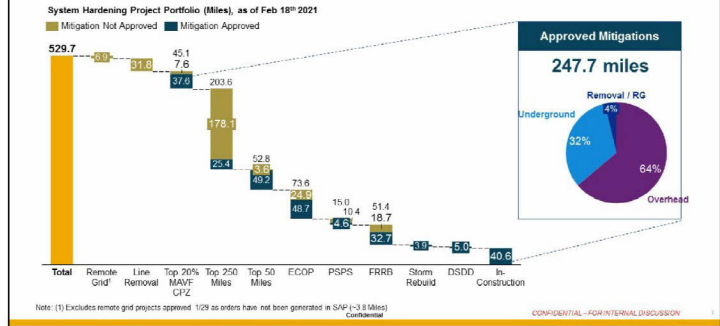


Wildfire Risk Governance Committee
System Hardening Project Approvals

February 18, 2021

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System Hardening Status – Total Portfolio And Approved Mitigations



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

2021-2023 WMP Mileage Commitment



Public Safety Metrics

Condition 1: 80% of system hardening miles have to be highest risk miles over the three-year period

Risk Profile (Highest Risk Miles defined as)

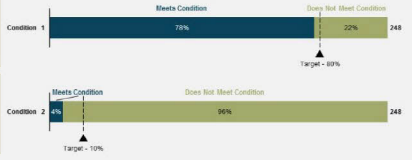
1. Top 20% of risk buydown curve
2. Fire re-build miles
3. PG&E mitigation miles

Condition 2: Minimum percentage of miles mitigated with either Line Removal or Undergrounding over the three-year period

Risk Effectiveness

- 10% of Undergrounding, or Line Removal work in the System Hardening project portfolio

Percent (%) of Scoped miles that meet public safety conditions, as of 2/18/2021



Execution Team Quality Assurance
As of 2/12/2021



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Today's discussion will include various mitigation recommendations

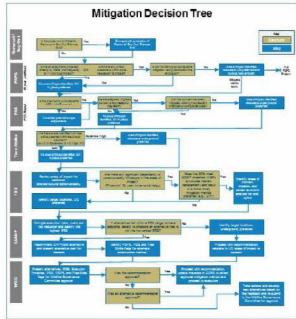
The following projects have recommended mitigations:

Order No.	CPZ	Work Bucket	Total MAVF Core Risk Value	Mean MAVF Core Risk Rank	Recommendation	WGC Request	
WGC Inform (33.43 miles)							
1	[REDACTED]	Middletown 1101548	ECOP Top 20%	10.93	474	Hybrid OH-2.58 mi UG 3.73 mi	Inform
2	[REDACTED]	Middletown 1101548	ECOP Top 20%	12.7	474	Hybrid OH 2.57 mi UG 11.53 mi	Inform
3	[REDACTED]	Wyandotte 1109702710	PSPS - Customer Resiliency	1.69	216	Hybrid OH-0.16 mi UG-0.47 mi	Inform
4	[REDACTED]	Pueblo 2102 LR792	ECOP	2.28	951	OH/DER OH 2.03 mi Remove 1.31 mi	Inform
5	[REDACTED]	Kirker 2104442850	Top 250 miles	18.44	21	UG/DER UG 2.12 mi Remove 3.24 mi	Inform
6	[REDACTED]	Tidewater 210614072	Top 50 miles	19.6	18	Hybrid OH 1.28 mi UG 2.41 mi	Inform

-Plus, a follow up on remote grid alternatives for Keswick 11011586-

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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 2 events 68 cust impact
	Are there any critical customers within zone necessary to protect?	Y N N/A
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
PPS	Is the area being considered for HFRA Add/Remove?	Y N N/A
	Ingress/Egress concerns identified by PPS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N Hybrid addresses Ingress/Egress
Tree Strike	Moderate (8-14) or High (15+) strike tree potential areas in the segment.	Y N Low
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y N N/A
FSD	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y N N/A
	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N Ingress/Egress preference & PSPS benefits
EASOP		Hybrid Preferred

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Inform: ECOP Top 20% - Middletown 1101 - LR 548 - H12 Ph1 - PM

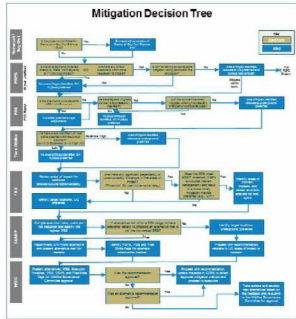
Middletown 1101 (4.18 miles)	No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation	5	6.78	10.82	9.17
Project Scope Residual Risk Value	10.99	4.15	0.11	1.76
Overall Miles Installed	4.13 Existing OH	4.13	7.78	6.31
Overall Miles Removed	-	-	-	-
OH System Hardening Cost	0.1k mile	-	-	-
UG System Hardening Cost	0.1k mile	-	-	-
Line Removal Cost	0.1k mile	-	-	-
Total Capital Cost (AAEC Class 5)				
Average O&M Cost (per year)				
NPV @ 5% discount rate				
Primary Filter	\$ NPV per unit of rise (RSE)			
Filter	PSS Preference (Ingress/egress/fire history)		Non-satisfactory	Satisfactory
	Strike Tree Potential	Low Public Risk	Low Public Risk	Satisfactory
	Ingress / Egress	Low Public Risk	No Public Risk	Low Public Risk
Secondary Filter	PSPS Mitigation (84 cuts * 2 events)	Non-satisfactory	Non-satisfactory	Satisfactory
	Execution timeline (2021, 2022, 2022+)	68 (0%)	68 (0%)	84 (50%)
	Other (Operational Considerations, etc.)		2021	2022+
				2022

Recommended

Supporting Detail for Recommended Alternative (ODS Link [\[Link\]](#)):

- Public Safety Specialist:** The fuel base for this project area is mostly composed of grassy oak woodland interspersed with patches of brush and pine. Fuel loading is mostly light in areas of the 2016 Valley fire burn area with little regrowth, however some areas (mostly on the north end of the project) will still find medium to heavy fuel loading where the grass of Whipspring Pines to Post Oaks/Cobos and Oak/Pines are left unburned. Population density for this project area is all considered light to medium with Middletown (pop. 1500-Medium) being the largest community located approximately 2 miles east of the project and Cobos/Pine Grove (pop. 1000) located at the north end of the project area.
- Strike Tree Potential:** Low (0) fire strike potential in this segment does not require OH hardening is required.
- Ingress/Egress Considerations:** Major ingress concern. First responders would respond to a fire in this area using HWY 175 making it a very important access/egress route. If this route were compromised the suppression and evacuation efforts would be significantly hampered. Additionally, if the fire was in Cobos/Pine Grove or Whipspring Pines, fire resources and other emergency services responding from Middlesex or Nass County would have to take an alternate route resulting in a significantly delayed response if HWY 175 were not available.
- PSPS Mitigation:** Some PSPS mitigation potential. To achieve additional PSPS reductions, additional source-risk scope would have to be included.
- Execution Timeline (if available/Cultural Considerability):** Work required during the dry season (May 15 - Oct 15) to reduce burn potential. Project activities along DR 175, within the Caltrans DCO will require a Caltrans Encroachment Permit. Upon review by Caltrans, additional cultural resource protection measures may be required. No EFS constraints.

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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 2 events 424 cust impact
	Are there any critical customers within zone necessary to protect?	Y N N/A
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
PPS	Is the area being considered for HFRA Add/Remove?	Y N N/A
	Ingress/Egress concerns identified by PPS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N Hybrid addresses Ingress/Egress
Tree Strike	Moderate (8-14) or High (15+) strike tree potential areas in the segment.	Y N High - Hybrid addresses risk
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y N N/A
FSD	Does the CPZ meet ECOP threshold (<25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y N N/A
	Does the CPZ meet ECOP threshold (<25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y N N/A
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 Ingress/Egress & tree strike preference
		Y N Hybrid Preferred

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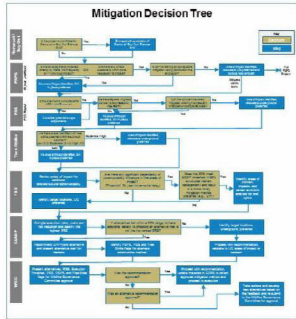
Inform: ECOP Top 20% - Middletown 1101 - LR 548 - H12 Ph3 - PM

Middletown 1101 (7.33 miles)	No System Hardening	Overhead Hardening	Under-Grounding	In-bird
Project Scope Risk Reduced After Mitigation	12.70	7.88	12.58	11.72
Project Scope Residual Risk Value	12.70	4.85	0.15	0.58
Overall Miles Installed	7.33 Existing OII	7.33	14.70	14.10
Overall Miles Removed	-	-	-	-
OII System Hardening Cost	ak-mile	-	-	-
UG System Hardening Cost	ak-mile	-	-	-
Line Removal Cost	ak-mile	-	-	-
Total Capital Cost (AAACE Class 5)	-	-	-	-
Average O&M Cost (per year)	-	-	-	-
NPV @ 5.5% discount rate	-	-	-	-
\$ NPV per unit of risk (R5E)	-	-	-	-
Primary Filter				
PSS Preference (Ingress/egress/fire history)		Non-satisfactory	Satisfactory	Satisfactory
Strike Tree Potential	High Fall-in Risk	High Fall-in Risk	No Fall-in Risk	Low Fall-in Risk
Ingress / Egress	Non-satisfactory	Non-satisfactory	Satisfactory	Satisfactory
Secondary Filter				
PSPS Mitigation (213 cuts * 2 events)	424 (0%)	424 (0%)	424 (0%)	424 (0%)
Execution timeline (2021, 2022, 2022+)		2021	2022+	2022
Other (Operational Considerations, etc.)				

Supporting Detail for Recommended Alternative (EDRS Link: [2021-04-09](#))

- Public Safety Consideration:** The fall zone for this project area mainly consists of grass oak woodland interspersed with patches of brush and grass pine cover. Fuel loading is mostly light to base of the 2015 Valley fire burn scar with little regrowth, however some areas (mainly on the North end of the project) will still find medium to heavy fuel loading where the areas of thinning Phase 1 Pine Grove/COP and Old Fireweed left unburned. Population density for this project area is also considered light to light/medium with the closest being the target community located approximately 2 miles East of the project and CSD/Pine Grove (pop 1000) located at the North end of the project area.
- Strike Tree Potential:** High-in-bird area potential in this segment suggests UG hardening is necessary.
- Ingress/Egress Consideration:** Major egress concern. First responders would respond to a fire in this area using HWY 171 making a very important access/egress route. If this route were compromised the suppression and evacuation efforts would be significantly hampered. Additionally, if the fire was in COP, Pine Grove or Unsprung Pines, fire resources and other emergency services responding from Modesto or Inyo County would have to take an alternate route resulting in a significantly delayed response if HWY 171 were not possible.
- PSPS Mitigation:** No mitigation potential due to limited scope of this hardening project. To achieve PSPS reductions, additional scope (including Phases 1 & 2 of this zone) would have to be included.
- Execution Timeline & Available Cultural Considerability:** Work required during the fire season (May 15 - Oct 31) under non-burned/young project activities along OR 171, within the California RCOI will require a California Encroachment Permit. Upon review by Caltrans, additional cultural resource protection measures may be required. No EPS constraints.

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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 9 events
	Are there any critical customers within zone necessary to protect?	Y N Feather Falls Casino
	Is OH 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 PGG professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y N Lower Wyandotte Rd
Tree Strike	Moderate (8-14) or High (15+) strike tree potential areas in the segment.	Y N Low 0-5
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y N
FSD	Does the CPZ meet ECOP threshold (<25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	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 provides Egress/Ingress and PSPS benefit Hybrid Preferred

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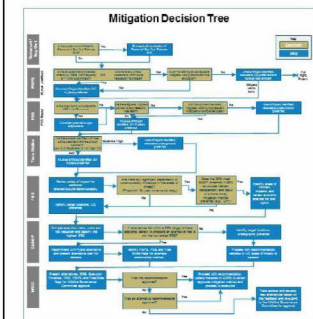
**Inform: PSPS Customer Resiliency - PM [REDACTED] – Wyandotte 1109702710 –
Mooretown Rancheria**

	Wyandotte 1109 (0.17 miles)	No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation		1.69	1.05	1.67	1.21
Project Scope Residual Risk Value		1.69	0.64	0.02	0.18
Overall Miles Installed		0.37 Existing OH	0.37	0.64	0.64
Overall Miles Removed		-	-	-	-
OH System Hardening Cost	\$k-mile	-	-	-	-
UG System Hardening Cost	\$k-mile	-	-	-	-
Line Removal Cost	\$k-mile	-	-	-	-
Total Capital Cost (RACE Class 5)		-	-	-	-
Average O&M Cost (per year)		-	-	-	-
NPV @ 6.8% discount rate		-	-	-	-
Primary Filter					
\$ NPV per unit of rise (RSE)					
PSS Preference (Ingress/Egress/Fire History)		Non-satisfactory	Non-satisfactory	Preferred	Preferred
Secondary Filter					
Strike Tree Potential		Moderate Fall-in Risk	Low Fall-in Risk	No Fall-in Risk	Low Fall-in Risk
Ingress / Egress		Non-satisfactory	Non-satisfactory	Preferred	Preferred
PSPS Mitigation (119 custs * 9 event)		1071 (0%)	1071 (0%)	36 (96%)	36 (96%)
Execution timeline (2021, 2022, 2022+)		2021	2021	2022	2022
Other (Operational Considerations, etc.)		Casino/Tribal	Casino/Tribal	Casino/Tribal	Casino/Tribal
					Recommended

Supporting Detail for Recommended Alternative (DNS Routing [REDACTED]):

- Public Safety Specialist: High frequency of fire in area, grassy-oak woodland and mixed brush. This project is rural with mix of residential neighborhoods.
- Strike Tree Potential: Low (0-5) tree fall-in risk after overhead hardening work.
- Egress Considerations: Lower Wyandotte Rd is primary route for citizens and first responders. 1/2 crossing and second half of project route close to route, underground preferred in this area.
- PSPS Mitigation: Primary focus of project to exclude from PSPS area serving Feather Falls Casino and Mooretown Reservation through traditional Distribution Primary source.
- Execution Timeline (Land/Risk/Cultural/Constructability): Mooretown Rancheria Tribal trust land and possible IBA involvement. Close to wetlands and aquatic features. Beetle and frog.

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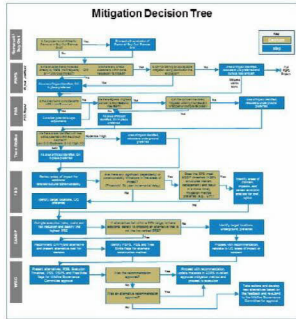
	Key Questions	Outcome
PSPS	Is this an area that is impacted directly by PSPS (-8 Frequency or >1,200 Cust Impact)?	Y N 14 events 266 cust impact
	Are there any critical customers within zone necessary to protect?	Y N N/A
PS	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N
	Is the area being considered for HFRA Add/Remove?	Y N
Tree Strike	Ingress/Egress concerns identified by PS 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 OH/DER addresses risk
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., OHP)?	Y N 16/22 (68%)
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/DER Preferred

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Inform: ECOP - Pueblo 2102 LR792 PM (3.34 miles)					
	Pueblo 2102 (2.93 miles)	No System Hardening	Overhead Hardening Line Removal & DER	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation	-	-	1.75	2.26	1.63
Project Scope Residual Risk Value	2.28	0.58	0.02	0.63	0.63
Overall Miles Installed	3.34 Existing OH	-	2.03	3.06	3.34
Overall Miles Removed	-	-	1.31	-	-
OH System Hardening Cost (\$1.8M/risk-mile mitigated)	-	-	-	-	-
UG System Hardening Cost (\$6.3M/risk-mile mitigated)	-	-	-	-	-
Line Removal Cost (\$106k/risk-mile mitigated)	-	-	-	-	-
Total Capital Cost (ACE Class 5)	-	-	-	-	-
Average O&M Cost (per year)	-	-	-	-	-
NPV @ 6.8% discount rate	-	-	-	-	-
Primary Filter: \$ NPV per unit of risk (RSE)	-	-	-	-	-
PS Preference (Ingress/Egress/Fire history)	-	-	Satisfactory	Satisfactory	Satisfactory
Strike Tree Potential	-	High Fall-in Risk	Low Fall-in Risk	No Fall-in Risk	Low Fall-in Risk
Ingress / Egress	-	Satisfactory	Satisfactory	Satisfactory	Satisfactory
PSIS Mitigation (18 customers * 1.6 events)	-	266 (0%)	286 (26%)	266 (0%)	266 (0%)
Execution Timeline (2021, 2022, 2022*)	-	-	2022	2022*	2022
Other (Operational Considerations, etc.)	-	-	DER, line removal	-	-

Supporting Detail for Recommended Alternative: DER Line (0121-0450)

- Public Safety Specialist:** Work area of four miles, Dikeville. Two major transmission lines (2102/792) 21. Predominant trees are in hard-core embankment on the eastern aspect of the steep slopes in this portion of the Maple Creek mountain range. This specific project area contains south and west exposures resulting in possible windbreaks from the west with full, moderate, and small evergreen blocks in the area. Low population density.
- Strike Tree Potential:** 20 potential at 100 feet (20 ft) tree at risk potential in this segment does not suggest UG hardening is required.
- Egress Considerations:** There are two main routes of travel in this area: 1. To the Dry Creek/Dikeville Grade road 2. In Vender Road Reservoir Rd. Both of these travel routes will be used from all directions. All travel routes are narrow with low capacity, with some significant crossing steep slopes through heavy vegetation. This observation is made to advise away from an encroaching tree that is in a steep slope or a travel crossing response. Some roads may be impacted at multiple points during the project execution.
- PSIS Mitigation:** Customer removal to DER, removal of essential customers with same result.
- Execution Timeline (Land/Use/Cultural/Constructability):** Frog habitat, possible bird-nest sites outside of work zone. Limited crews during nesting season. Multiple waterways. Cultural constraints - survey and monitoring. Dirt road - multiple access points.
- Operational Considerations:** Add DER on the line for 5 customers and 1.31 miles line removal.



	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
FSS	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y N N/A
	Is the area being considered for HFRAAdd/Remove?	Y N West of Kirker Pass Road
Tree Strike	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intransient, wrapped or composite poles.	Y N Ingress / Egress concerns
	Moderate (6-14) or high (11+) strike free 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 Future Capacity Constraint
	Does the CPZ meet EGOP threshold (>25% structures, warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y N
EASDP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N Operational Consideration; Ingress/Egress
		Under-grounding

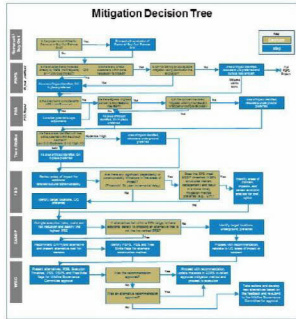
Inform: Top 250 Miles – PM# [REDACTED] – Kirker 2104 – LR 442850

Kirker 2104 (5.04 miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	15.54	18.37	15.56
Project Scope Residual Risk Value		16.44	2.50	0.07	2.88
Overall Miles Installed		5.04 Existing OH	5.04	5.56	5.56
OH System Hardening Cost		-	-	-	-
UG System Hardening Cost		-	-	-	-
Line Removal Cost		-	-	-	-
Total Capital Cost		-	-	-	-
Average O&M Cost (per year)		-	-	-	-
NPV @ 6.2% discount rate		-	-	-	-
\$ NPV per unit of risk (RSE)		-	-	-	-
Primary Risk	PSS Preference (Ingress/egress/fire history)	Non-Satisfactory	Non-Satisfactory	Satisfactory	Satisfactory
	Strike Tree Potential	Moderate Fall-In Risk	Low Fall-In Risk	Low Fall-In Risk	Low Fall-In Risk
Secondary Risk	Ingress/Egress – Preferred option	Non-Satisfactory	Non-Satisfactory	Satisfactory	Satisfactory
	PPS Mitigation (% Customers * 0 events)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Execution timeline (2021, 2022, 2023+)	-	2022	2022+	2022

Supporting Detail for Recommended Alternative (LDIS Routing [Link](#)):

- Public Safety Specialist: Fuel type in the area is grass, with an occasional grass/oak woodchuck fuel model. There is a small amount of brush where Somerville road and Nortonville road intersect.
- Strike Tree Potential: 79 total strike potential trees in the CR2, LDW (B-5) tree strike potential in this segment.
- Ingress Considerations: Kirker Pass road is a main travel route for citizens to commute between Pittsburg/Jericoch and Clayton valley. This is the main access route for emergency responders in the area, there are no other side roads or exits in the area.
- PPS Mitigation: No critical / essential customers in this segment. To achieve PPS reductions, must move forward any of the proposed work except for the all overhead option.
- Execution Timeline (Land Use/Cultural/Coverability): Work may be required during dry season and/or biomonitoring. Cultural: sagged frog habitat, CA tiger salamander, San Joaquin kit fox, and Alameda Whiptail; Pre-activity survey for cultural constraints; UG options include additional cost for easements, traffic control, night work due to heavy vehicle traffic during the day. Area is near the Black Diamond Mine Regional Park.
- Note: Cost of OH harden & UG cable is more than the hybrid because it includes the cost of the remote grid.

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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
FSS	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 West of Kirker Pass Road
Tree Strike	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intransient wrapped or composite poles.	Y N Ingress / Egress concerns
	Moderate (6-14) 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 Future Capacity Constraint
	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y N
EASDP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y N Operational Consideration; Ingress/Egress
	CONFIDENTIAL	CONFIDENTIAL Hybrid

Inform: Top 50 Miles - PM [REDACTED] – Tidewater 2106 LR 14072

	Tidewater 2106 (3.67 miles)	No System Hardening	Overhead Hardening	Undergrounding	Hybrid
Project Scope Risk Reduced After Mitigation	-	-	11.72	15.40	16.89
Project Scope Residual Risk Value	19.6	6.88	0.20	2.71	
Overall Miles Installed	3.67 Existing OH	-	3.39	4.17	3.69
Overall Miles Removed	-	-	0.38	-	-
O&I System Hardening Cost	[REDACTED] risk-mile	-	-	-	-
UG System Hardening Cost	[REDACTED] risk-mile	-	-	-	-
Line Removal Cost	[REDACTED] risk-mile	-	-	-	-
Total Capital Cost	-	-	-	-	-
Average O&M Cost (per year)	-	-	-	-	-
NPV @ 6.8% discount rate	-	-	-	-	-
\$ NPV per unit of risk (RSE)	-	-	-	-	-
Primary Filter					
PSS Preference (Ingress/egress/fire history)	-	Non-Satisfactory	Non-Satisfactory	Satisfactory	Satisfactory
Strike Tree Potential	-	Low Fall-in Risk	Low Fall-in Risk	N/A	Low Fall-in Risk
Secondary Filter					
Ingress/Egress – Preferred option	-	Non-Satisfactory	Non-Satisfactory	Satisfactory	Satisfactory
PSPS Mitigation (23 Customers * 0 events)	-	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Execution timeline (2021, 2022, 2022+)	-	-	2022	2022+	2022

Supporting Detail for Recommended Alternative (ERS Routing) [REDACTED]

- Public Safety Specialist: Fuel type in the area is grass, with an occasional grass/oak woodland fuel model. The communities of Clayton and Pittsburg/Airtoch to the southwest and northeast respectively have a population density that would be considered high with multiple single family and multifamily residences
- Strike Tree Potential: 35 total strike potential trees in the CRZ, LOW (0-5) tree strike potential in this segment.
- Egress Considerations: Kinkor Pass road is a main travel route for citizens to commute between Pittsburg/Airtoch and Clayton Valley. This is the main access route for emergency responders in the area, there are no other side roads or exits in the area.
- PSPS Mitigation: No critical or essential customers in this segment.
- Execution Timeline(s) and/Reliability/Constructability: Work may be required during dry season and/or biomonitored, CA red-legged frog habitat, CA tiger salamander, & San Joaquin Kit Fox. Pre-activity survey for cultural constraints. East Bay Regional Park District may delay ERTC release by 3-6 months; UG & Hybrid option include additional cost for easements, traffic control, night work due to heavy vehicle traffic during the day. Areas near the Black Diamond Mine Regional Park

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Inform: CWSP Top 50 miles – PM# [REDACTED] – Keswick 1101 Fuse 2407

Keswick 1101:	No System Hardening	Overhead Hardening	Under-grounding	Remote Grid (0% BS)	Remote Grid (0% BS)	Remote Grid (70% BS)
Project Scope Risk Reduced After Mitigation	-	6.11	9.76	9.37	9.37	9.37
Project Scope Residual Risk Value	9.8619291	9.75	0.10	0.49	0.49	0.49
Overall Miles Installed	Unknown	1.47	1.47	-	-	-
Overall Miles Removed	-	-	-	1.47	1.47	1.47
CH System Hardening Cost	-	-	-	-	-	-
UG System Hardening Cost	-	-	-	-	-	-
Line Removal Cost	-	-	-	-	-	-
Rescale Grid Cost	-	-	-	-	-	-
Total Capital Cost	-	-	-	-	-	-
Average O&M Cost (per year)	-	-	-	-	-	-
NPV @ 6.8% discount rate	-	-	-	-	-	-
Primary Filter	\$ NPV per unit of risk (RSE)					
	Not Satisfactory	Not Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
PSS Preference (Ingress/egress/fire history)	Not Satisfactory	Not Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Secondary Filter	Low Fall-in Risk	Moderate Fall-in Risk	N/A	N/A	N/A	N/A
Ingress/Egress – Preferred option	Not Satisfactory	Not Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
PSPS Mitigation (0 Customers = 0 events)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Execution Timeline (2021, 2022, 2022+)	-	2021	2022+	2022	2022	2022

Summary Detail for Recommended Alternative (DRS) Route: 2021, 2022+.

- Public Safety Impacts:** Full impact is considered with a risk-based, and team lead patch report confirms. Full loading can be very tight to heavy in peaks; however, fulls have been significantly reduced in the project area during the 2024 Con Fnc.
- Public Tree Removal:** No local services potential trees (with 0% - 0% trees on proposed in this segment) does not suggest UG hardening is required. However, the trees in the area are mostly taken in 2024, after the Con Fnc.
- Egress Considerations:** Iron Mountain road is the only route of travel for evacuating the few residents living north of the project. If evacuation is to the south without off in the community, the residents will have to either shelter in place or take a route to the south, either through the project area or through the community. The route through the project area is the preferred route.
- PSPS Mitigation:** No mitigation potential exists in the scope of this hardening project. As critical/essential customers in this segment, to achieve PSPS reduction, additional scope would have to be included.
- Facilities Timeline (and) Cultural/Community Impacts:** Risk mitigation and Fullfill per below regarding MTHCP included habitat within the project area will be fully repaired during dry season and/or bloom timing. Numerous cultural resources are present in the area; however, no additional work is needed.

Current State	OH Hardening	Remote Grid	Alternative 3	Alternative 4																																																		
<p>Existing service provided by single Dk line over difficult terrain to facilities on hilltop. Current load is 200 kW to existing customers, cell towers.</p>	<p>Harden the section of section of line running to hilltop customers, 1.5 miles.</p>	<p>Standard Remote Grid. PV/ES/LPO Primary Voltage. Lifetime cost and risk optimized.</p>	<p>Minimum Renewable Fraction PV/ES/LPO Primary Voltage.</p>	<p>100% Fossil Fuel Remote Grid LPS (FC and Diesel Considered).</p>																																																		
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<p>Other Considerations</p> <ul style="list-style-type: none"> Moderate / High tree strike potential in the target area Accessibility and safety concerns for field teams attempting to service or inspect the section of line Two TOL sections totaling 0.5 line miles, each to EOL, removed from scope 	<p>Other Considerations</p> <ul style="list-style-type: none"> Tree strike risk mitigated by 1 DACTAR wire Accessibility and safety concerns for field teams attempting to service or inspect the section of line <p style="text-align: center;">Recommended</p>	<p>Other Considerations</p> <ul style="list-style-type: none"> PV land req't not feasible Low RSE creates cost recovery risk given CPUC guidance (Resolution pending) 	<p>Other Considerations</p> <ul style="list-style-type: none"> PV land req't at risk, needs site work Low RSE, cost recovery risk CHG contribution with medium risk to portfolio performance 	<p>Other Considerations</p> <ul style="list-style-type: none"> Air Quality permit risk GHG contributions with high risk to portfolio due to CPUC reporting req't Fuel storage and logistics hazards (requent delivery) Fuel cell risks: untested Infeasible qty of H₂ / CHG Supply not established OSM support not clear Fuel price change risk 																																																		
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