

Wildfire Risk Governance Committee
System Hardening Project Approvals

February 4, 2021

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Today's discussion will include mitigation recommendations, as well as additional remote grid projects to be scoped for 2021

The following 3 projects have recommended mitigations:

Order No.	CPZ	Work Bucket	Total MAVF Core Risk Value	Mean MAVF Core Risk Rank	Recommendation	WGC Request
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WGC Decision

1	[REDACTED]	CLAYTON	ECOP	32.83	377	Hybrid (OH/UG)	Decision
2	[REDACTED]	Bucks Creek 1101CB	CWSP - Top 50	9.55	11	Hybrid (OH/UG)	Decision

WGC Inform

3	[REDACTED]	Volta	CWSP - Top 250	13	39	OH	Inform
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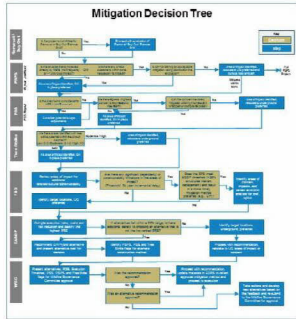
3 RG projects are requested for scoping:

#	CPZ	Work Bucket	Total MAVF Core Risk Value	Mean MAVF Core Risk Rank	Recommendation	WGC Request
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1	299 Ellis/Old Turtl	Coming [REDACTED]	Hardening	21.6	413	RG	Scoping Decision
2	300 Main Turtl	Coming [REDACTED]	Hardening	21.6	413	RG	Scoping Decision
3	576 Stewart	Oakhurst [REDACTED]	Hardening	40.9	183	RG	Scoping Decision

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	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
PPS	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
	Is the area being considered for HFRA Add/Remove?	Y N
Tree Strike	Ingress/Egress concerns identified by PGG professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N Ingress / Egress concerns
	Moderate (8-14) or High (15+) strike tree potential areas in the segment.	Y N
FSD	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., OHT)?	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 and UO where 100% Hybrid Preferred

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Decision: ECOP Top 20% - PM [REDACTED] - Clayton [REDACTED] H01

Clayton 2212 (1.42 Miles)	No System Hardening	Overhead Hardening	Undergrounding	Hybrid
Project Scope Risk Reduced After Mitigation	-	1.48	2.36	1.59
Project Scope Residual Risk Value	2.89	0.81	0.03	0.40
Overall Miles Installed	-	-	-	-
OH System Hardening Cost (\$/mile)	-	-	-	-
UG System Hardening Cost (\$/mile)	-	-	-	-
Line Removal Cost	-	-	-	-
Total Capital Cost	-	-	-	-
Average O&M Cost (per year)	-	-	-	-
NPV @ 5.8% discount rate	-	-	-	-
\$ NPV per unit of risk (RES)	-	-	-	-
Primary Filter				
PSS Preference (Ingress/egress/fire history)	Not Preferred	Satisfactory	Preferred	Satisfactory
Secondary Filter				
Strike Tree Potential	Moderate Fall-in Risk	Low Fall-in Risk	N/A	Low Fall-in Risk
Ingress/Egress - Preferred option	Moderate	Not Preferred	Preferred	Satisfactory
PSS Mitigation (26 Customers)	26 / 26 (0%)	26 / 26 (0%)	26 / 26 (0%)	26 / 26 (0%)
Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022+

Supporting Detail for recommended Alternative (EHS routing [2021-01-26](#)):

- Public Safety Specialist: Surrounded by grass oak. Population density is low. The area around this project has some fire history. Preference for action to be taken based on increased risk of ignition on lagged equipment.
- Strike Tree Potential: 0.56 total strike potential trees in the CPZ, 1.0W (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- Egress Considerations: This road is not a main thoroughfare on a daily basis but is a route of egress for citizens from the Clayton Valley area when fire impacts the Clayton Valley area. The road is used for ingress for fire and emergency services from the south.
- PSS Mitigation: No mitigation potential due to limited scope of this hardening project; no critical / essential customers in this segment. To achieve PSS reductions, additional scope would have to be included.
- Execution Timeline (Land/Bio/Cultural/Constructability): OH hardening could be accomplished by 12/31/2021; 1.2 miles of CA red-legged frog habitat, CA tiger salamander, and Alameda Whipsnake; tree activity survey for cultural constraints (more significant impact for US customers); UG options include additional cost for easements, soil conditions, & supported line risk.

Key Decision – Approval to Execute ECOP projects

Approval Status PENDING

Decision Detail

Request that this scoped project is approved as a Hybrid (OHUG) hardened facilities as determined by the Field Scoping Team.

EDRS – 2021.02769

Concerns and Mitigations

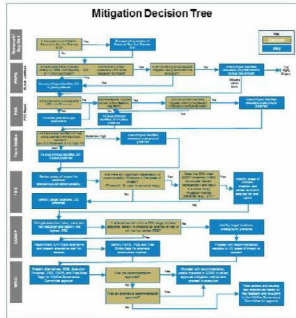
Approvals

[Redacted]	

Action Items and Validations

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Decision: CWSP Top 50 - PM [REDACTED] Bucks Creek 1101 CB



	Key Questions	Y	N	Outcome
PSPS	Is this an area that is impacted directly by PSPS (-8 Frequency or >1,200 Cust Impact)?	Y	N	9 events, UG Preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
PDS	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	N/A
	Is the area being considered for HFRA Add/Remove?	Y	N	
Tree Strike	Ingress/Egress concerns identified by PDS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	HWY 76, UG preferred
	Moderate (8-14) or High (15+) strike tree potential areas in the segment.	Y	N	
FSD	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., OH)?	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	PSPS and Ingress/Egress
				Hybrid 1 Preferred

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Decision: CWSP TOP 50 – PM# [REDACTED] Bucks Creek 1101 CB

	Bucks Creek 1101 (4.73 miles)	No System Hardening	Overhead Hardening	Hybrid 1	Hybrid 2
Project Scope Risk Reduced After Mitigation		4.73	4.23	4.20	4.02
Project Scope Residual Risk Value		9.55	4.63	0.13	0.61
Overall Miles Installed	4.73				
O&M System Hardening Cost [REDACTED] risk mile mitigated]	-				
UC System Hardening Cost [REDACTED] risk mile mitigated]	-				
Line Removal Cost (\$0.168M/risk mile mitigated)	-				
Total Capital Cost (AAACE Class 5)					
Average O&M Cost (per year)					
NPV @ 5.8% discount rate					
\$ NPV per unit of risk (RSE)					
Primary Filter					
PSS Preference (ingress/egress/fire history)	-	-	Non-satisfactory	Satisfactory	Non-satisfactory
Secondary Filter					
Strike Tree Potential	Moderate Fall-in Risk	Moderate	Low Fall-in Tree Risk	Low Fall-in Tree Risk	Low Fall-in Tree Risk
Ingress / Egress	Moderate	Moderate	Non-satisfactory	Satisfactory	Non-satisfactory
PSPS Mitigation (3 customers)	45 / 45 (0%)	45 / 45 (0%)	45 / 45 (0%)	45 / 45 (0%)	45 / 45 (0%)
Execution timeline (2021, 2022, 2022+)	-	-	2021	2022+	2022+
Other (Operational Considerations, etc.)	-	-	-	-	-
				Recommended	

Supporting Detail for Recommended Alternative (DRS link [DRS Link](#)):

- Public Safety Benefits:** Fuel types are consistent with moderate to heavy brush and mixed conifer, however the general area has been heavily fire scarred and the fire scar areas are interspersed with a significant amount of standing dead fuel.
- Strike Tree Potential:** 105 total strike potential trees in the CPZ. Moderate (5-15) tree strike potential.
- Key Considerations:** This project crosses HWY 70 near the Bucks Creek River/riparian area and then parallels the highway for a roughly 2-mile stretch, and then runs along Storrie Rd, paralleling the Feather River on the canyon opposite side of Highway 70. HWY 70 is a main thoroughfare for ingress/egress for emergency responders and to the few residents who live in that direct area. It is also a major route for commerce, both by vehicle and on foot. If Highway 70 was closed in this area it would make ingress and egress difficult. Fuel is available for responders and citizens and economically for a substantial local commerce. There are no alternative routes within the Feather River Canyon.
- PSPS Mitigation:** No mitigation potential due to limited scope of this hardening project; no critical/essential customers in this segment. Cannot achieve PSPS reduction due to required overhead conductor over the water crossing near the extraction.
- Execution Timeline (Land/Right-of-Way/Cultural/Construction/Other):** Work required during the dry season (May 15 - Oct 15) and/or bloom/monitoring and potential fuel restrictions (Feb 7 - July 15) due to owl activity centers. CAUTION: 100% equipment requirements and 100% highly sensitive areas in Midland 1. Note: work further down HWY 70 is undergrounding line consistent with the regional alternative.

Key Decision – Approval to Execute CWSP Top 250 projects

Approval Status PENDING

Decision Detail

Request that this scoped project is approved as a Hybrid (OHUG) hardened facilities as determined by the Field Scoping Team.

EDRS – 2021.03744

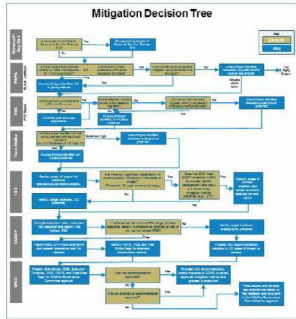
Concerns and Mitigations

Approvals

Action Items and Validations

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	Key Questions	Outcome
PSPS	Is this an area that is impacted directly by PSPS (-8 Frequency or >1,200 Cust Impact)?	Y N
	Are there any critical customers within zone necessary to protect?	Y N
PPS	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
	Is the area being considered for HFRA Add/Remove?	Y N
Tree Strike	Ingress/Egress concerns identified by PGG professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N
	Moderate (8-14) or High (15+) strike tree potential areas in the segment.	Y N
FSD	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., OH)?	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
		OH Preferred

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INFORM: CWSP TOP 250 – PM# [REDACTED] Volta 1101 LR 49742

	Volta 1101 (9.55 miles)	No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation	-	-	8.06	12.87	10.79
Project Scope Residual Risk Value	33	33	4.94	0.13	2.21
Overall Miles Installed	3.55	3.55	3.55	6.66	6.19
O&M System Hardening Cost (risk-mile mitigated)	-	-	-	-	-
UG System Hardening Cost (risk-mile mitigated)	-	-	-	-	-
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AAEE Class 5)	-	-	-	-	-
Average O&M Cost (per year)	-	-	-	-	-
NPV @ 5.8% discount rate	-	-	-	-	-
Primary Filter	\$ NPV per unit of risk (RSE)	-	Satisfactory	Satisfactory	Satisfactory
	PSP Preference (Ingress/egress/fire history)	-	Satisfactory	Satisfactory	Satisfactory
Secondary Filter	Strike Tree Potential	Low Fall-In Risk	Low Fall-In Risk	N/A	Low Fall-In Risk
	Ingress / Egress	LOW	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (19 customers)	38 / 38 (0%)	38 / 38 (0%)	38 / 38 (0%)	38 / 38 (0%)
	Execution Timeline (2021, 2022, 2022+)	-	2021	2022+	2022+
	Other (Operational Considerations, etc.)	-	Not-Applicable	-	-

Supporting Detail for Recommended Alternative (PDRS Link [2021-07-23](#)):

- Public Safety Specialist:** Fuel types are consistent with mainly grass/ oak woodland, brush, and intermixed patches of conifers/Gray Pines. Area has a significant fire history but not directly in the project footprint but shows the ability of the area fuels to resist containment and become a major fire.
- Strike Tree Potential:** 2 total strike potential trees in the CP2, LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required. To under-build for most of job.
- Egress Considerations:** Egresses have multiple ways out of the area, depending on the location of the fire. 1P responders will have 2 access roads.
- PSPS Mitigation:** No mitigation potential due to limited scope of this hardening project; no critical / essential customers in this segment. To achieve PSPS reductions, additional scope would have to be included. 2PSPS operations in 10 year lookback.
- Execution Timeline (Land/Bio/Cultural/Constructability):** Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. Mitigation expenses should be considered for ground disturbance. Potential permitting for multiple waterways. Tribal monitoring may be required. Cultural resources work and reporting may need be required. 1/2 day of O&M time.

Proposed RG Project for Inclusion: #299 Ellis/Old Turri

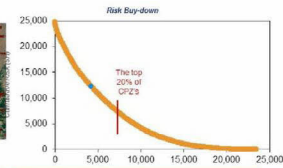
Project Location and Overview

Work District	Hackerberg
Circuit	Coring 1102
CPZ	CDREAG 1102S104
County	Tehama
Project Miles	2.01



Risk Statistics

Mean Risk Score	6.175
Ignition Probability	4.46E-05
Control Rate	43.171%
2023 Risk Rank	1844 (5.1%)
2019 Risk Rank	1844 (5.1%)



Operational Characteristics

Estimated Full Project Cost (Expected Case)	4,462,950
Actual and Committed Costs	-
Project Status	Initiating
In Service Date	12/10/2021
HTD	Tier 2
Customer Count	2

High Risk Flags

PSPS Customer Invoicing (Pre- / Post) mitigation	2
Count of FC Tags	5
Tree Count	40
CPZ in Top 30% of Risk?	Yes
Fire Rebuild?	No

Mitigation Plan / Control Effect

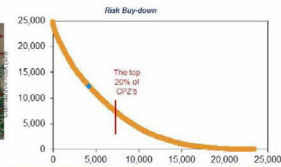
- PSS Concerns**
- Egress: Main travel route - 2 mile detour of main highway not maintained to county. 2nd weathered bridge & critical to access critical cut. Missing impacts: utility rights, but significant to the resources.
 - Fire History: Proximity to fire, subject to actual equipment.
- Mitigation Path and Rationale**
- 2.10 miles of fire removal.
 - Eliminate the reporting requirement, reduce PSPS customer impacts, and savings of ~28% compared to hardening.
 - Customer priority, will have ability to stay on during PSPS events.
 - Strong customer interest in project.
 - Issues / Factors influencing timeline.

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Proposed RG Project for Inclusion: #300 Main Turri

Project Location and Overview	
Work District	Hackerberg
Circuit	Covering 1102
CPZ	CDREAG 1102S154
County	Tehama
Project Miles	1.04



Risk Statistics	
Mean Risk Score	0.175
Ignition Probability	4,482.95
Current Risk	4,517.07%
2023 Risk Rank	4131 (1%)
2019 Risk Rank	1,844 (51%)

Operational Characteristics	
Estimated Full Project Cost (Expected Case)	██████████
Actual and Committed Costs	-
Project Status	Initiating
In Service Date	12/10/21
HTD	Tier 2
Customer Count	1

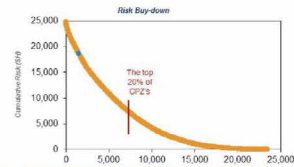
High Risk Flags	
PSP Customer Invoicing (Pre- / Post) mitigation	1
Count of FC Tags	7
Tree Count	13
CPZ in Top 30% of Risk?	Yes
Fire Rebuild?	No

Mitigation Plan / Cost/Save	
PSS Concerns	<ul style="list-style-type: none"> Egress: Main travel route is long, one lane detour off main highway. Eod equipment travel critical to remove without fire. Resourcing into design. Mitigation Plan and Response: RTS: trees to be removed. Eliminate fire handling requirement, reduce PSP's customer impacts. Customer priorities will have ability to stay on during PSP's events and savings of 12% compared to handling. Fireing: customer's new fire alarm. Issues / Factors Influencing Timeline Customer delay associated with obtaining a permit for cash. Item in located across county road, potential additional permitting issues. Some items at the office, customer in K22 State-Old Turn Light needs to do this project, despite minimal cost savings in comparison to postponing to keep in the PSP project active.

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Proposed RG Project for Inclusion: #576 Stewart

Project Location and Overview	
Work District	Hackberry
Circuit	Cashmere 1101
CPZ	DIXIEURST 10163R114
County	Madras
Project Miles	0.75
Risk Statistics	
Mean Risk Score	0.207
Ignition Probability	5.84E-05
2023 Risk Rank	41 (1%)
2018 Risk Rank	183 (4%)
2014 Risk Rank	317 (8.7%)



Operational Characteristics	
Estimated Full Project Cost (Expected Case)	[REDACTED]
Actual and Committed Costs	-
Project Status	Initiating
In Service Date	12/10/21
HTD	Tier 2
Customer Count	1

High Risk Flags	
PSP Customer Impacts (Pre/ Post) mitigation	1
Count of FC Tags	9
Tree Count	7
OPF in Top 30% of Risk?	Yes
Fire Rebuild?	No

Mitigation Plan/Control Measures	
PSS Concerns	<ul style="list-style-type: none"> Egress: Main travel route is long, one lane detour off main highway. Eod equipment may be critical to remove without Eod. Remaining jobs during Mitigation Plan and Rebuild Egress and equipment for resources 0.75 miles drive distance Allowable line clearing equipment, reduce PSP's customer impacts, and supply of 10% compacted bedding Customer potential will have ability to stay on during PSP's events Access: Factors: Relocating fireline House property is on site by owner

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Key Decision – Approval to Scope Remote Grid Projects

Approval Status PENDING

Decision Detail

Request to move forward with scoping three (3) remote grid projects totaling ~3.8 miles:

- #299 EIRs/OG Turn
- #300 Main Turn
- #510 Stewart

Concerns and Mitigations

Approvals

[Redacted]	

Action Items and Validations

System Hardening Decision Framework Overview

