

**System Hardening
Long Term Incentive Plan (LTIP)
Target Setting**

December 14, 2020





Facts: 2020-2022 Targets and Historical Performance



In August 2020, execution (Major Projects & Programs) produced a detailed workplan and, as of November 2020, 196 miles were out of estimating (excludes fire rebuild)

In August 2020, PG&E began exploring enhancements and improvements to its risk-modeling, which were ultimately approved by the Wildfire Governance Committee on 10/30/2020

On 11/13/2020, the Wildfire Governance Committee approved pausing work that did not prioritize risk, and on 12/04/2020 approved 183.3 miles in construction work to continue

System Hardening LTIP 2020-2022 Targets (Non-Risk Miles)

	LTIP 0.5	LTIP 1.0	LTIP 2.0
2020	199	221	265
2021	322	358	430
2022	398	442	530
2020-2022	919	1,021	1,225

System Hardening Miles completed in 2019

	LTIP OSW	Fire Rebuild	Total
Miles IA Validated	131.36	39.8	171.16

System Hardening Miles completed YTD 2020 (as of 12/09/2020)

	LTIP OSW	Fire Rebuild	Total
Miles Constructed	146.7	201.9	348.6
Miles In Progress	12.5	31.0	43.5
Miles Ready	0.9	-	0.9



Facts: 2021-2023 System Hardening LTIP

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 HFTD and HRA

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 forecast escalates 2022 by 15%.

Unit Costs

- Assume [redacted] per circuit miles of Overhead O&M work and [redacted] for Underground work

Program Duration

- Execution of the 18-year plan focusing on top 20% circuit protection zones by 2042

Target escalation assumptions

- 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. Basis of the 80% is to allow for operational execution considerations including permitting, weather related access, and mobil/demob efficiencies
 2. Basis of the top 20% of CPZs 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%



Discussion



Overhead system hardening, on average, requires 20 months from preliminary scoping to job closeout



Underground system hardening, on average, is expected to take 44 months from preliminary scoping to project closeout; however, PG&E has not yet completed an overhead to underground conversion and Rule 20 is used as a proxy



Scoping for 2021 through 2023 must be completed no later than the end of Q1 2021, given timelines and total miles for 2022 and 2023, irrespective of overhead or underground method



Options and Recommendations

Option 1				Option 2				Option 3			
	LTIP 0.5	LTIP 1.0	LTIP 2.0		LTIP 0.5	LTIP 1.0	LTIP 2.0		LTIP 0.5	LTIP 1.0	LTIP 2.0
2021	305	320	350	2021	181	199	208	2021	208	229	240
2022	377	396	434	2022	472	464	485	2022	449	494	517
2023	434	455	499	2023	513	564	589	2023	513	564	590
Total	1,116	1,171	1,282	Total	1,116	1,228	1,282	Total	1,171	1,288	1,346

- 2021 LTIP 0.5 target reflects the initial recommendation to the Midlife Risk Governance Steering Committee on November 8, 2020 that was based on transition plan and work in progress
- At the time of recommendation, Conditions 1 and 2 were still being defined and the full implications was not assessed
- Targets do not fully account for executability risk due to the need and timeline for rescope of system hardening projects and long cycle time of undergrounding mitigations

- 2021 LTIP 0.5 target of 181 miles is driven by (See Appendix for details):
 - o Scoped - Approved: 94.4
 - o Not Scoped - Approved: 26.0
 - o Scoped - Not yet Approved: 60.6
- 2021 targets account for execution risk
- Increased execution pressure in 2022 and 2023 (Volume of UG an Line Removal work) and funding uncertainty in 2023
- Assumes 30% of Undergrounding or Line Removal work in the System Hardening project portfolio

Recommended Option

- Accounts for increased Fire Rebuild work in 2021
- Increased execution pressure in 2022 and 2023 (Volume of UG an Line Removal work) and funding uncertainty in 2023
- Assumes Conditions 1 and 2 are met
- Assumes 10% of Undergrounding or Line Removal work in the System Hardening project portfolio



Appendix

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2021 LTIP Target Calculations

	Condition 1 (80% of system hardening miles have to be highest-risk miles over the three-year period)				Condition 2 (Minimum percentage of miles mitigated with either Line Removal or Undergrounding over the three-year period)			
	Execution Discount	Meets Condition 1	Does not meet Condition 1	To Be Determined	Meets Condition 2	Does not meet Condition 2	To Be Determined	
Scoped - Approved								
Fire Rebuild - In Flight (to be completed in 2021)		31.0			31.0			
In Construction		5.11	34.7			39.8		
Line Removal		23.6			23.6			
Sub Total		59.7	34.7		54.6	39.8		
Not Scoped / Not Approved								
Highest Risk 250 Miles - Top 50 (50 miles)	50%	25.0						25.0
Top 20% (41.3 miles)	50%	20.7						20.7
ECOP Projects in Estimating - In Top 20% (55.7 miles)	50%	27.9			10	17.9		
PFS Mitigation (12.5 miles)	95%	2.5			2.5			
Sub Total		76.0			12.5	17.9		43.7
Scoped - Not Yet Approved								
PFS Mitigation		3.6			3.6			
ECOP Projects in Estimating - Not Top 20%			6.9			0.9	6.0	
Sub Total		3.6	6.9		3.6	0.9	6.0	
Total		139.3	41.6		70.7	58.5	51.7	
Total 2021 miles								180.9
% of miles Meeting Conditions								77.0%



2021 Initial System Hardening Project Portfolio

Proposed System Hardening Work Plan

The proposed approach to the 2021 work plan for system hardening attempts to balance the operational constraints of long lead times with maximized risk reduction. Resources are deployed first to projects that can be quickly and efficiently addressed (in Construction).

Next the highest impact work is prioritized, for both wildfire risk reduction as well as PSPS and regulatory concerns (ECOP, PSPS, and top 20% MAVF).

The remaining scope is driven by what projects can be completed within the 2021 timeframe with forecast resources (Construction Ready, Estimating Complete, and Other In-Flight).

Finally, any additional resources that come available will be applied to either pulling forward high risk reduction 2022 scope, or addressing the compliance requirements related to ECOP.



Project Status	Number of Projects	Project Miles	High Risk Area Miles	MAVF Risk	Risk per Mile
In Construction	47	47.5	3.27	7.01	0.17
ECOP (in Estimating)	70	104.9	25.05	40.30	0.38
PSPS Mitigation	12	14.5	14.5	17.46	1.21
Top 20% MAVF CPZ	7	30.4	30.4	49.70	1.63
Construction Ready	25	34.6	-	0.73	0.02
Estimating Complete	7	12.8	-	0.25	0.02
Other In-Flight Keep	23	55.8	-	8.21	0.03
2021 Proposed Portfolio	145	308.6	73.2	124.55	0.41
ECOP (Future)	74	340	25.02	92.37	0.27