
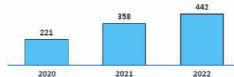
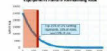




**Public Safety
Long Term Incentive Plan (LTIP)
Target Setting**

November 23, 2020



Evolution of the LTIP metric from units of work completed to amount of risk being reduced

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



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

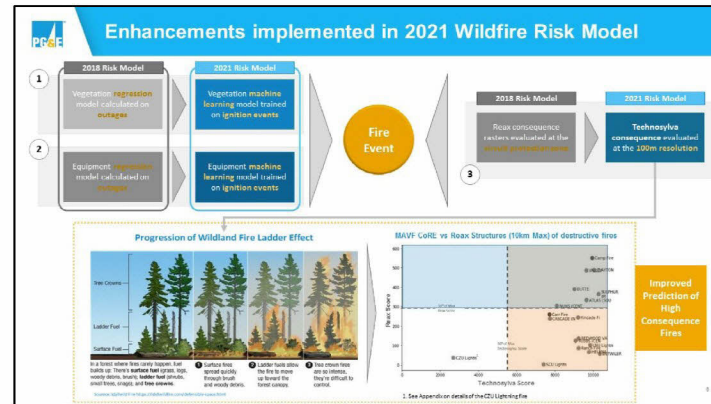
For Vegetation-driven ignitions, the Distribution rate is 5.9x greater than Transmission

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

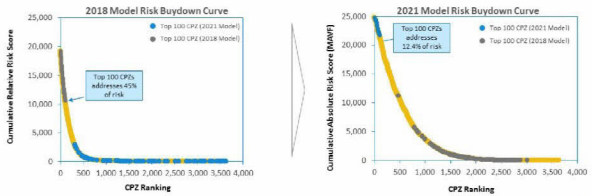






Risk models provide risk buydown curves to guide workplan

The risk buydown curve shows the amount of risk that can be addressed with every subsequent mile within a Circuit Section (or referenced as Circuit Protection Zone, 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.

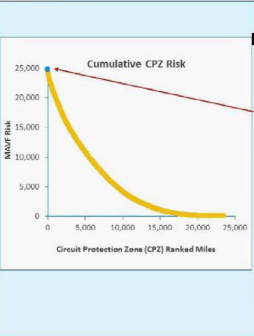


Equipment (Conductor) Risk Buydown curves highlight the significant shift of where the top 100 CPZ's are between the two models primarily as a result of the shift in the consequence model

Project Example

1/20/2014

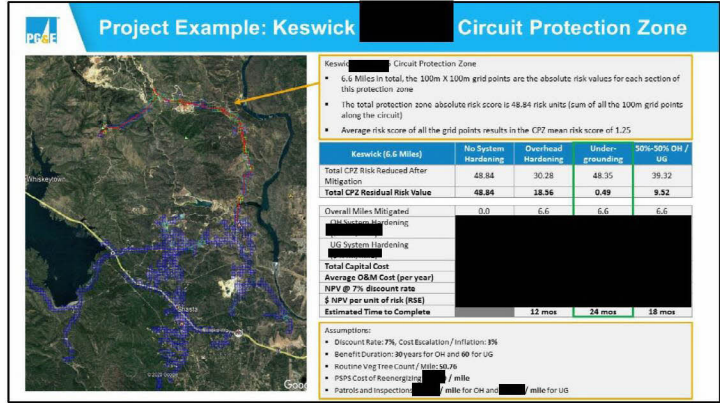
The top 50 highest risk-miles represent 1.4% of the total risk



Protection Zone Name	Miles	Cumulative Miles	Mean MAVP Score	Total CPZ MAVP	% total risk reduced*
MISSOURI	0.02	0.02	3.16	3.16	0.01%
CALPINE	0.01	0.03	1.88	1.88	0.01%
MARIPAS	0.08	0.12	1.69	1.69	0.02%
SHEPHERD	0.01	0.13	1.44	1.44	0.02%
MIDDLEBURY	0.05	0.18	1.30	1.29	0.02%
UPPER MERIDIAN	1.00	1.17	1.26	1.77	0.04%
KESWICK	6.66	7.83	1.25	18.84	0.17%
MIDDLEBURY	4.71	12.04	0.92	48.56	0.23%
STODOLSKA	5.61	17.65	0.88	51.70	0.42%
MARIPAS	0.64	18.29	0.77	10.81	0.44%
BUCKS	4.29	22.58	0.72	7.55	0.47%
SILVER	0.09	22.67	0.72	4.26	0.47%
MIDDLEBURY	0.42	23.08	0.72	8.70	0.48%
MIDDLEBURY	24.80	47.88	0.72	151.83	0.87%

*Based on assuming an OI hardening risk mitigation (62% risk reduction effectiveness)

Key Takeaway
 On each project a more granular risk spend efficiency evaluation will be performed on an NPV basis (total cost of generation for the asset life) once the project is fully scoped similar to what is shown on the Keswick 36 circuit protection zone on the next slide



Target Setting

© 2008

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. 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 portfolio³

Risk Exposure

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

System Hardening Targets (Risk Miles)

	LTIP 0.5	LTIP 1.0	LTIP 2.0
2021	305	320	350
2022	350	368	403
2023	396	416	455
2021-2023	1,051	1,103	1,209

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%

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

Program Funding

- Forecast of [redacted] Wildfire Mitigation capital spend in 2021 consistent with the Settlement for the 2020-2021 GRC. 2022 forecast escalates 2021 by 15% and 2023 forecast escalates 2021 by 30%.

Unit Costs

- Assume [redacted] per circuit miles of Overhead SH work and [redacted] for Underground work

Program Duration

- Execution of the 13-year plan focusing on top 20% circuit protection zones by 2032

System Hardening LTIP Targets

	LTIP 0.5	LTIP 1.0	LTIP 2.0
2021	305	320	350
2022	350	368	403
2023	396	416	455
2021-2023	1,051	1,103	1,209

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 goals in 2022 and 2023 reflect escalation of program funding level
- The target and stretch goals (LTIP 1.0, 2.0) were set as 5% and 15% higher, respectively

¹ [redacted] includes scoping and engineering costs for future system hardening projects beyond 2021 and additional minor capital spend for other Wildfire Mitigation Programs ¹⁰



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
 - Access 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	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

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



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 PGR)
 - 10-year pace will result in incremental forecast of [redacted] per year
- Unit Costs**
 - Assumes [redacted] per miles of EVM work

Enhanced Vegetation Management LTIP Targets

	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	5,670	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 (LTIP 0.5) for 2021
 - The target and stretch goals (LTIP 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

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