

Wildfire Risk Governance Committee
System Hardening Project Approvals

February 25, 2021

CONFIDENTIAL - FOR INTERNAL USE ONLY

PG&E System Hardening Strategy

Two (2) potential go-forward strategies for System Hardening have been contemplated:

1

Recommended

RSE Optimized Risk Buy-down

Objective: Reduce the most amount of risk possible, informed by the RSE score, within the GRC planning period.

Pros:

- Looks towards the long term as climatic risk is worsening
- Significantly lower residual risk for hardened segments addressed and additional risk reduction benefits (i.e., PSPS, ingress/egress) due to proportion of undergrounding likely

Cons:

- Reduced total miles addressable based on time constraints due to proportion of underground
- Due to operational time requirements of undergrounding, some high risk areas may not be mitigated in the near term and must be addressed by other risk mitigation programs (e.g., EVM)

2

Accelerated Risk Buy-down

Objective: Reduce the most amount of overall risk as quickly as possible.

Pros:

- Facilitates risk reduction across the broader service territory (i.e., more miles addressed) based on higher proportion of OH hardening

Cons:

- Residual risk may require "go-backs" with a different mitigation strategy
- Minimal reduction of other risks (e.g., PSPS) not accounted for in current risk modeling

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

7

Key Decision – Approve the PG&E System Hardening Strategy

Approval Status Pending

Decision Detail

Approval of the recommended PG&E System Hardening Strategy:
 Option 1: Reduce the most amount of risk possible, informed by the RSC score, within the GRC planning period.

Concerns and Mitigations

Approvals

[Redacted]	

Action Items and Validations

Confidential

CONFIDENTIAL – FOR INTERNAL DISCUSSION

System Hardening can target the riskiest 250 miles, while executing a multi-year plan to address adjacent high risk (top 20%) CPZs within the circuit

Situation	Adjacent high risk CPZs may be overlooked because the current strategy is focused on mitigating the top 250 miles.
Complication	The current strategy (sequentially moving 1-in down the CPZ risk ranking) defers some high-risk (top 20%) CPZs which fall in a geographically similar areas. Prioritizing these adjacent CPZs, in conjunction with the already planned projects, the system hardening team can address the total circuit risk in a more thoughtful way.
Resolution	<p>Evaluate nearby CPZs, by circuit, to identify the adjacent high risk CPZs which could be addressed in series. The focus will remain on high-risk CPZs, just not in a specific order.</p> <ul style="list-style-type: none"> Evaluate in-process jobs to identify adjacent high-risk circuits Develop a time series scope and execute nearby high-risk CPZs <p>By evaluating opportunities in this way, we can address the total circuit risk and potentially achieve execution efficiencies</p>

High-risk Adjacency Opportunities
Top 10 Circuit Opportunities^{1,2}

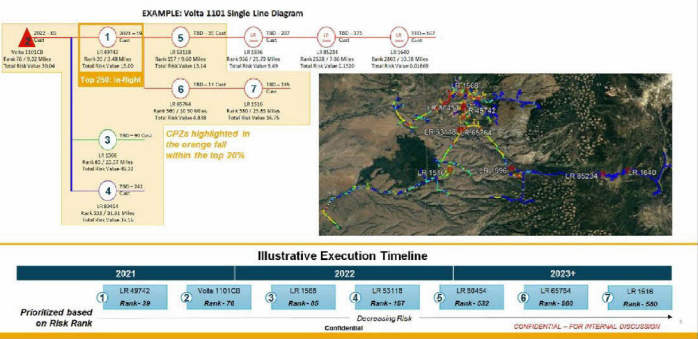
■ Miss Planned ■ Incremental High-risk Miles

Circuit	Miss Planned (Miles)	Incremental High-risk Miles
MARIPOSA 2102	4	243
COARSEGOLD 2104	5	234
MARIPOSA 2101	4	190
VOLTA 1101	3	110
MOUNTAIN QUARRIES 2101	6	90
MIDDEL TOWN 1101	2	80
DELTA 1101	3	70
KINDOBI 1102	3	63
DESCHUTES 1104	19	70
WYANDOTTE 1105	1	53

Notes: (1) in total, 84 high-risk CPZ (from 26 circuits) are unaddressed in the current workplan; (2) Incremental high-risk miles represents total miles not address in current top 250 mile projects.

CONFIDENTIAL - FOR INTERNAL DISCUSSION

Illustrative: Approved project for Volta 110149742 sits on a circuit with six (6) other CPZs that fall within the top 20%



There is an opportunity to maximize risk reduction from "on-hold" jobs where PG&E has already expended resources to scope and estimate

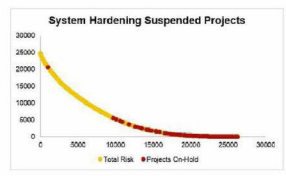
Situation Based on the updated 2021 risk model, a significant quantity of scoped / estimated work has been placed on hold to prioritize higher risk segments.

Complication Certain segments of these on-hold projects contain higher risk segments (equivalent to the top 20% MAVF), even though the entire CPZ does not meet the top 20% threshold. These segments of CPZs can be surgically targeted for system hardening in the highest risk locations to accelerate risk buy-down and achieve greater mileage in the near term.

Resolution Evaluate the on-hold project list to identify high risk segments for targeted mitigation:

- Review project locations overlaid with risk scores
- Establish risk threshold for targeted mitigation (Recommended threshold is 0.1055 – equivalent to top 20% Mean MAVF score)
- Refine scope / estimates to address only the highest risk portions of the project

This strategy will maximize risk reduction in areas which have already expended resources in estimating / scoping and accelerate mileage capture in the near term

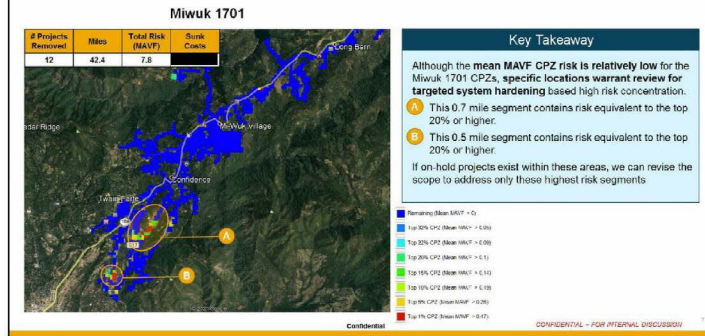


# Projects Removed	Miles	On-hold Project Risk (MAVF)	Sunk Costs
478	1,384	1,104	

Represents on-hold projects as of 1.13.2021

Confidential CONFIDENTIAL - FOR INTERNAL DISCUSSION

Illustrative: Miwuk 1701 has no CPZs that fall within the high-risk category (top 20%), however revisions to "on-hold" projects might be able to address targeted areas of risk



Key Decision – Approval to Expand Scope Prioritization and Approve Overarching System Hardening Strategy

Approval Status Pending

Decision Detail

Seeking approval to expand the System Hardening Targeting Strategy to include:

- The top 20% riskiest CPZs in circuits where projects are already being scoped
- High risk sub-segments of the on-hold projects, which have equivalent risk scores to the top 20% CPZs

Concerns and Mitigations

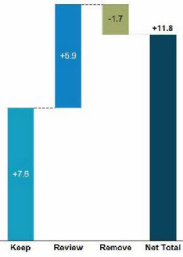
Approvals

Action Items and Validations

Confidential CONFIDENTIAL – FOR INTERNAL DISCUSSION

Request to reconsider specific in-construction projects from the on-hold project list and remove from some approved project list (net impact of +11.8 miles)

Workplan Change Request Summary



Request to Keep (7.6 mi)

- Add back projects which were previously placed on-hold based on work expended:
- In Construction (work started); missed during initial inventory of in-construction work – 2 jobs, 3.2mi
 - In construction (not started); significant effort to secure permit and relationships at risk – 1 job, 0.5mi
 - In construction would that would complete an upstream mainline – 1 job, 1.6mi
 - Pending, significant permitting effort which could damage relationships if not executed – 3 jobs, 2.4mi

Request to Review (6.9 mi)

- Confirm the decision to place projects on-hold given efforts expended and other factors:
- Pending, Significant effort expended to secure easements – 1 job, 3.35mi
 - Pending, Significant effort expended to secure permit – 1 job, 1.1mi
 - Pending, Completes a mainline for previously executed phases – 1 job, 1.5mi

Request to Remove (1.7 mi)

- Remove from existing project list based on dependencies identified:
- Review of land requirements will require project redesign or imminent domain – 1 job, 1.7mi

- Project level details on following slide -

Confidential

CONFIDENTIAL – FOR INTERNAL DISCUSSION

Workplan change request details - 11 projects added (13.5 mi) and 2 projects removed (3.3 mi)

Order	Miles	Project	Risk Rank	Rationale/description
Request to Keep	1.44	CWSP-PINE GROVE 1102-LR1222-PH 2.6	2,521 (609%)	Significant progress: 15 poles installed
	1.75	CWSP-STANISLAUS 1702-LR1883-PH 1.2	2,386 (66%)	Significant progress: 15 poles installed and SAU issues keeping project at UFGC status
	0.45	RECON 2300 FT- NUNS CANYON DUNBAR 1101	1,754 (49%)	Permit: Required several years of discussion with the CDFW and messaging that the work is critical to the wildlife plan. PG&E also developed a mitigation plan and will be on the hook for implementing it regardless of whether or not the project moves forward
	1.57	CWSP-BREUNSWICK 1103-LR50070-PH 2.3	2,144 (59%)	Completed CPZ Phase 3 of 3 of system hardening work in the CPZ. Other phases have been approved for construction (Phases 1&2 are 75%) complete.
	0.51	RECON-6 SPANS CAMP ONE TEN MILE FT BRAGG	2,140 (59%)	Permit: Anticipate coastal developed permit approval in early 2021, which took 2 years to obtain. Public hearing and emergency statutory exemption under CEQA already.
	1.00	OH RECONDUCTOR ROY ROY 2105-0036CC117	3,283 (90%)	Permit: Applied for a Coastal Development Permit with the Santa Cruz County and have been working with them for a the last year. Permits expected by 11/21/21 and get a severe detriment to relationships with CDFW and Santa Cruz if project is cancelled.
0.85	OH RECONDUCTOR - ROY ROY 2105-0079CC118	3,283 (90%)		
Request to Remove	1.75	CWSP-STANISLAUS 1702-LR1883-PH 2.3	2,386 (66%)	Easement: 3 of 4 easements acquired [REDACTED] and 4th easement underway [REDACTED]
	1.40	PSPS - Clayton 2215 - CB	1,739 (48%)	Easement: 5 easements accepted or nearing acceptance
	1.06	HALF MOON BAY 1102- FJCC 12457 REPL OH	2,874 (79%)	Permit: GGR&A permit received which took 2 years to acquire
	1.88	CWSP-MIWUK 1702-LR618-PH 1.1	2,217 (61%)	Completes Mainline: Finalize mainline hardening completed on either side via other projects
Remove	(1.72)	CWSP-MIWUK 1701-OCB-PH 1.5	2,353 (65%)	Issue identified, location mixed during land review that will require redesign of the project or imminent domain. Have been pursuing and rights since summer of 2020.

Note: Full notes from project management team available in appendix

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

Key Decision – Approval of workplan change request

Approval Status Pending

Decision Detail

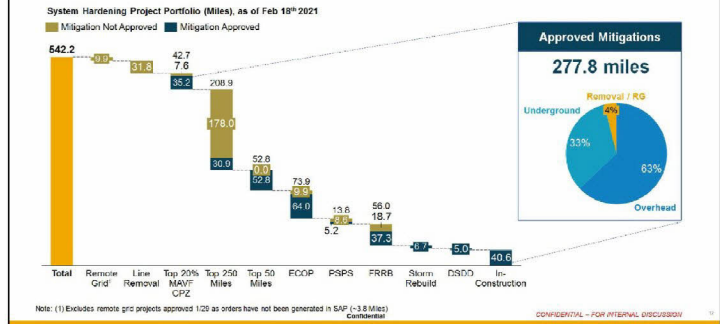
Seeking approval / confirmation of on-hold projects which have been placed on hold at request of this committee in light of additional information shared.
Q ADD 7 projects for 7.6 miles
Q CONFIRM 4 projects for 5.9 miles
Removed projects which no longer make sense based on new information/ other projects which have been placed on hold.
Q REMOVE 1 project for 1.7 miles

Concerns and Mitigations

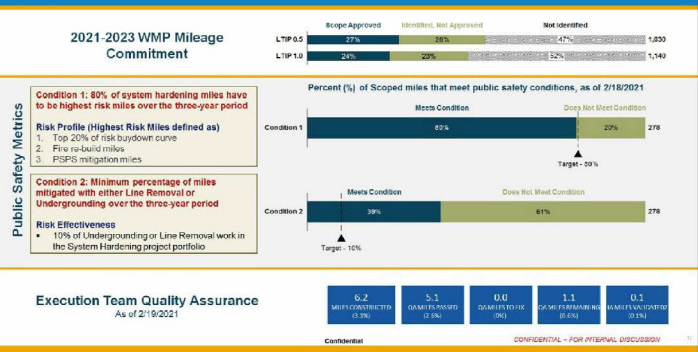
Approvals

Action Items and Validations

System Hardening Status – Total Portfolio And Approved Mitigations



System Hardening Status – Progress Towards WMP Commitments and Public Safety Metrics



Today's discussion will include various mitigation recommendations for decision and inform (25.3 miles total)

The following projects have recommended mitigations:

Order No.	CPZ	Work Bucket	Total MAVF Core Risk Value	Mean MAVF Core Risk Rank	Recommendation	WGC Request
WGC Decision (7.83 miles)						
1	Wildwood 11011454	Top 250 Miles	0.4188	52	OH	DECISION
WGC Inform (17.45 miles)						
2	Middletown 11011548	ECOP - Top 20%	0.1504	474	HYBRID	INFORM
3	Brunswick 1110CB	PSPS	0.0064	2134	UG	INFORM
4	Placerville 21061104	REMG	0.0064	2131	REMOTE GRID	INFORM
5	Mountain Quarries 21016952	Top 250 miles	0.4353	45	HYBRID	INFORM
6	Bangor 1101CB	PSPS	0.1938	355	UG	INFORM

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

Decision: Top 50 Miles - Wildwood 1101 - LR 1454 - PM (7.83 Miles)

Mitigation Decision Tree

	Key Questions	Outcome
PSPS	Is this an area that is impacted directly by PSPS (+6 Frequency or > 1,200 Cust Impact)?	Y N 1 event, 10 Cust Impact
	Are there any critical customers within zone necessary to protect?	Y N
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
PSS	Is the area being considered for HFRA Add/Remove?	Y N
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N
Time Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y N 3 spans Moderate
PSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year increments/delay)	Y N Gas T&Es, overhead near, significant relocation
	Does the CPZ meet ECCP threshold (25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y N
EASCP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N OH Preferred

Confidential CONFIDENTIAL - PROPRIETARY INFORMATION

Decision: Top 50 Miles - Wildwood 1101 - LR 1454 - PM (7.83 Miles)

Wildwood 1101 (7.83 miles)		No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	8.05	12.85	10.10
Project Scope Residual Risk Value		12.08	4.93	0.13	2.88
Overall Miles Installed		7.83 Existing OH	7.83	9.64	9.94
Overall Miles Removed		-	-	-	-
OH System Hardening Cost		-	-	-	-
UG System Hardening Cost		-	-	-	-
Line Removal Cost		-	-	-	-
Total Capital Cost (ARCE Class 5)		-	-	-	-
Average \$/M/yr Cost (per year)		-	-	-	-
NPV @ 6.8% discount rate		-	-	-	-
Primary	5 NPV per unit of rise (RSE)		Satisfactory	Satisfactory	Satisfactory
Filter	PSS Preference (Ingress/Agress/fire history)		Satisfactory	Satisfactory	Satisfactory
	Strike Tree Potential (\$6 Priority, 4.6/m)	High fall-in risk	Moderate fall-in risk	No fall-in risk	Moderate fall-in risk
Secondary	Ingress / Agress	Non-satisfactory	Satisfactory	Satisfactory	Satisfactory
Filter	PPS Mitigation (18 costs * 1 event)	18 (95%)	18 (95%)	18 (95%)	18 (95%)
	Execution Timeline (2021, 2022, 2022+)		2021	2022+	2022+
	Other (Operational Considerations, etc.)		Recommended		

Supporting Detail for Recommended Alternative: EDRS Link (2021-04-30)
 Public Safety Specialist: Shasta, Tehama County, "High" to "Very High" risk areas 3.42. Mainly grass/brush woodland dense brush with intermixed patches of conifer/gray pines. Fuel loading of brush can be very dense on all northern aspects and within the steepen slope portions of Cottonwood Creek. Difficult fire terrain.
 Plutonia pop - 15' - 40' wide W/O Reding/Red Bluff. Plutonia PL.
 Buffer Tree Potential: Moderate. Expect to mitigate tree strike hazard on 3 spans with tree removal.
 Ingress Considerations: Plutonia PL. Hwy 36 main routes for Evac and Response. Satisfactory mitigation with overhead hardening and tree removal.
 PPS Mitigation Note:
 Decision Timeline (Land/Bio/Cultural/Constructability) Fire and Fish Issues. Buffer Zones for work. Monitoring. 31 M tool. Minor Caltans. "1 & WA field work. Gas Tx line excavation along marsh. If table requires hand digging.
 Overhead assets: 18.05. Relocation of overhead assets requires entering Caltans ROW with significant increase in circuit line cost (>25% minimum).

Confidential CONFIDENTIAL - FOR INTERNAL USE ONLY

Key Decision – Approval of workplan change request

Approval Status Pending

Decision Detail

Approval of recommended mitigation (Overhead Hardening) for Willowood 11011454 (P14) [REDACTED]

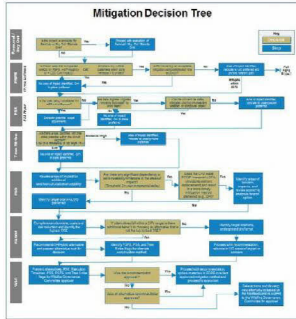
Additional details available: [EDRS Link \(2021-04533\)](#)

Concerns and Mitigations

Approvals

[REDACTED]	

Action Items and Validations



	Key Questions	Outcome
PPS	Is this an area that is impacted directly by PPS (+6 Frequency or >1,200 Cust Impact)?	Y N 2 events 309 custs
	Are there any critical customers within zone necessary to protect?	Y N
	Is O+ hardening an acceptable mitigation using distribution line exclusion?	Y N High Tree Strike Risk
PSS	Is the area being considered for HFRA Add/Remove?	Y N
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N
Time Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y N High
PSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y N
	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., CH)?	Y N
EASOP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N Hybrid Preferred

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

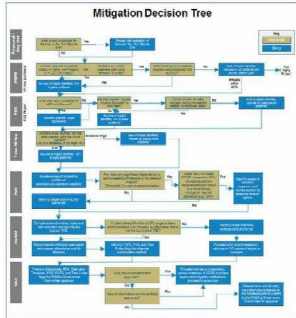
Inform: ECOP Top 20% – Middletown 1101 - LR 548 - H12 Ph2 - PM

	Middletown 1101 (9.46 miles)	No System Hardening	OH-Hybrid-LIS Preferred	Hybrid-LIS-Hybrid Alt 1	LIS-CH-CH Alt 2
Project Scope Risk Reduction After Mitigation	-	-	14.32	13.44	12.90
Project Scope Residual Risk Value	16.40	16.40	2.08	3.96	3.50
Overall Miles Installed	9.46 Existing OH	-	8.40	8.62	2.79
Overall Miles Removed	-	-	1.48	1.48	1.48
LIS System Hardening Cost	risk-mile	-	-	-	-
LIS System Hardening Cost	risk-mile	-	-	-	-
Line Removal Cost	risk-mile	-	-	-	-
Total Capital Cost (SAFCE Class 5)	-	-	-	-	-
Average O&M Cost (per year)	-	-	-	-	-
NPV @ 6.8% discount rate	-	-	-	-	-
Primary Filter	\$ NPV per unit of flow (DSE)				
	PSS Preference (Ingress/Aggress/Free History)		Satisfactory	Non-satisfactory	Non-satisfactory
Secondary Filter	Strike Tree Potential	High Fall In Risk	Low Fall In Risk	High Fall In Risk	High Fall In Risk
	Ingress / Egress	Non-satisfactory	Satisfactory	Non-satisfactory	Non-satisfactory
	PSS Mitigation (209 cuts + 2 events)	618 (0%)	618 (0%)	618 (0%)	618 (0%)
	Execution Timeline (2021, 2022, 2022+)		2022	2022	2022
	Other (Operational Considerations, etc.)		Recommended		Accessibility Issues

Supporting Details for Recommended Alternative (DRS) Link (2022-2024)

- Public Safety Considerations:** The location for the project area is highly residential and will be installed in a residential area. Final location is roughly 800 ft. away from 2025 Valley View bus stop with 300 ft. north. Project area is located on the North side of the project area with the final location being the western boundary between the areas of Whittier Place to Pine Grove/Valley and Call Hill/Valley/Whittier. Population density for this project area is all considered light to high density with a population of 1,200-1,400 residents. The largest residential block is approximately 2 blocks east of the project area. The project area is located on the North side of the project area.
- Strike Tree Potential:** High (1-15) tree strike potential in this segment does not require additional mitigation. There is a primary tree strike risk in the northern portion of this link and any alternative other than "H12" is not preferred.
- Ingress Considerations:** Both ingress and egress concerns. If the route were completed for a separation and removal of flows, would be significantly impacted.
- NPV Mitigation:** No mitigation potential due to limited access to the existing project. To achieve PSS reduction, additional scope would have to be included.
- Execution Timeline (Date/Day/Weather/Constructability):** Work required during the dry season (Mar 15 - Oct 15) and for bloom monitoring.
- Other Operational Considerations, etc.:** There are accessibility issues on the existing line for the middle portion of 180-185 miles OH hardening in place to not perform for flow class.
- Note:** This link is completed of both direct and indirect users. Each has been reviewed individually and given a separate and unique preferred alternative. The preferred alternative recommends OH for the southernmost tap, Hybrid for the middle tap, and CH for the northernmost tap.

Confidential



	Key Questions	Outcome
PSPS	Is this an area that is impacted directly by PSPS (>6 Frequency or >1,200 Cust Impact)?	Y N 18 events
	Are there any critical customers within zone necessary to protect?	Y N N/A
PSS	Is O= hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
	Is the area being considered for HFRA Add/Remove?	Y N If HFRA removal approved, project would not be resubmit
Tree Strike	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing fluorescent wrapped or composite poles	Y N Based on Alternative plans
	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y N Based on Alternative plans
FSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y N Based on Alternative plans
	Does the CPZ meet EDCP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., CH)?	Y N Based on Alternative plans
EASCP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N Based on Alternative plans

Confidential CONFIDENTIAL Underground Preferred

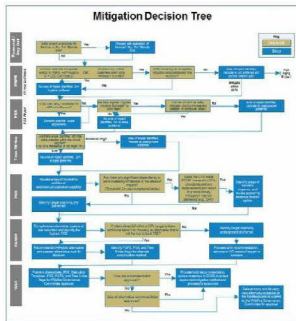
Inform: PSPS - Brunswick 1110 - LR 94768 - PM [REDACTED] - Morgan Ranch

	Brunswick 1110 (0.34 miles)	No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation	-	-	0.02	0.04	0.03
Project Scope Residual Risk Value	0.036	-	0.01	0.00	0.01
Overall Miles Installed	-	0.34 Existing CH	0.34	0.06	0.38
Overall Miles Removed	-	-	-	-	0.12
OH System Hardening Cost	[REDACTED] risk.mile	-	-	-	-
UG System Hardening Cost	[REDACTED] risk.mile	-	-	-	-
Line Removal Cost	[REDACTED] risk.mile	-	-	-	-
Total Capital Cost (AAE Class 5)	-	-	-	-	-
Average O&M Cost (per year)	-	-	-	-	-
NPV @ 6.9% discount rate	-	-	-	-	-
Primary Filter					
5 NPV per unit of rise (RSE)	-	-	-	-	-
PSS Preference (Ingress/egress/fire history)	-	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Strike Tree Potential	-	High Fall-in Risk	High Fall-in Risk	No Fall-in Risk	Moderate Fall-in Risk
Ingress / Egress	-	Satisfactory	Satisfactory	Preferred	Satisfactory
Secondary Filter					
PSPS Mitigation (1.78 cuts * 18 events)	-	3204 (0%)	3204 (0%)	3204 (0%)	3204 (0%)
Execution Timeline (2021, 2022, 2022+)	-	-	2021	2022	2022+
Other (Operational Considerations, etc.)	-	-	-	-	-
				Recommended	

Supporting Detail for Recommended Alternative (EDRS Routing 2021-2022+)

- Public Safety Specialist: Fuel type broken up between grass and residential landscaping. Population density is considered moderate to heavy. There is no fire history around this project area. Preference for action to be taken based on increased risk of ignition on tagged equipment.
- Strike Tree Potential: 82 total strike tree potentials in the CPZ.
- Egress Considerations: Main routes of travel for ingress and egress would be Sierra College Drive. Ingress and egress into and out of the area by way of Sierra College Drive or Ridge Road would not be an issue.
- PSPS Mitigation: If HFA removal is approved would eliminate PSPS shutdowns.
- Execution Timeline (Land/Right/Cultural/Constructability): UG hardening could be accomplished by 12/31/2021. Spotted owl near project area.
- Note: 0.34 miles of project represents the project miles for the alternative (OH & Hybrid) scopes in Tier 2 area. Mileage for OH scope is only 0.021 miles for preferred scopes in Tier 1 area.

Confidential | CONFIDENTIAL - FOM INTERNAL USE ONLY



	Key Questions	Y	N	Outcome
PPS	Is this an area that is impacted directly by PPS (+6 Frequency or > 1,200 Cust Impact)?	Y	N	15 events 15 cust impact
	Are there any critical customers within zone necessary to protect?	Y	N	N/A
PSS	Is O+ hardening an acceptable mitigation using distribution line exclusion?	Y	N	N/A
	Is the area being considered for HFRA Add/Remove?	Y	N	
Time Strike	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	
	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Moderate (6-14)
PSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., CH)?	Y	N	
EASOP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	
				Remove Grid Preferred

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

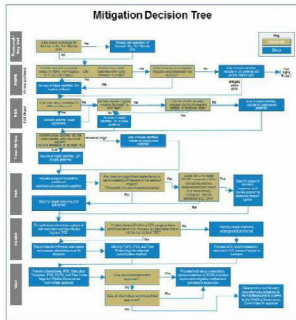
Inform: REMG – Placerville 2106 - LR 1104 - PM

Placerville 2106 (0-70 miles)		No System Hardening	Overhead Hardening	Under Grounding	Remote Grid
Project Scope Risk Reduced After Mitigation		0.03	0.02	0.03	0.03
Project Scope Residual Risk Value		0.03	0.01	0.00	0.00
Overall Miles Installed		0.70 Existing OII	0.7	0.7	0
Overall Miles Removed		-	-	-	0.70
OII System Hardening Cost		risk-mile	-	-	-
UG System Hardening Cost		risk-mile	-	-	-
Line Removal Cost		risk-mile	-	-	-
Total Capital Cost (AACE Class 5)					
Average O&M Cost (per year)					
NPV @ 6.8% discount rate					
Primary Filter	S/NPV per unit of rise (RSE)		Non-satisfactory	Satisfactory	Satisfactory
Filter	PSS Preference (Ingress/egress/fire history)		Non-satisfactory	Satisfactory	Satisfactory
Secondary Filter	Strike Tree Potential	Moderate (6-14)	Moderate Fall-in Risk	No Fall-in Risk	Low Fall-in Risk
Filter	Ingress/Egress	Non-satisfactory	Non-satisfactory	Satisfactory	Satisfactory
	PSS Mitigation (1 faults * 15 events)	68 (9%)	68 (9%)	34 (50%)	17 (25%)
	Execution Timeline (2021, 2022, 2022+)		2021	2022+	2022
	Other (Operational Considerations, etc.)				Recommendation

Supporting Detail for Recommended Alternative (EDRS Link 2020-23336):

- Public safety specialist: The fault types for this project area were not noted on the previously held first scoping meeting. Reputational liability for this project area is not considered low. Numerous fires from Volcano.
- Strike Tree Potential: Moderate (6-14) tree strike potential in this segment suggests UG or Remote Grid hardening is required.
- Ingress/Egress Considerations: No major ingress concerns.
- PSS Mitigation: remove or it would allow PSS mitigation.
- Execution Timeline (Land/No/Cultural/Constructability): No known construction EIS constraints.

Confidential CONFIDENTIAL – FOR INTERNAL USE ONLY



	Key Questions	Outcome
PSPS	Is this an area that is impacted directly by PSPS (>6 Frequency or > 1,200 Cust Impact)?	Y N
	Are there any critical customers within zone necessary to protect?	Y N
	Is O+ hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
PPS	Is the area being considered for HFRA Add/Remove?	Y N
	Ingress/Egress concerns identified by PPS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N Ingress/Egress route limited
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y N Moderate tree strike potential
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental/delay)	Y N
PSD	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., CH)?	Y N
	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N Hybrid accounts for Ingress/Egress and Tree Risk
EASOP		Hybrid Preferred

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

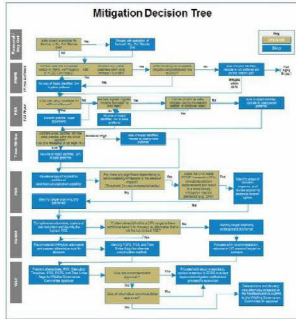
Inform: PSPS - Mountain Quarries 2101 - TS 6953 - PM

Mountain Quarries 2101 (6.72 miles)	No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation	4	15.65	24.93	22.27
Project Scope Residual Risk Value	25,247	9,59	0,25	2,98
Overall Miles Installed	5.72 Existing CH	5.72	6.36	5.06
Overall Miles Removed	-	-	-	-
OH System Hardening Cost	risk-mile	-	-	-
UG System Hardening Cost	risk-mile	-	-	-
Line Removal Cost	risk-mile	-	-	-
Total Capital Cost (AAEE Class 5)	-	-	-	-
Average O&M Cost (per year)	-	-	-	-
NPV @ 6.8% discount rate	-	-	-	-
Primary Filter				
\$ NPV per unit of risk (ISE)				
PSS Preference (Ingress/Egress/Fire history)		Non-satisfactory	Satisfactory	Satisfactory
Secondary Filter				
Strike Tree Potential	High Fall-in Risk	Moderate Fall-in Risk	No Fall-in Risk	Low Fall-in Risk
Ingress / Egress	Non-satisfactory	Non-satisfactory	Satisfactory	Satisfactory
PSS Mitigation (63 cuts * 7 event)	455 (9%)	455 (9%)	435 (9%)	455 (9%)
Execution timeline (2021, 2022, 2022+)		2021	2022+	2022
Other (Operational Considerations, etc.)				
				Recommended

Supporting Detail for Recommended Alternative (FDRS Reporting 2021-10553)

- Public Safety Specialist: Fuels in the project area are grass oak woodland and grey pines with patches of brush and scrub oak. Fuel loading is low in the project area, but transition to heavy in some of the brush fields located in the adjacent canyon to the south. The topography is rolling foothills and ridge-top at approximately 1000 ft elevation. There have been recent fires, however, project area is surrounded by major fires from the Trailhead Fire (2018), the Mammoth Fire (2009), Cool Fire (2008) and the Clutter Fire (2003).
- Strike Tree Potential: 264 total strike tree potentials in the CPZ.
- Egress Considerations: Main roads are Hwy 190 and Hwy 49. Both roads are two lanes paved with no shoulder that would be quickly become inundated in the event of a mass evacuation or rapidly expanding wildfire incident.
- PSPS Mitigation: 7 operations for PSPS in last 10 years. Approximately 4 miles to get to power source to accommodate PSPS resiliency.
- Execution Timeline (Land/Bio/Cultural/Constructability): California red-legged frog; targeted pre-activity survey may be required for overland and UG section of the project.

Confidential



	Key Questions	Outcome
PSPS	Is this an area that is impacted directly by PSPS (>3 Frequency or >1,200 Cust Impact)?	Y N Over 1200 cust.
	Are there any critical customers within zone necessary to protect?	Y N Fire Department, Telecom & Community Center
	Is O+ hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
PSE	Is the area being considered for HFRA Add/Remove?	Y N
	Ingress/Egress concerns identified by PSE professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N
Tree Strike	Moderate (6-14) or High (15+) strike tree potential areas in the segment.	Y N
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year storm/pest/delay)	Y N
FSD	Does the CRZ meet EICP threshold (>2% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., O+)?	Y N
	Does the CRZ meet EICP threshold (>2% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., O+)?	Y N
EAS/OP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N ALL UG Preferred

Confidential

CONFIDENTIAL – FOR INTERNAL DISCUSSION

Inform: PSPPS – PM# [REDACTED] – Bangor 1101 CB - Microgrid

Bangor 1101 (0.57 mile)		No System Hardening	Overhead Hardening	Under-grounding
Project Scope Risk Reduced After Mitigation		-	0.62	1.00
Project Scope Residual Risk Value		1.01	0.38	0.01
Overall Miles Installed		0.57 Existing OH	0.57	0.85
OH System Hardening Cost	Frisk-mile	-	-	-
US System Hardening Cost	Frisk-mile	-	-	-
Line Removal Cost	Frisk-mile	-	-	-
Total Capital Cost		-	-	-
Average O&M Cost (per year)		-	-	-
NPV @ 6.5% discount rate		-	-	-
\$ NPV per unit of risk (RSE)		-	-	-
Primary Filter	PSS Preference (ingress/egress/fire history)	Satisfactory	Satisfactory	Preferred
	Strike Tree Potential	Low Fall-in Risk	Low Fall-in Risk	N/A
	Ingress/Egress – Preferred option	Satisfactory	Satisfactory	Preferred
Secondary Filter	PSPS Mitigation (2021, 2022, 2022+)	2621 (0%)	2621 (0%)	2522 (1.2%)
	Execution Timeline (2021, 2022, 2022+)	2022	2022	2022
	Other (Operational Considerations, etc.)	Fire department, telecom, & community center	Fire department, telecom, & community center	Fire department, telecom, & community center
				Recommended
<p>Supporting Detail for Recommended Alternative (EDRS Resulting 2021, 2022, 2022+)</p> <ul style="list-style-type: none"> Public Safety Specialist: Fuel types in the Bangor area consistent with grass, oak woodland, mixed brush and scattered conifers, primarily Gray Pine. The large fires in the Bangor have been driven under two primary factors, mid-summer fuel/topography driven fires such as the Swedes and Wall, and, wind driven, fall period fires such as the October Wind Complex fires of 2017. Strike Tree Potential: 15 total strike potential trees in the CP2, LOW (0-5) tree strike potential. Fire Considerations: Ingress and egress for fire responders and residents, depending upon fire location and spread would be by one or more roads/ways. PSPS Mitigation: Project is driven by keeping critical customers such as the fire department, telecom building, and community center energized during a PSPS event. Execution Timeline (Land/Use/Cultural/Constructability): OH hardening will require coordination with transmission line. Monitoring may be required for US trenching. Field work is anticipated to take less than 1 week. Note: Battery microgrid will be installed in the substation to keep critical customers energized. 				

Workplan change request details - 11 projects added (13.5 mi) and 2 projects removed (3.3 mi)

Order	Project	Rationale/details
	CWSP - PINE GROVE 1102 - LR1222 - PH 2.6	<ul style="list-style-type: none"> 15 poles installed. Agreed that this project be moved to "Keep" status.
	CWSP - STANISLAUS 1702 LRLB88 PH 1.2	<ul style="list-style-type: none"> 15 poles installed SDP issues are keeping this project in UNSC status. Request to move to "Keep" status.
	RECON 2300F1 - NUNS CANYON - DUNBAR 1101	<ul style="list-style-type: none"> Obtaining this permit required several hours of discussion with the CDPW and messaging that the work is critical to the wildfire plan. PDC&E developed a mitigation plan and will be on the hook for implementing and paying for it regardless whether or not the project moves forward. Request to move to "Keep" status.
	CWSP - BRUNSWICK 1103 - LR50070 - PH 2.3	<ul style="list-style-type: none"> Phase 2.3 is to be kept 2.1, 2.2, 2.4, and 2.5. All of these projects are in CONE. 2.1, 2.2 are 75% complete. Requesting that this project (Phase 2.3) be moved to "Keep" status with the other phases.
	RECON - SPANS CAMP ONE TEN MILE FT BRAGG	<ul style="list-style-type: none"> This is a project for which we have applied for a Coastal Development Permit with the Agency and have been in public hearing on the project already. It is anticipated that the permit will be issued in early 2021. This permit has 2 years to obtain, and many messages to the agency that it is prioritized due to the critical nature of the work. The agency has recently agreed to use an emergency rule for review and/or CEQA to approve the project, with the understanding that a longer CEQA process would prevent our ability to perform critical wildfire work. Request to move to "Keep" status.
	SH RECONDUCTOR - ROB ROY 2105 - 5026C117	<ul style="list-style-type: none"> This is a project for which we have applied for a Coastal Development Permit with the Santa Cruz County and have been working with them for a few years. In progress with Santa Cruz since Feb 2019. CDPW permit underway since Aug 2020. Permits expected by 11/21/21. Would be a detriment to our relationship with CDPW and Santa Cruz to cancel a project. Request that this project be moved to "Keep" status to preserve relationship with CDPW and Santa Cruz county.
	SH RECONDUCTOR - ROB ROY 2105 - 5027C118	<ul style="list-style-type: none"> This is a project for which we have applied for a Coastal Development Permit with the Santa Cruz County and have also been working with CDPW on work within 100' buffer on both property. Both agencies have been engaged on the project for the last year. In progress with Santa Cruz since Feb 2019. CDPW permit underway since Aug 2020. Permits expected by 11/21/21. Would be a detriment to our relationship with CDPW and Santa Cruz to cancel this project. Request that this project be moved to "Keep" status to preserve relationship with CDPW and Santa Cruz county.

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION

Workplan change request details - 11 projects added (13.5 mi) and 2 projects removed (3.3 mi)

Order	Project	Rationale: details
Request to Reorder	CWSP-STANISLAUS 1702-LR1858-PH 2.5	<ul style="list-style-type: none"> 3 assessments have been requested for the project. 4th assessment is underway with an expected completion date of [REDACTED] No other critical reasons to consider dropping this project. We would like to confirm the "Remove" status in light of assessment status.
	PSPS - Clayton 2215 - CB	<ul style="list-style-type: none"> 3 assessments - 1 with city of Walnut Creek all terms accepted - 1 with State Mt. Diablo some language clarifications still underway. 2 amount accepted. 3rd with a development company's amount accepted just need terms that are. No other critical reasons to consider dropping this project. We would like to confirm the "Remove" status in light of assessment status.
	HALF MOON BAY 1103- FUCO 12437-REPL CH	<ul style="list-style-type: none"> COORR permit received and under way. We need to confirm "Remove" status given the receipt of the long lead permit.
	CWSP-MINWUK 1702-LR6018 PH 1.1	<ul style="list-style-type: none"> The Phase 1.1 is inactive that sits in between Phase 1.2 and 1.3 both of which are inactive and have been hardened. We need to confirm the "Remove" status in light of the hardening work performed on the phases on each end of this portion of mainline.
Remove	CWSP-MINWUK 1701-CCR-PH 1.5	<ul style="list-style-type: none"> In COND and only 5 poles installed. Location marked using and review that all require re-design of the project or investment domain. Have been pursuing land rights since summer of 2023. Suggest that this project be moved to the removal list and we have GC enter frame the 5 poles around the existing line if practical or remove the poles and sites of the project.
	CWSP-BRUNSWICK 1103-LR2200-PH2	<ul style="list-style-type: none"> PH 1 team was told to keep this phase but told to remove Phase 1 [REDACTED] Phase 2 [REDACTED] & Phase 4 - [REDACTED] No work has started on phase 2. Suggest that either all phases are moved to "Keep" status or move phase 2 to "Remove" status.

Confidential

CONFIDENTIAL - FOR INTERNAL DISCUSSION