

**Wildfire Risk Governance Committee**  
**System Hardening Project Approvals**

February 2, 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						Decision
2						Decision
3						

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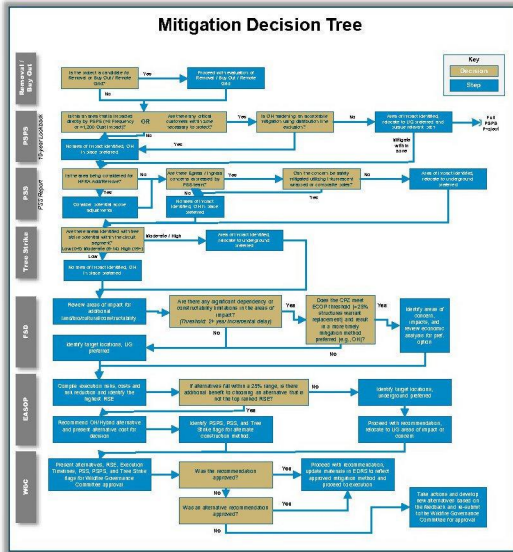
**WGC Inform**

1	35219098	Middletown 1101118494	CWSP Top 250	6.97	23	Overhead (1.15 mi)	Inform
2	35219272	Middletown 1101481876	CWSP Top 250	6.55	38	Overhead (0.85 mi)	Inform
3	35219280	Potter Valley PH 1105 LR 64118	CWSP Top 250	44.7	43	Hybrid: OH - 1.68 mi UG - 0.15 mi	Inform

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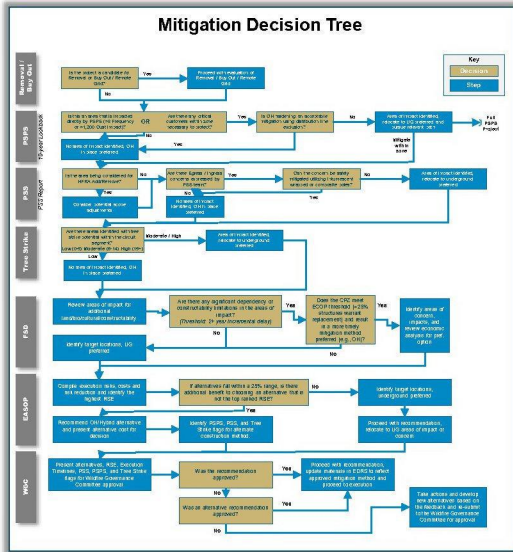
	Key Questions	Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	1 event, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	N/A
PSS	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	
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Moderate
FSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	UG & Hybrid not preferred
	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	
				<b>Overhead Preferred</b>

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Inform: CWSP Top 250 Miles – PM 35219098 Middletown 1101 LR 118494

Middletown 1101 (1.15 miles)		No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	4.32	6.90	5.50
Project Scope Residual Risk Value		6.97	2.65	0.07	1.47
Overall Miles Installed		1.15 Existing OH	1.15	1.60	1.33
OH System Hardening Cost	\$2M/risk-mile	-	\$2.1M	-	\$1.3M (0.72 mi)
UG System Hardening Cost	\$8.8M/risk-mile	-	-	\$9.4M	\$3.7M (0.61 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AACE Class 5)		-	\$2.1M	\$9.4M	\$5M
Average O&M Cost (per year)		-	\$79k	\$21k	\$58k
NPV @ 6.8% discount rate		-	(\$3.3M)	(\$9.8M)	(\$5.9M)
Primary Filter	\$ NPV per unit of rise (RSE)	-	(\$0.8M) 1st	(\$1.4M) 3rd	(\$1.1M) 2nd
	PSS Preference (Ingress/egress/fire history)	-	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	Satisfactory	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (15 custs * 1 event)	15 (0%)	15 (0%)	15 (0%)	15 (0%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022+
Other (Operational Considerations, etc.)		-	Preferred	Not Preferred	Not Preferred
Supporting Detail for Recommended Alternative (EDRS Link <a href="#">2021-04412</a> ):			Recommended		
<ul style="list-style-type: none"> <li><b>Public Safety Specialist:</b> The fuel type in this project area is mostly grass oak woodland with some brush and grey pine near the substation and around a couple residences nearby. Overall fuel loading for this area range from light to medium. This project area resides in a burn scar from the Valley fire in 2015 and dead/decadent fuel remains in some areas. Population density around Middletown proper is considered to be in the medium range (1200) however the actual project location is just East of Middletown about .2 miles</li> <li><b>Strike Tree Potential:</b> Moderate (5-15) tree strike potential in this segment does not suggest UG hardening is required.</li> <li><b>Egress Considerations:</b> No major egress concern</li> <li><b>PSPS Mitigation:</b> 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</li> <li><b>Execution Timeline (Land/Bio/Cultural/Constructability):</b> Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. No mitigation expenses expected as long as work is within the road ROW.</li> <li><b>Other (Operational Considerations, etc.):</b> Hybrid &amp; UG alternatives will require numerous boxes and sub-structures due to narrow roadway. Hybrid &amp; UG alternatives also not preferred due to history of difficulty working with customer who owns property in much of job boundaries.</li> </ul>					
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Key Questions		Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	1 event, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	N/A
	Ingress/Egress concerns identified by PSS 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	Low
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	
				Overhead Preferred

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	Middletown 1101 (0.85 miles)	No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation	-	-	4.06	6.48	5.19
Project Scope Residual Risk Value	6.55	-	2.49	0.07	1.36
Overall Miles Installed	0.85 Existing OH	0.85	0.85	0.95	0.93
OH System Hardening Cost   \$1.8M/risk-mile	-	-	\$1.5M	-	\$0.9M (0.5 mi)
UG System Hardening Cost   \$6.6M/risk-mile	-	-	-	\$5.6M	\$2.1M (0.44 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AACE Class 5)	-	\$1.5M	\$5.6M	\$3M	\$3M
Average O&M Cost (per year)	-	\$48k	\$12k	\$34k	\$34k
NPV @ 6.8% discount rate	-	(\$2.2M)	(\$5.9M)	(\$3.5M)	(\$3.5M)
<b>Primary Filter</b>	\$ NPV per unit of rise (RSE)		(\$0.5M) 1st	(\$0.9M) 3rd	(\$0.7M) 2nd
	PSS Preference (Ingress/egress/fire history)		Satisfactory	Satisfactory	Satisfactory
<b>Secondary Filter</b>	Strike Tree Potential	Moderate Fall-In Risk	Low Fall-In Risk	No Fall-In Risk	Low Fall-In Risk
	Ingress / Egress	Satisfactory	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (9 custs * 1 event)	9 (0%)	9 (0%)	9 (0%)	9 (0%)
	Execution timeline (2021, 2022, 2022+)		2021	2022+	2022
	Other (Operational Considerations, etc.)		Recommended		

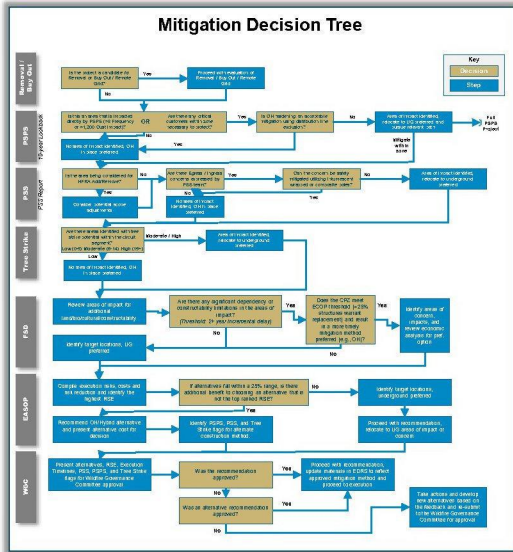
**Supporting Detail for Recommended Alternative (EDRS Link [2021-04297](#)):**

- **Public Safety Specialist:** The fuel type in this project area is mostly grass oak woodland. Overall fuel loading for this area is light. This project area resides in a burn scar from the Valley fire in 2015 and dead/decadent fuel remains in some areas. Population density around Middletown proper is considered to be in the medium range (1200) however this project location is approximately 5 miles to the North where population density is low.
- **Strike Tree Potential:** LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- **Egress Considerations:** No major egress concern.
- **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.
- **Execution Timeline (Land/Bio/Cultural/Constructability):** Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. No mitigation expenses expected as long as work is within the road ROW.

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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	1 event, Hybrid preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	OH has no PSPS savings
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	Partial
	Ingress/Egress concerns identified by PSS 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	Low
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	Hybrid preferred PSPS Savings
<b>Hybrid Preferred</b>				

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Inform: CWSP Top 250 Miles – PM 35219280 Potter Valley PH 1105 LR 64118

Potter Valley PH 1105 (1.8 miles)		No System Hardening	Overhead Hardening	Under-Grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	27.72	44.26	29.08
Project Scope Residual Risk Value		44.70	16.99	0.45	15.62
Overall Miles Installed		1.80 Existing OH	1.80	1.90	1.83
OH System Hardening Cost	\$2.2M/risk-mile	-	\$3.6M	-	\$3.4M (1.68 mi)
UG System Hardening Cost	\$7.5M/risk-mile	-	-	\$12.3M	\$0.6M (0.15 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AACE Class 5)		-	\$3.6M	\$12.3M	\$4M
Average O&M Cost (per year)		-	\$117k	\$25k	\$111k
NPV @ 6.8% discount rate		-	(\$5.4M)	(\$12.8M)	(\$5.6M)
Primary Filter	\$ NPV per unit of rise (RSE)	-	(\$0.194M) 2nd	(\$0.29M) 3rd	(\$0.194M) 1st
	PSS Preference (Ingress/egress/fire history)	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Secondary Filter	Strike Tree Potential	Low Fall-In Risk	Low Fall-In Risk	No Fall-In Risk	Low Fall-In Risk
	Ingress / Egress	Satisfactory	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (197 custs * 1 event)	197 (0%)	197 (0%)	0 (100%)	15 (92%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022
	Other (Operational Considerations, etc.)	-	-	-	Recommended

Supporting Detail for Recommended Alternative (EDRS Link [2021-03822](#)):

- **Public Safety Specialist:** The fuel type in the project area is predominantly grass/oak woodland with some pockets of brush and scattered conifer that border agricultural land in the Valley. Population Density around the community of Potter Valley is considered to be moderate at 600.
- **Strike Tree Potential:** 69 potential strike trees. LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- **Egress Considerations:** No major egress concern
- **PSPS Mitigation:** UG portion of Hybrid Alt is at LR 64118, which is right outside of station and allows the mainline to remain energized
- **Execution Timeline (Land/Bio/Cultural/Constructability):** Stock ponds with potential suitable habitat for tricolored blackbird are found within the project vicinity. Recommend July - March. Also Northern Spotted Owl habitat is located in the northernmost portion of the project alignment. If work is to occur during the March 1 to July 15, a Bio led survey should be expected. Also multiple waterways potentially needing permitting. Two cultural ESAs have been identified within project footprint. Archaeological monitoring and other RPMs will be necessary. Extensive ground disturbance is not recommended within the Cultural ESAs. The Project EFS shall be contacted 60 days prior to excavation to coordinate mitigating measures including soil sampling, analysis, and disposal activities.