All Other ³	195	34	7.6	6.1

For Equipment-driven ignitions, the Distribution ignitions per Mile rate is 5.6x greater than Transmission

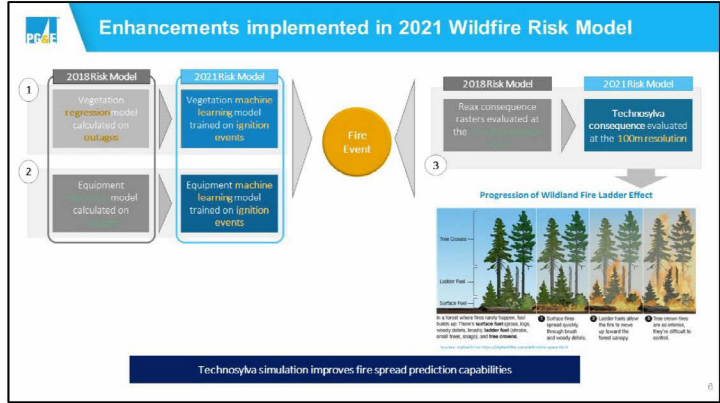
For Vegetation-driven ignitions, the Distribution rate is 5.9x greater than Transmission

1. YTD represents data as of the end of September, 2020
 2. Circuit mileage in HFTD areas source: 2020 O&M Safety Plan – 25,598 of distribution overhead mileage in HFTD areas, 5,542 of transmission overhead mileage
 3. Other includes ignitions primarily driven by 3rd Party and Animal

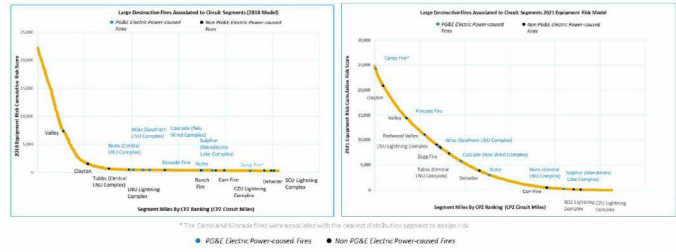
Risk Model and Risk Quantification

1/20/2014





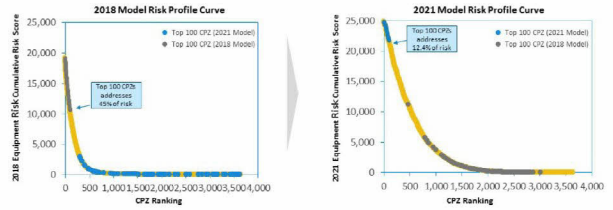
Risk Profile Curve for the 2018 vs. 2021 Equipment Risk Model



2021 Risk Model improves prediction of large destructive fires

Risk models provide risk profile curves to guide workplan

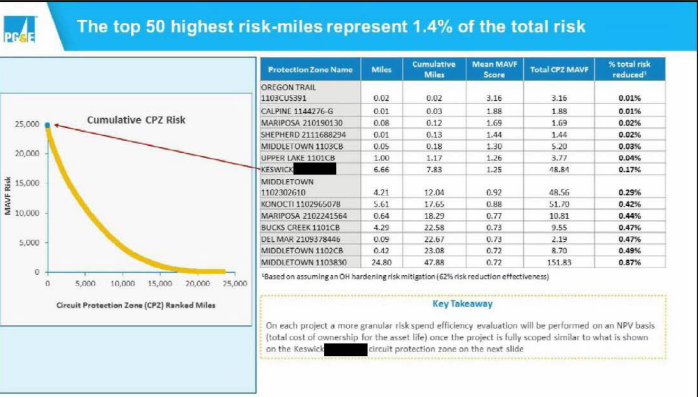
The risk profile curve shows *the amount of risk that can be addressed* with every subsequent mile within a Circuit Section or CPZ that is mitigated. This view illustrates the relative magnitude of risk associated with the top 100 CPZs and the visualization highlights the consolidation of risk by CPZ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

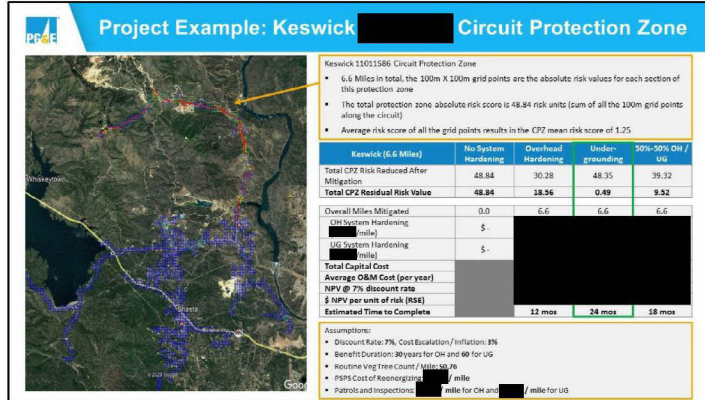


The improvement in the Risk Model results in a significant shift in the highest risk circuit protection zones

Project Example


© 2000





Target Setting

H. Stevens



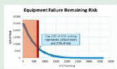
System Hardening

Conditions

Condition 1: 80%¹ 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%² of risk buydown curve
2. Fine rebuild miles
3. PPS 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 portfolio³

Risk Exposure

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

System Hardening Targets (Risk Miles)

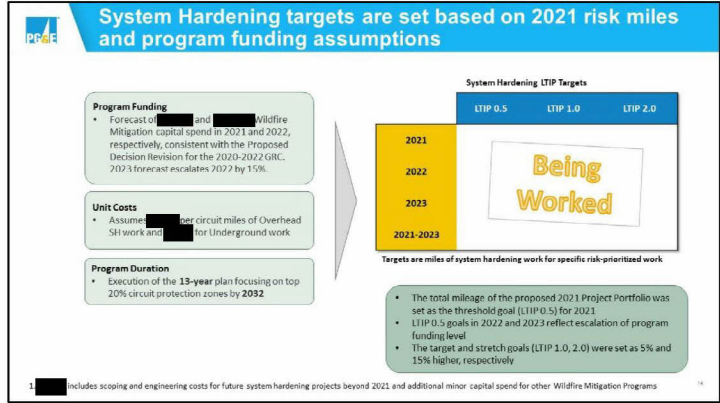
	LTIP 0.5	LTIP 1.0	LTIP 2.0
2021			
2022			
2023			
2021-2023			

Being Worked

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 reduction effectiveness for Overhead Hardening is estimated at 62% and Undergrounding or Line Removal is estimated at 99%

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PGE-DIXIE-NDCAL-000011449



PG&E **Enhanced Vegetation Management (EVM)**

Conditions

Condition 1: 80%¹ 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%² of risk model buydown curve
- Fire impacted miles

Risk Effectiveness

- Execute work consistent with defined EVM scope
 - Achieve 12' recommended radial clearance
 - Assess viable 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			
2022			
2023			
2021-2023			

Being Worked

Note: Targets are based on 12-yr EVM Program pace (2021 – 2032) consistent with the PCR. Evaluating viability of 10-yr pace (2021 – 2030).

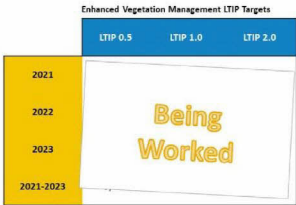
1. Basis of the 80% is to allow for operational execution considerations including permitting, weather-related access and customer approvals
 2. Basis of the top 20% correlates to ~85% of the risk on the risk buydown curve

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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] spend on EVM program in 2021, 2022 and 2023 respectively (in alignment with POR)
- Unit Costs**
 - Assumes [redacted] per miles of EVM work



- 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



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
- Quarterly progress updates on plan vs. actual for both System Hardening and Enhanced Vegetation Management will be submitted to the SNO and Compensation Board Committees by the Chief Risk Officer

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Appendix

11/20/2014

CZU Lightning Complex Fire

Source: fire.ca.gov

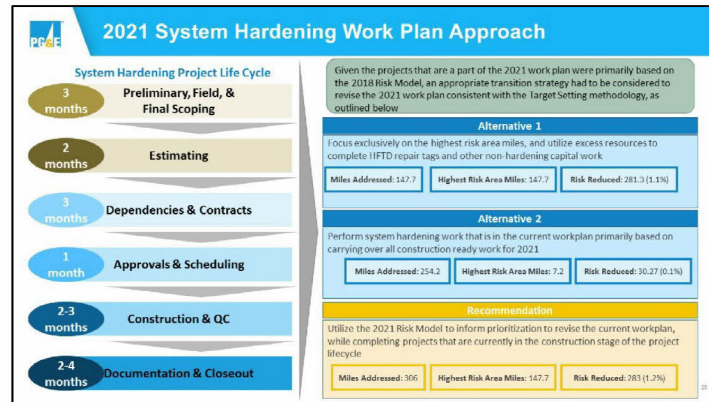
Fire Description and Observations

- The wildfires started at 6:41 AM on August 16, 2020 and was the result of a thunderstorm that produced close to **11,000 bolts of lightning** and started **hundreds of fires** throughout California.
- The lightning strikes initially started fires separately known as the Marmella Fire near Davenport and the Waddell Fire, near Waddell Creek, as well as three fires on what would become the northern edge of the CZU Complex fire.
- Two days after the fires began, a **change in wind conditions** caused these three northern fires to **rapidly expand and merge**, growing quickly to over 40,000 acres.
- This was not one fire but a **merging of small fires into one massive fire**. Our current **consequence models focus on potential fires growing from one ignition point** as compared to simulating the fire behavior of multiple ignition points combining into one fire.
- The modeling complexity of this wildfire is such that it would **require taking into account the hundreds of fires** that were started rather than treating this as a single wildfire.
- Also, the focus of our **consequence model evaluates the potential ignition points from our overhead electric distribution circuits in HTDs** and several of the ignition points for this fire occurred where none of our assets existed.

Damage Overview

 86,509 acres burned	 Active for 37 days	 1 fatality	 140 structures damaged
 1 injury	 1,480 structures destroyed		

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Selected list of most destructive fires in the past thirty years

Fire Name	Cause	Date	County	Acres	Structures Damaged	Deaths	PG&E Electric Power caused Fire?
Yupond - Commercial	Arson	Oct 05	Alameda	200	2000	28	No
Langley - Multiple Casualties	Human Released	Oct 09	Alameda	28,000	354	1	No
Chico	Human Released	Oct 00	San Diego	27234	283	15	No
Old	Human Released	Oct 00	San Bernardino	91,281	1,023	9	No
Levin	Power Line	Oct 01	San Diego	181,960	1,050	2	No
Orange	Fireworks Released	Aug 15	Los Angeles	76,207	1,950	4	No
Butte	Power Lines	Sep 15	Alameda	70,858	793	2	Yes
Clayton	Arson	Aug 06	Yuba	5,591	705	0	No
Penning	Arson	July 17	Mariposa	63,828	331	0	No
Labon	Electric Transformer	Oct 17	Napa and Sonoma	38,007	336	22	No
Blair	Power Lines	Oct 17	Sonoma	15,282	1,350	3	Yes
Alisa	Power Lines	Oct 17	Napa and Sonoma	31,824	785	6	Yes
Sanborn/Alisa	Power Lines	Oct 17	San Diego	98,518	628	9	No
Cascade (Raw Wood Complex)	Power Lines	Oct 17	Yuba	5,989	264	4	Yes
Quilley	Power Lines	Oct 17	Yuba	2,201	161	0	Yes
Thomas	Power Lines	Dec 17	Ventura, Santa Barbara	251,359	1,050	2	No
Can	Human Released	Jul 18	Alameda, Contra Costa	229,833	1,424	8	No
Camp Fire	Power Lines	Nov 18	Butte	333,934	18,666	83	Yes
Woolsey	Under Investigation	Nov 18	Ventura	98,269	3,426	8	No
Walden	Power Lines	Oct 18	Sanoma	77,758	371	0	Yes
Redline	Human Released	Nov 18	Del Norte	2,504	0	0	No
August Complex	Under Investigation	Aug 20	Maricopa, Humboldt, Trinity, Tehama, Glenn, Butte, Colusa	1,002,818	855	1	No
North Complex	Under Investigation	Aug 20	Butte, Plumas, Yuba	1,093,935	2,352	15	No
UKL Lightning Complex	Under Investigation	Aug 20	Lake, Nevada, Wash, Colusa	868,236	1,481	6	No
CDU Lightning Complex	Under Investigation	Aug 20	San Diego, San Mateo	86,509	1,450	1	No
CDU Lightning Complex	Under Investigation	Aug 20	Sierra Nevada, Inyo, Mono, Calaveras	393,834	322	0	No
Green Fire	Under Investigation	Sep 20	Napa, Sonoma	47,484	1,530	0	No
Creek Fire	Under Investigation	Sep 20	Fresno, Modoc	377,892	856	0	No

PG&E Electric Power caused fire in cases where power lines were found to be the cause of the fire.