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VIA ELECTRONIC MAIL

March 2, 2021

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Subject: Update to Pacific Gas and Electric Company's Response to Audit of Implementation of Enhanced Vegetation Management Program in 2020

Dear Ms. Farley:

On February 23, 2021, Pacific Gas and Electric Company (PG&E) provided a response to the Wildfire Safety Division's *Audit of PG&E's Implementation of their Enhanced Vegetation Management Program in 2020* (Audit Report) dated February 8, 2021 (Response). The Response included Attachment B which was a three page document describing our 2021 Enhanced Vegetation Management (EVM) workplan. In reviewing Attachment B after it was sent, we realized that on page two certain information was missing because the links in the underlying Excel spreadsheet were not operating correctly and thus information was listed as "#REF!" instead of including the information identified. The chart on page 2 was also missing information because of this problem.

Attached is a corrected version of Attachment B. We are providing it as a PDF as well as in Excel form. These versions also include several additional columns on tab (page) 3 which include the information needed for the links on tab (page) 2.

In addition, PG&E indicated in its response that the 2021 EVM workplan was subject to further revisions. Specifically, we explained:

> Attachment B to this Plan includes the EVM projects approved by PG&E's Wildfire Risk Governance Steering Committee for execution in 2021. The 2021 EVM projects were reviewed and refined by a team of public safety specialists, including former California Department of Forestry and Fire Protection (Cal FIRE) employees, based on their operational expertise and knowledge of the specific high-risk areas. Some areas initially identified for EVM work were removed after the field review causing a decrease in the total approved mileage to

> 1,749. Additional locations are currently being evaluated by the same public safety specialists to be added to the list to align with the 2021 target of approximately 1,800 high risk miles, as well as to identify contingency miles needed for operational needs. All changes to the 2021 EVM plan will be reviewed and approved by the Wildfire Risk Governance Steering Committee.[1]

The Wildfire Risk Governance Steering Committee (WRGSC) approved a revision to the 2021 EVM workplan on February 19, 2021. Because of timing issues between preparation of the Response and WRGSC approval, our Response included an earlier version of the 2021 EVM workplan (with information updated as of January 29, 2021). We are including with this communication the revised version of the 2021 EVM plan approved by the WRGSC in the same format as Attachment B in an Excel file to allow for easy comparison.

We are happy to meet with WSD to explain the differences between the two 2021 EVM workplans and answer any questions regarding the current WRGSC-approved 2021 EVM workplan.

In addition, proposed adjustments to the 2021 EVM workplan will also be made as new information from the field is brought forward. Revisions to the 2021 EVM workplan based on field input and other updated information is reviewed by the WRGSC. The WRGSC is responsible for all revisions to the 2021 EVM workplan. We will also continue to let you know as soon as possible if there are any further WRGSC approved revisions to our 2021 EVM workplan.

We appreciate our ability to work with WSD on the 2021 EVM plan and please feel free to contact me if you have any questions or would like additional information.

Sincerely,

/s/

Michael Ritter
Sr. Director, Vegetation Management Operations

cc: wildfiresafetydivision@cpuc.ca.gov

Attachments

[1] PG&E Response at p. 11.

Enhanced Vegetation Management (EVM) Update

Information Updated as of 19 February, 2021

Contents

1 **Workbook Description** - Overview of workbook contents and key definitions
2 **Summary Reporting** - Summary statistics of the components of 2021 plan and execution of EVM work on mileage
3 **2021 Certified EVM Plan -** List of projects determined to be in scope of 2021 plan (composed of the WGC Approved Plan "No Regrets", Commitments, and Additional Optimized Miles
4 **PI In Progress Mileage Details** - Patrol Inspections In Progress (not confirmed)
5 **PI Complete Mileage Details** - Patrol Inspections Completed (not confirmed)
6 **WV Ready Mileage Details** - Work Verification Ready (not confirmed)
7 **WV Pass Mileage Details** - Work Verification Passed (not confirmed)

Glossary - *In order of presentation*

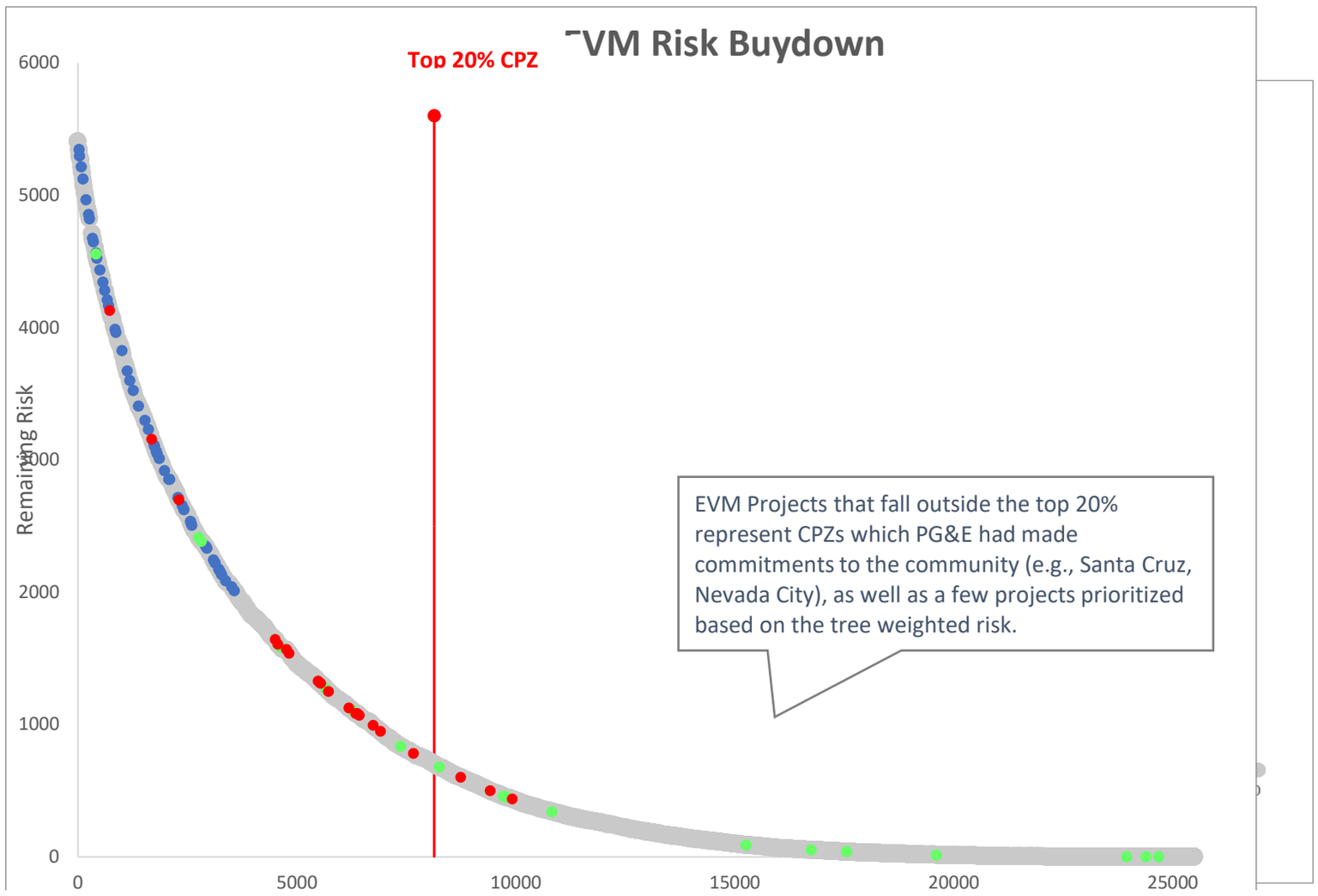
Summary Reporting	
Targeted Miles	Miles in the plan was approved on 11/13/20
Commitments for 2021	The Commitment Miles were approved on 12/18/20
Additional Optimized Miles	The Additional Optimized Miles were approved on 12/18/20
2021 Certified EVM Plan	
DIVISION	Division where CPZ is located.
CIRCUIT_PR	Circuit Protection Zone Name
REMAINING_MILES	Miles to be done in CPZ according to workplan.

Enhanced Vegetation Management (EVM) Summary Reporting

Information Updated as of 19 February 2021

2021 Plan Summary

	Total Miles
Targeted Miles	1,056
Commitments for 2021	362
Additional Optimized Miles	442
Total	**1,859**



REGION	DIVISION	CIRCUITNAME	PZ_IDX	CIRCUIT_PR
North Coast	NC_North Coast	RIO DELL 1102	6060	RIO DELL 11024230
Sierra	SI_Sierra	APPLE HILL 2102	3901	APPLE HILL 2102circuit_breaker
Central Valley	YO_Yosemite	OAKHURST 1101	2763	OAKHURST 110110090
North Coast	HU_Humboldt	BRIDGEVILLE 1102	4918	BRIDGEVILLE 1102circuit_breaker
North Coast	HU_Humboldt	FORT SEWARD 1121	6600	FORT SEWARD 11211690
North Valley	NV_North Valley	OREGON TRAIL 1104	1601	OREGON TRAIL 11041574
Sierra	SI_Sierra	HIGGINS 1109	5504	HIGGINS 110950072
North Valley	NV_North Valley	DESCHUTES 1101	2237	DESCHUTES 11011580
Sierra	SI_Sierra	DIAMOND SPRINGS 1	3079	DIAMOND SPRINGS 11057722
North Valley	NV_North Valley	CHALLENGE 1102	5557	CHALLENGE 11021064
Central Valley	YO_Yosemite	OAKHURST 1101	1973	OAKHURST 11015490
Sierra	SI_Sierra	SHINGLE SPRINGS 21	2248	SHINGLE SPRINGS 210913322
North Valley	NV_North Valley	DESCHUTES 1104	3638	DESCHUTES 11041370
North Valley	NV_North Valley	STILLWATER 1102	4317	STILLWATER 1102circuit_breaker
North Coast	HU_Humboldt	FRUITLAND 1142	8284	FRUITLAND 114293234
Sierra	SI_Sierra	WISE 1102	3716	WISE 11022230
North Valley	NV_North Valley	OREGON TRAIL 1104	5783	OREGON TRAIL 11041634
North Valley	NV_North Valley	OREGON TRAIL 1104	662	OREGON TRAIL 1104circuit_breaker
Bay Area	NB_North Bay	PUEBLO 2103	3568	PUEBLO 2103678
North Valley	NV_North Valley	CEDAR CREEK 1101	39	CEDAR CREEK 11011664
Central Valley	FR_Fresno	AUBERRY 1101	4967	AUBERRY 1101R2578
Sierra	SI_Sierra	HIGGINS 1109	5121	HIGGINS 1109circuit_breaker
North Coast	SO_Sonoma	FITCH MOUNTAIN 11	7148	FITCH MOUNTAIN 11136751
Sierra	SI_Sierra	PIKE CITY 1101	3018	PIKE CITY 1101circuit_breaker
Central Valley	YO_Yosemite	MARIPOSA 2102	3795	MARIPOSA 210210880
North Coast	HU_Humboldt	GARBERVILLE 1102	9323	GARBERVILLE 110256048
North Coast	SO_Sonoma	GEYSERVILLE 1101	2778	GEYSERVILLE 1101166
North Valley	NV_North Valley	CEDAR CREEK 1101	2436	CEDAR CREEK 11011656
Sierra	SI_Sierra	BELL 1107	1508	BELL 11072400
North Coast	SO_Sonoma	SALMON CREEK 1101	6598	SALMON CREEK 110188998
Sierra	SI_Sierra	BANGOR 1101	749	BANGOR 11017446
Sierra	SI_Sierra	MOUNTAIN QUARRII	3848	MOUNTAIN QUARRIES 2101circuit_break
North Valley	NV_North Valley	CEDAR CREEK 1101	3510	CEDAR CREEK 11011608
Sierra	SI_Sierra	BELL 1107	1789	BELL 110750172
North Coast	HU_Humboldt	LAYTONVILLE 1102	2529	LAYTONVILLE 1102500
North Coast	HU_Humboldt	LAYTONVILLE 1102	7640	LAYTONVILLE 1102572
Central Coast	CC_Central Coast	BIG BASIN 1102	1416	BIG BASIN 1102circuit_breaker
North Coast	HU_Humboldt	MIDDLETOWN 1101	6356	MIDDLETOWN 1101622
North Valley	NV_North Valley	RED BLUFF 1101	864	RED BLUFF 11011334
Central Valley	YO_Yosemite	OAKHURST 1103	1817	OAKHURST 1103circuit_breaker
North Coast	HU_Humboldt	PHILO 1101	6519	PHILO 110137222
Sierra	SI_Sierra	BELL 1108	4798	BELL 11082202
North Coast	HU_Humboldt	UKIAH 1111	3596	UKIAH 1111534
North Coast	HU_Humboldt	WILLITS 1102	3495	WILLITS 1102circuit_breaker
Sierra	SI_Sierra	APPLE HILL 2102	1194	APPLE HILL 21021532
North Valley	NV_North Valley	WYANDOTTE 1109	1486	WYANDOTTE 110979932
North Valley	NV_North Valley	STILLWATER 1102	6222	STILLWATER 110248952
Sierra	SI_Sierra	PENRYN 1103	1224	PENRYN 11032198
North Valley	NV_North Valley	DESCHUTES 1104	1665	DESCHUTES 110449024
North Valley	NV_North Valley	STILLWATER 1102	538	STILLWATER 11021644
Sierra	SA_Sacramento	VACAVILLE 1108	2360	VACAVILLE 110838316
Central Valley	FR_Fresno	AUBERRY 1102	204	AUBERRY 1102circuit_breaker
Sierra	SI_Sierra	BRUNSWICK 1103	3632	BRUNSWICK 11032784
Bay Area	NB_North Bay	LAS GALLINAS A 110	7713	LAS GALLINAS A 110599904
North Valley	NV_North Valley	DESCHUTES 1104	1661	DESCHUTES 11049718
Sierra	SI_Sierra	BROWNS VALLEY 110	7209	BROWNS VALLEY 110193870
North Valley	NV_North Valley	COTTONWOOD 1101	6616	COTTONWOOD 110168190
Central Valley	YO_Yosemite	OAKHURST 1103	4692	OAKHURST 110363334
Sierra	SI_Sierra	WISE 1102	105	WISE 11022054
Sierra	SI_Sierra	SHINGLE SPRINGS 21	1980	SHINGLE SPRINGS 210912392
North Coast	HU_Humboldt	WILLITS 1103	1520	WILLITS 110391810
Sierra	SI_Sierra	LINCOLN 1104	4729	LINCOLN 11042070
Central Valley	FR_Fresno	TIVY VALLEY 1107	6372	TIVY VALLEY 1107584840
North Valley	NV_North Valley	DESCHUTES 1104	1301	DESCHUTES 1104circuit_breaker
Sierra	SI_Sierra	BRUNSWICK 1103	957	BRUNSWICK 1103circuit_breaker
Central Valley	YO_Yosemite	SAN JOAQUIN NO2 1	1374	SAN JOAQUIN #2 110310320
Central Valley	YO_Yosemite	COARSEGOLD 2103	1577	COARSEGOLD 210310820
North Valley	NV_North Valley	DESCHUTES 1104	3707	DESCHUTES 11049726
Sierra	SI_Sierra	DIAMOND SPRINGS 1	2148	DIAMOND SPRINGS 110519910
Sierra	SI_Sierra	BRUNSWICK 1104	4033	BRUNSWICK 11041020
Sierra	SI_Sierra	BRUNSWICK 1104	1085	BRUNSWICK 11042112
Central Coast	CC_Central Coast	CAMP EVERS 2105	1759	CAMP EVERS 210510912
North Valley	NV_North Valley	GIRVAN 1101	5926	GIRVAN 11011330
North Valley	NV_North Valley	GIRVAN 1101	5137	GIRVAN 11011636
North Valley	NV_North Valley	GIRVAN 1101	4392	GIRVAN 11019732
Central Coast	SJ_San Jose	MORGAN HILL 2105	3082	MORGAN HILL 2105XR564
North Valley	NV_North Valley	OREGON TRAIL 1103	2683	OREGON TRAIL 11031500
Central Coast	LP_Los Padres	PASO ROBLES 1103	6910	PASO ROBLES 1103N58
Central Coast	LP_Los Padres	SAN LUIS OBISPO 110	4945	SAN LUIS OBISPO 1107V60
Bay Area	NB_North Bay	SILVERADO 2104	5665	SILVERADO 2104632
Bay Area	NB_North Bay	SILVERADO 2104	4559	SILVERADO 210478268
Bay Area	DI_Diablo	SOBRANTE 1102	3496	SOBRANTE 1102circuit_breaker
Bay Area	PE_Peninsula	WOODSIDE 1101	5540	WOODSIDE 11018974
Sierra	SI_Sierra	APPLE HILL 2102	3166	APPLE HILL 2102186912
Sierra	SI_Sierra	APPLE HILL 2102	4943	APPLE HILL 210251792
Sierra	SI_Sierra	APPLE HILL 2102	3416	APPLE HILL 21027502
Sierra	SI_Sierra	APPLE HILL 2102	2628	APPLE HILL 210277546
Sierra	SI_Sierra	APPLE HILL 2102	2594	APPLE HILL 21028372
Sierra	SI_Sierra	BELL 1107	3016	BELL 1107circuit_breaker
Sierra	SI_Sierra	BELL 1107	2222	BELL 1108circuit_breaker
Sierra	SI_Sierra	BELL 1107	593	BELL 111056214
North Coast	HU_Humboldt	KONOCTI 1102	230	KONOCTI 11022293

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VIA ELECTRONIC MAIL

February 23, 2021

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Subject: Pacific Gas and Electric Company's Response to Audit of Implementation of Enhanced Vegetation Management Program in 2020

Dear Ms. Farley:

Pacific Gas and Electric Company (PG&E) respectfully submits this Enhanced Vegetation Management Audit Response and Corrective Action Plan (Plan) in response to the Wildfire Safety Division's (WSD) *Audit of PG&E's Implementation of their Enhanced Vegetation Management Program in 2020* (Audit Report) dated February 8, 2021. In the Audit Report, WSD instructed PG&E to submit the Plan no later than February 23, 2021.

In this Plan, PG&E addresses the seven Findings made in the Audit Report[1] and includes the nine Elements identified by WSD for the Plan.[2] This Plan is organized based on the nine Elements identified in the Audit Report. The responses to the Findings are included within these nine Elements.[3] Each element is stated as a section heading, followed by PG&E's response and proposed corrective action plan. The following table indicates where each of the findings are addressed in the Plan Elements:

[1] Audit Report at p. 17.

[2] Audit Report at pp. 17-18.

[3] PG&E's response addresses the specific Finding in the Audit Report. The Audit Report also includes narrative text accompanying each Finding. PG&E is not responding to every statement in the narrative, but instead is providing a response to the Finding itself as needed which are listed on page 17 of the Audit Report.

Element	Findings Addressed
1. 2021 WMP Plan	N/A
2. Summary of EVM risk prioritization	Findings 1 and 2
3. 2021 EVM Projects	Findings 4 and 5
4. Targeting Circuits with Highest Risk	N/A
5. December Model methodology	Finding 3
6. Circuit prioritization in 2020	N/A
7. Reporting and implementation of risk modeling	N/A
8. Signed statement regarding defect corrections	Findings 6 and 7
9. Signed statement regarding complete and thorough responses	N/A

PG&E appreciates the thoroughness and detail of WSD's Audit Report and looks forward to working with WSD to develop and implement a corrective action plan that will address the issues and concerns raised by WSD.

1. A clear description of the specific location within PG&E's 2021 Wildfire Mitigation Plan that will detail its 2021 EVM initiatives

PG&E's distribution Enhanced Vegetation Management (EVM) program is primarily addressed in Section 7.3.5 of the 2021 Wildfire Mitigation Plan (WMP)[4], which is available at www.pge.com/wildfiremitigationplan. PG&E's EVM efforts are integrated into our overall Vegetation Management (VM) efforts. The following sections are where the primary focus areas of the EVM program are outlined:

- Section 7.3.5 *Overview*, beginning on page 623, provides an overview of the EVM program;
- Section 7.3.5.2 *Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment* references our inspection activities including those performed as part of the EVM program;
- Section 7.3.5.5 *Fuel Management and Reduction of "Slash" From VM Activities* includes fuel reduction work performed as part of the EVM program on a portion of the circuits being worked through the EVM program; and,

[4] 2021 WMP at pp. 623-683.

- Section 7.3.5.15 *Remediation of At-Risk Species* focuses on the removal of at-risk tree species, one of the primary aspects of the EVM program.

In addition, the following sections apply to multiple VM activities including EVM, but are not unique to EVM:

- Section 7.3.5.1 *Additional Efforts to Manage Community and Environmental Impacts* references community and environmental partnership activities to support numerous VM programs including, but not exclusive to, EVM;

- Section 7.3.5.6 *Improvement of Inspections* references the Work Verification (WV) process that PG&E uses to assess EVM work;

- Section 7.3.5.13 *Quality Assurance/Quality Control of Inspections*, particularly the response to Action Item PGE-76, provides more detail about the WV process used for EVM work; and,

- Section 7.3.5.19 *Vegetation Inventory System* discusses PG&E's VM data inventory system which is leveraged for the EVM program as well as other VM programs.

Finally, there are portions of the 2021 WMP that address other aspects of PG&E's wildfire mitigation efforts that directly or indirectly impact EVM, including:

- Section 4.1 discusses some of the lessons learned in 2020 regarding EVM;

- Sections 4.3, 4.5.1, and 7.3.1.1 discuss risk modeling and how PG&E's risk modeling will be used to inform workplans in 2021, including the EVM program workplan;

- Sections 5.4.1 and 5.4.2 discuss workforce planning for VM, which includes EVM work; and,

- Section 7.2.A discusses monitoring and auditing of EVM work.

2. A summary of the key differences between PG&E's 2020 EVM risk prioritization effort, its planned 2021 EVM risk prioritization for 2021 EVM projects and how the 2021 prioritization will target the highest risk areas

In this section of PG&E's Plan, we: (a) summarize our 2020 EVM risk prioritization effort; (b) respond to Findings 1 and 2 in the Audit Report, including the subparts for Finding 2; (c) discuss PG&E's 2021 EVM risk prioritization and how that prioritization will target the highest risk areas; and, (d) describe additional improvements that we are making to address concerns raised in the Audit Report.

a. Summary of 2020 EVM Risk Prioritization Effort

In late 2018 and early 2019, PG&E developed a risk-based model to prioritize system hardening, EVM, and enhanced inspection activities using a model that considered: (1) likelihood of ignition; (2) likelihood of wildfire spread and consequence score; and (3) egress factor. This model was discussed in PG&E's 2019 Wildfire Mitigation Plan, Sections 3.2.2, 3.3, and 3.5.[5] This model has been referred to by PG&E as the "Wildfire Risk Assessment Prioritization Output," the "2018 Wildfire Risk Assessment Prioritization Output" based on its year of creation, and the "2019 Wildfire Risk Assessment Prioritization Output" for the year it was being used for risk-based decision making. WSD refers to this model as the "September model" in the WSD Audit Report.[6] For ease of reference in this response, PG&E will refer to this as the September Model.[7] However, it is important to note that PG&E is working to improve its model descriptions in part by using consistent naming conventions. This improvement is discussed below. Thus, each time the September Model is referenced, PG&E will also include a footnote identifying the model based on the naming convention established for the 2021 WMP. That way, we will improve our clarity as to which model is specifically being referred to in our responses.

During 2020, PG&E revised the September Model[8] with the Risk Value Overlay, referred to by the WSD as the December Model.[9] PG&E used the December Model[10] to focus on additional safety and reliability risks such as capacity, reliability, prior-year public safety power shutoffs (PSPS), and safety. PG&E considered the December Model[11] to be an improvement over the September Model.[12] The December Model was used by PG&E's VM department to inform our workplans for 2020.

Finally, during 2020, PG&E developed the 2021 Wildfire Distribution Risk Model. This model was used to inform prioritization of EVM work in 2021 and is described in more detail below in Section 2.c.

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[5] 2019 WMP at pp. 22-28 and 31-34.

[6] WSD Audit Report at p. 6.

[7] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[8] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[9] WSD Audit Report at p. 6. The Risk Value Overlay or December Model was not referred to in PG&E's 2021 WMP. Thus, the Risk Value Overlay is not included in the 2021 WMP Glossary of Models. *See* 2021 WMP, Section 9.5. In this response, for consistency with the WSD Audit Report, PG&E will refer to it as the December Model but will add a footnote with the name reference to the Risk Value Overlay.

[10] Also referred to as the Risk Value Overlay.

[11] Also referred to as the Risk Value Overlay.

[12] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

PG&E recognizes that it in prior WMPs and related materials it has used different terminology to describe the same model, which has resulted in confusion in some data request responses and in WMP related materials. PG&E has also not been clear how models have changed or been revised. In an effort to address this inconsistency and improve our modeling descriptions and discussion, in our 2021 WMP we included in Section 9.5 a Model Glossary and used consistent naming conventions for models throughout the 2021 WMP. We intend to use these naming conventions going forward and, for future models, will develop consistent naming conventions.

b. Responses to Findings 1, 2 and 2A-2C

(1) Finding 1

Finding 1 states:

> PG&E failed to communicate its use of a new Risk Overlay Model and has provided the WSD with conflicting information regarding when different risk prioritization models were utilized.

PG&E acknowledges that it failed to clearly and timely communicate to WSD changes that it was making to its modeling for its 2020 EVM workplan. As the Audit Report correctly notes, PG&E first informed WSD of its use of the December Model[13] on November 10, 2020 in response to a WSD inspection report.[14] PG&E also acknowledges that its communications as to how it is using different models and the information being provided to WSD has not been clear. We are committed to clear and timely communications going forward, including the improvements described in Section 2.d below. PG&E has also met multiple times with WSD beginning in December 2020 to have a more in-depth discussion regarding its risk modeling and how it will be used in 2021. We are hopeful that these efforts will provide more clarity going forward.

PG&E disagrees, however, with the statement in Finding 1 that PG&E did not provide sufficient data in response to Guidance-3 adopted in Resolution WSD-002.[15] PG&E responded to Guidance-3 on July 27, 2020. WSD reviewed PG&E's response and issued a deficiency on December 30, 2020. In its evaluation, WSD identified seven Action Items for PG&E with regard to Guidance-3. PG&E has provided the information requested in those Action Items in its 2021 WMP.[16]

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[13] Also referred to as the Risk Value Overlay.

[14] Audit Report at p. 5, Item #8

[15] Audit Report at p. 6.

[16] *See* 2021 WMP at pp. 157-158, Table PG&E-4.6-1 (identifying each of the seven Action Items on Gudiance-3 and where the Action item is addressed in PG&E's 2021 WMP).

(2) Finding 2

Finding 2 states:

> The WSD has received three different EVM prioritization models from PG&E (in September 2020, December 2020, and January 2021) and finds that these three data submissions contain inconsistencies and conflicting information.[17]

PG&E confirms that the WSD received three different sets of EVM prioritization submissions during the months specified in Finding 2. As explained above in Section 2.a, the September[18] and December[19] Models were developed separately. The September Model[20] was used initially in 2020 for EVM workplans, but was subsequently replaced by the December Model.[21] PG&E also confirms that the results of these two models differed because of a different methodology and approach was used for each.

The submission to the WSD in January 2021, referred to by the WSD as the January Model[22] was PG&E's "Work Verification Report" which is not a model, but an operational spreadsheet developed by PG&E's VM department to plan and track vegetation management activities and progress. PG&E VM department provided this documentation to WSD to show tracking progress of work in the field performed on EVM. The Work Verification Report is a weekly tracking report that is exported from the EVM database with validation of work completed and work still outstanding, as well as information regarding plan ranking. This report is utilized to illustrate work mileage that is verified and deemed complete for a given area or segment. In short, it is a tracking spreadsheet for EVM work. However, for purposes of this Plan and consistency with the Audit Report, PG&E will refer to this as the January Model. PG&E confirms that some of the information in the January Model regarding prioritization differed from the December Model.[23]

Thus, Finding 2 should be clarified to state:

> The WSD has received two different EVM prioritization models from PG&E (in September 2020 and December 2020) and finds that these two

[17] Audit Report at p. 17.

[18] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[19] Also referred to as the Risk Value Overlay.

[20] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[21] Also referred to as the Risk Value Overlay.

[22] Audit Report at p. 7.

[23] Also referred to as the Risk Value Overlay.

data submissions have different results because of the different methodologies used in these models. PG&E's third submission to WSD, in January 2021, was a weekly tracking report which had information that differed from some of the information in the December 2020 model.

(3) Finding 2A

Finding 2A states:

> The three models contain different terminology.

Finding 2A is correct that the models contain different terminology for the same or similar elements. Regarding the use of "Feeder" versus "Circuit", PG&E's nomenclature uses the circuit name (usually a regular name such as "Pueblo") followed by the substation feeder (usually a four-digit numeric). For the purposes of comparison, they can be considered the same as interpreted by the WSD.

Regarding the "Mileage" nomenclature, PG&E acknowledges that some heading names are different, but for the purposes of this audit, "Tier 2/3 OH Miles" in the September model[24] are the same as "HFTD Miles from KPMG" in the January model. The "OH Miles" listed in the December Model include the entire electric distribution system.[25] For the actual mileage values, PG&E confirms that there are differences in the mileages associated with the various models and this reflects the Geographic Information System (GIS) snapshot at the time the model was constructed. PG&E's GIS system is continually updated with additions, removals and changes to circuit configuration.

(4) Finding 2B

Finding 2B states:

> The total number of circuits included in each model differs:

PG&E confirms that the number of circuits listed in each model is different. For the September Model[26] the circuits listed are only the circuits with HFTD Tier 2 and Tier 3 overhead mileage as of the date the model was constructed (late 2018/early 2019). For the December Model[27], PG&E lists all circuits in its service territory, including both overhead (OH) and underground (UG) locations, since this model considers additional

[24] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[25] Also referred to as the Risk Value Overlay.

[26] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[27] Also referred to as the Risk Value Overlay.

attributes beyond wildfire alone (*e.g.*, traditional safety and reliability programs). The January Model contains the circuits where EVM activities will be performed.

(5) Finding 2C

Finding 2C states:

> Risk score rankings and total circuit mileage, data that the WSD considers integral to risk-based work planning, is inconsistent across models

PG&E confirms that the models provided to WSD produce different results based on the data used and the intended purpose of each model. For example, the September Model[28] was developed based on GIS information in late 2018 - early 2019. More importantly, the September Model[29] was developed specifically for wildfire risk assessment and comprised three components: likelihood of ignition, spread and consequence, and egress.[30]

The December Model[31] used wildfire as only one of its attributes as PG&E considered other consequential impacts to customers such as safety and reliability, so circuits outside of HFTD Tier 2 and Tier 3 areas will have a zero score for wildfire but may have scores for safety and reliability. Thus, considering these different factors, the risk score rankings were different between the September and December Models.

Finally, the January Model, which is an operational planning spreadsheet, included prioritization from the EVM tree-weighted prioritization list to determine EVM work locations for 2021. The EVM tree-weighted prioritization list is explained in more detail in Section 2.c. below.

c. PG&E's 2021 EVM Risk Prioritization and Targeting the Highest Risk Areas

PG&E's corrective actions in response to the Audit Report, including its 2021 risk prioritization for the EVM program and how it will prioritize the highest risk areas, are described below.

First, with regard to PG&E's 2021 risk prioritization for the EVM program, PG&E is starting with the 2021 Wildfire Distribution Risk Model for planning EVM program work

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[28] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[29] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[30] These components were described in PG&E's 2019 First Amended WMP at pp. 32-33 and were also described with regard to system hardening in PG&E's 2020 WMP at pp. 5-143 – 5-144.

[31] Also referred to as the Risk Value Overlay.

activities in 2021. The 2021 Wildfire Distribution Risk Model is described in detail in Section 4.5.1 of the 2021 WMP which explains in part:

> The 2021 Wildfire Distribution Risk Model seeks to quantify the risk of wildfire represented by the probability of ignitions associated with electric grid infrastructure combined with the consequences if that ignition propagates into a wildfire. The 2021 Wildfire Distribution Risk Model is a set of models that represents failure modes, or risk drivers, underlying ignitions and the consequences of wildfire. These models comprise the components of the wildfire risk formula:
>
> Wildfire Risk = Ignition Probability x Wildfire Consequence
>
> The "Ignition Probability" portion of the 2021 Wildfire Distribution Risk Model is modeled according to the risk drivers identified in PG&E's 2020 RAMP Report for wildfire risk. From among these risk drivers, the 2021 Wildfire Distribution Risk Model developed probabilities for vegetation and equipment failure caused ignitions as they represent 38 percent and 26 percent systemwide of the grid related ignitions respectively. Within equipment failures, the 2021 Wildfire Distribution Risk Model has developed probabilities for conductor failures. As described in Section 4.3, future modeling efforts will add failure models for other drivers such as 3rd party contact and for electric grid equipment such as poles and transformers. The modeling framework established with this model will accommodate the future addition of such models.
>
> The "Wildfire Consequence" portion of the 2021 Wildfire Distribution Risk Model focuses on impact measures such as acres, number of structures, and variables describing the nature of the fire such as flame length and rate of spread. The key improvement for the 2021 Wildfire Distribution Risk Model is tied to the advanced modeling capabilities of the Technosylva fire simulation tools. In the 2019-2020 Wildfire Risk Model, REAX Engineering provided simulations that relied heavily on the concentration of fuels to determine the potential for an ignition to propagate to a wildfire. While informative, the Technosylva simulation tool improves on this capability by modeling what fire science refers to as ladder fuels whereby an ignition will propagate from low fuels such as grass and brush to increasingly denser fuels leading to treetop, as well as updated ground fuels, buildings and population data layers. The result is a more accurate representation of the potential consequences of wildfire in the wildland

urban interface and the broader Tier 2 and Tier 3 HFTD areas modeled. Future model versions will model the entire PG&E distribution system.[32]

The 2021 EVM workplan was developed beginning with the 2021 Wildfire Distribution Risk Model, but included three modifications to develop a workplan to focus on high-risk circuit segments. Modifications were required because the 2021 Wildfire Distribution Risk Model looks at the overall risk caused by vegetation that exists in each area, it neither considers tree count within the vicinity of the grid nor the completed miles that were captured in 2019 and 2020. The modified 2021 Wildfire Distribution Risk Model, which is referred to as the EVM tree-weighted prioritization list, incorporates these changes to present a prioritization of high risk circuit segments and associated miles and tree work will be different to the 2021 Wildfire Distribution Risk Model prioritized circuit segments. The three modifications are summarized below.

The first modification re-aggregated the risk from 100m x 100m pixels to 1 km x 1 km grid areas. The 100m x 100m risk pixels, that each have a MAVF core risk score associated with them, were re-aggregated into ~1km x 1km Grid Areas. The rationale for re-aggregating to this level is that the 2021 Wildfire Distribution Risk Model needs to be operationalized for EVM work in order to determine the exact locations and volumes of work that will be required in each of these locations. The level of accuracy needed for EVM would be within a 1 km x 1 km grid area which is the most granular level of detail from an EVM standpoint. The grid area is then assigned to a single circuit segment Circuit Protection Zone (CPZ) (*i.e.*, the CPZ that has the most mileage in the grid area). All the risks in the grids that are assigned to the same circuit segment are aggregated in order to obtain a new risk score for a circuit segment.

The second modification estimated the number of trees per grid. The team used LiDAR that that was taken across the 25,000 miles of HFTD distribution circuit area to predict the extent of tree work existing along the circuits. The LiDAR data was obtained in mid-2019 to early 2020 and was analyzed to identify potential trees that would require EVM work. Inspectors subsequently visited ~5,000 miles of circuit segments where the data was collected and analyzed. They were able to validate the LiDAR information and add data points where the LiDAR analysis did not identify a tree that would require work. The data that the inspectors collected along the ~5,000 miles of circuit was used as part of a regression analysis to predict the amount of work that exists along the remaining ~20,000 miles of circuits. The amount of tree work that exists within a grid was then aggregated along the circuit segment.

The third modification weighted each circuit segment by the remaining tree work. The results of the predicted tree work on the circuit segment based on LiDAR data analysis were combined with the amount of miles and the number of trees that have already been

[32] 2021 WMP at pp. 130-131.

completed on the circuit segment to estimate the Remaining Tree Work on the circuit segment. The number of remaining trees were then used to weight the circuit segment risk. The discounting of the Work Completed is performed on the tree count.

In summary, the EVM tree-weighted prioritization list used the following formula to prioritize EVM work in 2021:

> Tree Weighted Risk = (VM Wildfire Risk output from 2021 Wildfire Distribution Risk Model) x (% CPZ Remaining) x (Trees requiring work in CPZ)

To provide further information for WSD, PG&E is including Attachment A to this Plan which is a whitepaper describing the EVM tree-weighted prioritization list.[33]

d. Additional Improvements

In addition to the model improvements described above in Section 2.c, PG&E is also making improvements to its risk modeling process and data responses to avoid confusion in the future. Specifically, PG&E recognizes that nomenclature and terminology relating to its assets, models and processes can be confusing and that, in past responses and WMP-related documents, we have used inconsistent or unclear terminology. As a result, PG&E's 2021 WMP seeks to use consistent terminology and includes a Model Glossary. We intend to use the Model Glossary going forward for data responses and other WMP-related materials, and to add to the glossary as new models are developed.

3. A complete and detailed list of planned 2021 EVM projects

Attachment B to this Plan includes the EVM projects approved by PG&E's Wildfire Risk Governance Steering Committee for execution in 2021. The 2021 EVM projects were reviewed and refined by a team of public safety specialists, including former California Department of Forestry and Fire Protection (Cal FIRE) employees, based on their operational expertise and knowledge of the specific high-risk areas. Some areas initially identified for EVM work were removed after the field review causing a decrease in the total approved mileage to 1,749. Additional locations are currently being evaluated by the same public safety specialists to be added to the list to align with the 2021 target of approximately 1,800 high risk miles, as well as to identify contingency miles needed for operational needs. All changes to the 2021 EVM plan will be reviewed and approved by the Wildfire Risk Governance Steering Committee.

[33] The whitepaper outlines the methodologies for developing the EVM tree-weighted prioritization list as well as the data sources used, the general context as to why it was performed, and outcomes. If WSD would like the underlying data and spreadsheets referred to in the whitepaper, PG&E can provide these materials.

In the remainder of this section, PG&E addresses Finding 4 and Finding 5.

a. Finding 4

Finding 4 states:

> PG&E appears to not be sufficiently prioritizing or reducing the risk of wildfire ignition in its implementation of its EVM initiative

PG&E is hopeful that its responses to Elements 2 and 3, including the explanation of how we are prioritizing EVM work in 2021 and the actual 2021 EVM workplan, will address WSD's concerns regarding prioritization. We welcome further input from WSD regarding our EVM 2021 workplan or the prioritization resulting from the EVM tree-weighted prioritization list.

b. Finding 5

Finding 5 states:

> PG&E's January 13, 2021 data request response does not provide confidence that PG&E's risk prioritization activities are being effectively operationalized

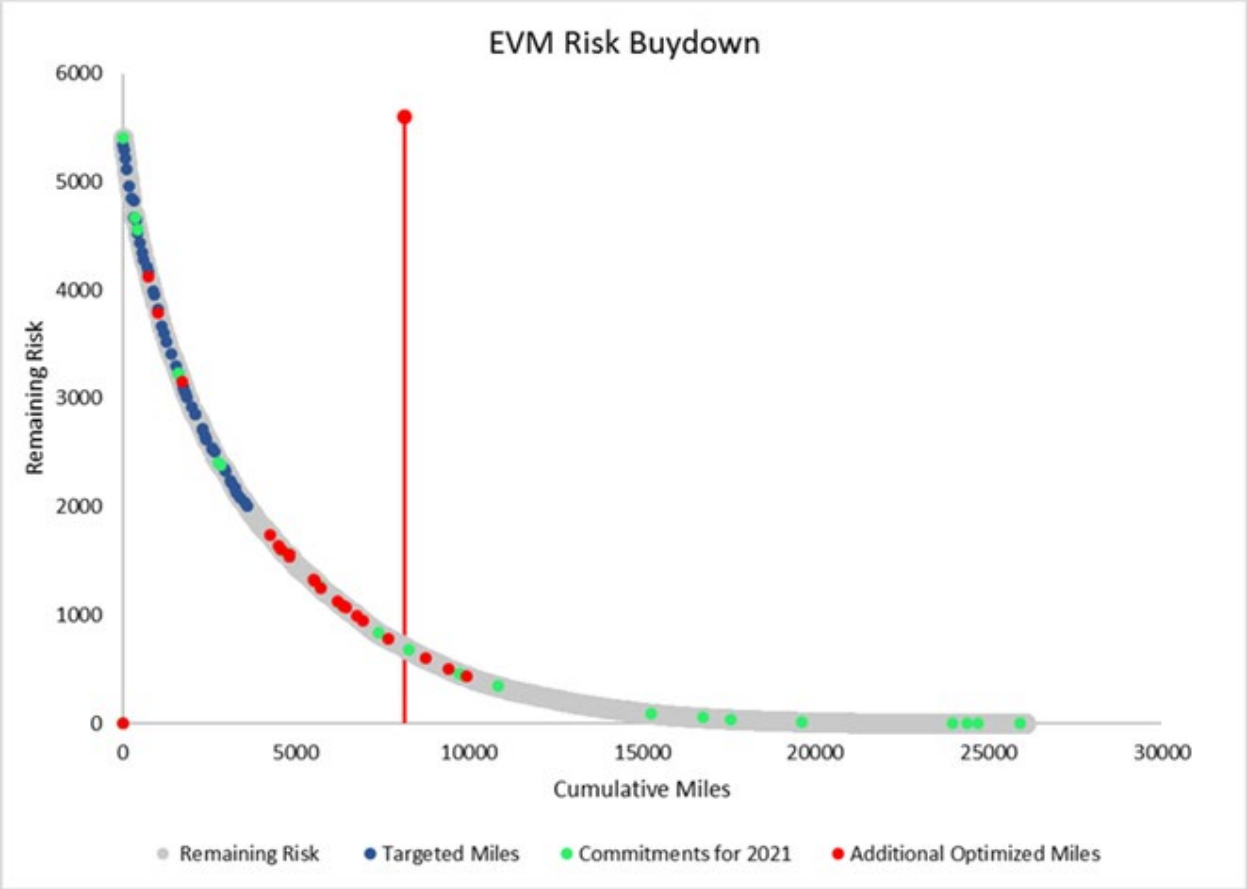
As indicated above, we are hopeful that our responses to Elements 2 and 3, including the explanation of how it is prioritizing EVM work in 2021 and the actual 2021 EVM workplan, will address WSD's concerns regarding prioritization.

4. A description of how the list in #3 ensures PG&E is targeting the circuits with highest risk first

The projects in the 2021 EVM work plan are focused on doing work on the top 20% of the circuit protection zones based on the EVM tree-weighted prioritization list. The circuit protection zones are ranked from highest risk to lowest risk and are represented on Figure 1 below as the risk buydown curve.[34] The work that is included in the list in response to Element 3 is plotted on the risk buydown curve showing how it is focused on the highest risk as indicated in Figure 1.

[34] A "buydown curve" refers to declining residual risk when as risk is mitigated through a program such as EVM.

Figure 1: 2021 EVM Plan Risk Reduction[35]



Approximately 59% of the 2021 EVM projects tackle the riskiest 10% of vegetation. The 2021 EVM project workplan also includes miles that target strategic mileage across the risk buydown curve. Some of these miles (~20%) are regional commitments, historical work and operational considerations, resulting in lower average risk reduction per mile. The remaining miles in the 2021 EVM work plan (~21%) were selected due to their high risk and importance in the EVM tree-weighted prioritization list.

5. A detailed explanation of the methodology underlying the scores in the December model

[35] In Figure 1, Targeted Miles are miles in the 2021 EVM work plan directed at highest risk CPZs; Commitments for 2021 are additional miles we have agreed to do based on proximity, or permitted to do in 2021; Additional Optimized Miles are miles we plan to do in 2021 based on operational effectiveness/optimization from being in the same area as another CPZs; and Remaining risk are miles not being remediated in 2021 (residual risk).

In this section, PG&E addresses Element 5 providing an explanation of the scores in the December Model[36] and a response to Finding 3.

a. Methodology Underlying the December Model

The objective of the December Model[37] was to develop a distribution circuit ranking to prioritize the proposed work in the 2020 EVM workplan that would take into account fire and non-fire consequences. The methodology was to rank the distribution circuits based on potential consequences. The five consequences utilized (identified below) represent possible consequences resulting from outages that might occur due to not completing identified work in the 2020 EVM workplan. This circuit ranking was not a risk score nor is it a true probability of failure; as such it informs the prioritization of work but does not quantify the degree that one circuit is a higher or lower risk than another.

The five consequences considered were:

1. Wildfire: Maximum REAX[38] score for each circuit as measure of Wildfire spread from the 2018/19 "Wildfire Distribution Risk Assessment Prioritization Output" (September Model.)

2. Capacity: % peak loading/capacity

3. Reliability: Average SAIFI/SAIDI ration for the previous five years

4. PSPS: Customer Experiencing Sustained Outage (CESO)/circuit for 2018 and 2019

5. Safety: Population density/square mile

Measures of five consequences were compiled for each circuit. The values for all five consequences were converted to a 1- 100 scale. These five values were then equally weighted to develop a circuit score.

b. Finding 3

Finding 3 states:

> The WSD has identified concerns in the methodology used to arrive at the final risk score rankings provided in the December model

[36] Also referred to as the Risk Value Overlay.

[37] Also referred to as the Risk Value Overlay.

[38] Reax Engineering fire propagation and consequence model was used in 2019 and subsequently replaced by Technosylva.

Specifically, WSD pointed to the equal weighting of the five consequences described above in Section 5.a and concerns that the Safety score was inverted.[39] The Safety component generally scores low when some of the other consequence values tend to be higher. Population density along the length of the circuit would not necessarily correlate well with PSPS, Wildfire, or even Reliability. It was for this reason that the safety score was included to provide weighting to assist in prioritizing workplans in non-wildfire locations.

6. A description of the circumstances that contributed to PG&E's failure to adequately prioritize the highest risk circuits in EVM in 2020, including a detailed explanation that lists any and all factors that led to the decision to not prioritize the top 20 circuits with zero work completed (based on both the September and January risk score rankings)

As explained above in Element 5, PG&E acknowledges that in 2020, we did not prioritize EVM work based solely on risk rankings of the highest risk circuits. As a result, on some the highest risk circuits, work was not performed or only a percentage of the work was performed, as WSD indicates in its Audit Report. As we explained in the Executive Summary of the 2021 WMP regarding lessons learned in 2020:

> In some cases, and for several reasons including the longer cycle time associated with completing the more densely vegetated sections of our system, lower priority circuit segments were being completed before higher priority circuit segments.[40]

We recognize that the approach used in 2020 was not adequate and thus we have substantially revised our approach for EVM planning in 2021. As our 2021 WMP explains:

> For 2021, PG&E is resolving this gap through increased control and validation of the workplan. First, we have implemented the updated risk model described above and are targeting the highest risk circuit segments. Second, we have increased the controls around the actual circuit segments that will be completed. The newly formed WRGSC is responsible for approving the selection of EVM work locations using the new risk model that prioritizes high risk circuits/segments and monitoring regular reporting of work completed. Third, we have aligned our incentives on this work so that achieving target performance will require that 80 percent of the work

[39] Audit Report at p. 10.

[40] 2021 WMP at p. 5; *see also* 2021 WMP at pp. 46-47.

> completed over the next three years be performed on circuit segments that are among the top 20 percent highest risk.[41]

In addition, as we explained in our *Response to Order Regarding Monitor Letter* filed in *United States v. PG&E,* Case No. 14-CR-00175-WHA submitted on November 3, 2020 ("Monitor Response"):

> Specifically, under leadership from a recently appointed Chief Risk Officer—who reports to the CEO, updates the Board frequently and has been consulting directly with the Monitor as well as other independent safety observers—PG&E is developing a more rigorous, systematic and transparent process for selecting areas to be worked for EVM so that the percentage of PG&E's work that is targeted toward the riskiest areas increases. For the 2021 workplan, PG&E's Chief Risk Officer will be responsible for overseeing, among other things, a programmatic approach to selecting areas for work and measuring in advance what percentage of risk will be eliminated under the current approved risk model, as well as coordinating such work with system hardening efforts. In areas where insufficient risk will be eliminated, the Chief Risk Officer's mandate is to re-evaluate whether there is a different approach to eliminate more risk. Part of this effort will entail evolving from exclusively volume-based metrics (such as completed miles) to metrics that also quantify risk reduction. Reporting to the Chief Risk Officer on these efforts will be PG&E managers responsible for Wildfire Safety, Major Projects, Asset and Risk Management, and Audit. PG&E has invited the Monitor to attend and provide feedback during the weekly meetings of this group to review and consider the plans and risk reduction targets for EVM and other wildfire mitigation work in 2021.[42]

7. A description of the circumstances that contributed to PG&E management's inconsistent reporting on the use and implementation of its risk modeling

PG&E apologizes for the confusion created by our communications with the WSD related to the risk models used for informing the prioritization and selection of EVM work in 2020. The nature of the back-and-forth engagement between PG&E and WSD staffs did not result in understanding of which risk model was relevant to different periods of time. PG&E should have been much more clear about the fact that the risk quantification model used to inform EVM work selection and prioritization was updated during 2020.

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[41] 2021 WMP at p. 6; *see also* 2021 WMP at p. 47.

[42] Monitor Response at pp. 2-3.

The circumstances that lead to the misunderstanding include:

1. As was noted in the Audit Report[43], in April 2020 PG&E shared information on our original 2018 risk prioritization model referred to at that time as the 2018 Wildfire Risk Assessment Prioritization Output or in the Audit Report as the September Model.[44] This first discussion, via the sharing of the "Risk Prioritization User Guide" focused originally on the System Hardening prioritization model which was used for both 2019 and 2020 work prioritization and selection of System Hardening work.

2. PG&E's July 27, 2020 Remedial Compliance Plan (RCP) submission was not clear about the use of the December Model[45] to prioritize 2020 EVM work. The reason for this is that we did not consider the December Model[46] a new wildfire risk quantification tool as it continued to use the existing 2018 Wildfire Risk Assessment Prioritization Output as the wildfire risk factor. We did not consider the December Model[47] to be an entirely new model, and thus did not identify it in our RCP. Rather, for limited purposes, additional risk scores for Capacity, Reliability, PSPS, and Safety were combined with the September Model[48] to create the December Model[49] which was then used by the EVM program to inform the 2020 work selection.

3. On September 29, 2020, when PG&E provided the September Model[50] to WSD, we failed, at that time, to clarify that this risk model, although the parallel risk model to the System Hardening model being asked for, was only used for prioritizing 2019 EVM work but was not used for the 2020 EVM work prioritization.

4. PG&E's response to a WSD Inspection Report on November 10, 2020 mentioned the "Risk Value Overlay Model" by name as the risk quantification model used to prioritize 2020 EVM work. Additionally, during a bi-weekly meeting between WSD and PG&E staff on November 10th, PG&E clarified that the "Risk Value Overlay model" was in fact used to inform prioritization of EVM work in 2020.

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[43] Audit Report at p. 4, Item 1.

[44] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[45] Also referred to as the Risk Value Overlay.

[46] Also referred to as the Risk Value Overlay.

[47] Also referred to as the Risk Value Overlay.

[48] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[49] Also referred to as the Risk Value Overlay.

[50] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

5. On December 4th PG&E provided a copy of the "Risk Value Overlay Model" (*i.e.*, the December Model) to WSD, but failed to provide an explanation as to the differences between the September Model[51] and the December Model[52] or to explain how the December Model[53] was used for prioritizing EVM work in 2020.

In sum, PG&E too narrowly answered WSD's questions as they were asked and failed to clearly communicate the shift to the December Model[54] for the 2020 EVM work prioritization and failed to provide the proper context alongside each piece of information being shared in each response. PG&E apologizes for this confusion. We have learned from this experience and believe we are on the right track in keeping the WSD and other stakeholders up to date on our new risk model for 2021, as discussed in our 2021 WMP and through a series of meetings that have been held between PG&E management and WSD and California Public Utilities Commission (CPUC) staff over the last two months.

8. A definitive, signed statement from PG&E's Vice President of Regulatory Affairs committing to notifying the WSD whenever a defect is corrected, even if PG&E is actively disputing the defect but chooses to remedy it for any reason

PG&E is committed to working with WSD to notify WSD of actions taken on identified "defects" stemming from their inspection activities. To date, WSD has not provided PG&E with information indicating the severity of the individual defects (*i.e.*, whether the defects are "severe" or "moderate"), and has identified conditions that do not meet the definition of a "defect."[55] In addition, PG&E was not aware that WSD desired notification of when findings were corrected. PG&E will continue to work with WSD to align on a workable process for notifying WSD of the status of all inspection findings, including corrective actions taken in the field. In response to this Element, PG&E is providing as Attachment C a signed statement from Robert Kenney, Vice President of Regulatory and External Affairs, addressing the requests for Elements 8 and 9.

In the remainder of this Element, PG&E addresses Findings 6 and 7.

a. Finding 6

Finding 6 states:

[51] Referred to in the 2021 WMP as the 2019-2020 Wildfire Risk Model.

[52] Also referred to as the Risk Value Overlay.

[53] Also referred to as the Risk Value Overlay.

[54] Also referred to as the Risk Value Overlay.

[55] "A defect is any condition noted that is inconsistent with the WMP initiatives or CPUC General Orders." Resolution WSD-012, Attachment 1: Wildfire Mitigation Plan Compliance Process at p. 4.

> The WSD documented four EVM defects through inspections, three of which remain open/unresolved

PG&E provided responses to each of WSD's inspection reports addressing the four EVM findings identified in this audit. WSD did not identify any of these alleged defects as either "severe" or "moderate" in its inspection reports or in its communications with PG&E. Through discussions with WSD subsequent to these findings, PG&E agreed to develop a more real-time communication process with WSD's inspectors to ensure alignment on what WSD observed in the field. PG&E also agreed to share its tracker of WSD findings to ensure alignment on status of corrective actions. PG&E welcomes the opportunity to work with WSD to better coordinate inspection activities.

b. Finding 7

Finding 7 states:

> PG&E has not communicated adequately with the WSD regarding circumstances including but not limited to: defect resolution (PG&E has corrected seven WSD-identified defects that were documented as disputed/unresolved without notifying the WSD), data requests, or city-impacting clearing projects

PG&E did not know that WSD wished to be notified of defect resolution. PG&E is committed to improving our communications with WSD regarding inspection findings and will provide regular status updates on defect resolution as requested by WSD.

9. A definitive, signed statement from PG&E's Vice President of Regulatory Affairs committing to providing complete and thorough responses to the WSD's requests for work plans, including all wildfire mitigation-related projects, regardless of internal project categorization.

Beginning in April of 2020, at the direction of WSD, PG&E began providing project details for work that was completed, in-progress, and scheduled to be started within two weeks for the EVM, System Hardening, and Distribution Sectionalization (PSPS Impact Mitigation) programs. PG&E provides an updated list every two weeks in response to this request from the WSD.

Over the last 10 months, based on feedback from and in response to updated requests from the WSD, the list of projects has been augmented with additional project information and to include planned projects that are not driven by wildfire risk (projects motivated by other needs such as capacity upgrades) that result in the construction of fire-hardened overhead assets in High Fire-Threat District (HFTD) areas. In just the last two months the request has been further updated by WSD staff and PG&E has begun providing similar project information on our Transmission system, including right-of-way

expansion vegetation management work and Transmission Switch installations (for PSPS mitigation). PG&E notes that this list of projects is dynamic in nature, as project work plans are frequently updated to address external circumstances that alter the course of planned work, such as weather, permitting, fire response and rebuild efforts or other considerations. In addition, emergency response and asset repair activities that may be similar to some of the included projects are not pre-planned and cannot be feasibly captured in this list of planned work.

PG&E remains committed to providing the WSD complete project information on the requested project work plans, through the established bi-weekly cadence, or until otherwise directed by the WSD. To the extent WSD staff identifies additional workstreams to be included we will work with WSD staff to understand the request and incorporate them as quickly as is feasible. At this time, the list of projects requested by and provided to the WSD captures all of the following workstreams:

1. Distribution EVM
2. Distribution System Hardening (which includes undergrounding projects)
3. Pre-planned overhead asset installation or replacements projects that are not driven by wildfire risk but that result in the installation of fire-hardened conductors and poles in HFTD areas
4. Distribution Sectionalization (PSPS Impact Mitigation)
5. Transmission right-of-way expansion vegetation management
6. Transmission Switch installations (PSPS impact mitigation)

Thank you for the opportunity to provide this response, and please let us know if you would like to discuss these matters further or would like additional information.

Sincerely,

/s/

Michael Ritter
Sr. Director, Vegetation Management Operations

cc: wildfiresafetydivision@cpuc.ca.gov

Attachments

PG&E 2021 Wildfire Distribution Risk Model with EVM Tree-Weighted Prioritization List

Description of Data Sources, Methodology and Outcomes

Updated: February 23, 2021

EVM Tree-Weighted Prioritization List

This document outlines the methodologies for developing the EVM tree-weighted prioritization list as well as the data sources used, the general context as to why it was performed, and outcomes.

Contents

1. **Context and Key Characteristics of the 2021 Wildfire Distribution Risk Model with EVM Tree-Weighted Prioritization List** 3
2. **Description of Data Inputs** 3
3. **Risk Prioritization Methodology** 4
4. **Outcomes** 9

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1. Context and Key Characteristics of the 2021 Wildfire Distribution Risk Model with EVM Tree-Weighted Prioritization List

The Enhanced Vegetation Management (EVM) team has been actively developing the 2021 plan to perform work on high risk Circuit Protection Zones (CPZs). To that effect, the team has analyzed various tree work scenarios and presented to the Wildfire Risk Governance Steering Committee the optimal plan that targets a certain number of the highest risk CPZs, the number of miles to be worked during the year and an estimated number of trees to be worked.

The prioritization list and supporting analyses developed should not be viewed as an effort that is separate to the 2021 Wildfire Distribution Risk Model but rather a focused prioritization of the model in order to develop an operational 2021 plan. While the 2021 Wildfire Distribution Risk Model looks at the overall risk caused by vegetation that exists in each area, it does not consider tree count within the vicinity of the grid or the completed miles that were captured in 2019 and 2020. The modified EVM tree-weighted prioritization list incorporates these changes to present a prioritization of high risk CPZs and associated miles and tree work that may be slightly different to the 2021 Wildfire Distribution Risk Model that prioritizes CPZ risk irrespective of what program has been in place in that specific area to reduce risk.

2. Description of Data Inputs

The primary file to be referred for the 2021 Wildfire Distribution Risk Model with EVM tree-weighted prioritization list and supporting analyses is “EVM_2021_Portfolio_Analysis_CPZ_v20201221”

The 2021 Wildfire Distribution Risk Model produced three CPZ roll-up summary files that were used as the basis for developing the EVM tree-weighted prioritization list. These included:

1) **VMD_trees_2019_pz_summary_hftd_23.csv** – Comprising a global summary of all trees known to the Vegetation Management Database (VMD) in 2019 and the risk they carried – the file is intended for use in planning and prioritization work

2) **EVM_2019_work_pz_summary_hftd_23.csv** – Comprising tree count and risk reduction calculations for the actual Business-As-Usual (BAU) EVM work from 2019; and

3) **EVM_2019_prioritized_work_pz_summary_hftd_23.csv** – Tree count and risk reduction calculations for the species-prioritized scenario with the same number of trees worked as the BAU scenario in the VM WRM.

Furthermore, each of the three files have the following CPZ-level summary information:

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- Each row in these files is a CPZ and thus the data in each row is specific to that row's CPZ
- Per-CPZ metrics are calculated by aggregating the metrics from the 100m pixels within (or "under") each CPZ.
- Tree information is sourced from the EVM database and VMD
- Outage ratings are in units of "expected outages per year"

The team also leveraged LiDAR data spanning 25,000 miles of HFTD distribution circuits to estimate tree work. The file used was "LiDAR_Accuracy_Analysis_20201106.xlsx" that identifies the total trees in the system (from regression analysis), total trees requiring work (from regression analysis and from sampling data).

3. Risk Prioritization Methodology

The methodology for the analysis consists of three steps:

3.1 Re-aggregation of risk:

The 100m x 100m risk pixels, that each have a MAVF core risk score associated with them, were re-aggregated into ~1km x 1km Grid Areas. The rationale for re-aggregating to this level is that the 2021 Wildfire Distribution Risk Model needs to be operationalized for EVM work in order to determine the exact locations and volumes of work that will be required in each of these locations. The level of accuracy needed for EVM would be within a 1 km x 1 km grid area which is the most granular level of detail from an EVM standpoint. The grid area is then assigned to a single CPZ (i.e., the CPZ that has the most mileage in the grid area). All the risks in the grids that are assigned to the same CPZ are aggregated in order to obtain a new risk score for a CPZ.

In the file "CPZ_STATISTICS_forR_2021Plan_20201217.xlsx", the "GRID_DATA" tab comprises 3,210 grid areas (each row represents one grid area) with corresponding information in columns A-BJ. The "TOTAL_GRID_ mavf_core_risk" (column F) is the total CPZ risk (sum of all the risks of CPZs assigned to that particular grid area). The "ZONE_RISK_INTENSITY_FACTOR" (column AC) represents the re-aggregated values for the "mean_mavf_core" values in the 2021 Wildfire Distribution Risk Model.

Columns U-BJ include the additional calculations as part of the analysis that include information on tree count in each grid area, the number of pre-inspection trees, the estimated remaining tree work, estimated remaining tree removal and the estimated cost to complete.

3.2 Estimating Tree Work per Grid

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The team used LiDAR that that was taken across the 25,000 miles of HFTD distribution circuit area to predict the extent of tree work existing along the circuits. The LiDAR data was obtained in mid-2019 to early 2020 and was analyzed to identify potential trees that would require EVM work. Inspectors subsequently visited ~5,000 miles of conductor segments where the data was collected and analyzed. They were able to validate the LiDAR information and add data points where the LiDAR analysis did not identify a tree that would require work. The data that the inspectors provided along the ~5,000 miles was used as part of a regression analysis to predict the amount of work that exists along the remaining ~20,000 miles of circuits. The amount of tree work that exists within a grid was then aggregated along the CPZ. The "LiDAR_Accuracy_Analysis_20201106.xlsx" contains the regression outputs in tabs "Total Valid Tree Reg", "Total Valid TPM Regression", "Total PI Init Regression", "Valid LiDAR Regression", "Total Tree Work Reg" and "Total Tree Removal Reg".

3.3 CPZ Weighting by Tree Work Remaining

The results of the predicted tree work on the CPZ based on LiDAR data analysis were combined with the amount of miles and the number of trees that have already been completed on the CPZ to estimate the Remaining Tree Work on the CPZ. The number of remaining trees were then used to weight the CPZ risk. The discounting of the Work Completed is performed on the tree count. So, Tree Work Adjusted Risk is calculated by:

$$\text{TW_ADJ_GRID_RISK} = [\text{ZONE_RISK_INTENSITY_FACTOR}] * [\text{ESTIMATED REMAINING TREE WORK}]$$

Alternatively,

$$\text{Tree-Weighted Risk} = [\text{VM Wildfire Risk}] * [\%\ \text{CPZ Remaining}] * [\text{Trees requiring work in CPZ}]$$

This means that the risk score produced by the 2021 Wildfire Distribution Risk Model is going to be reduced by a percentage multiplier to represent work remaining, then multiplied by a whole number representing the number of trees in the CPZ. The result will likely be quite different from the output of the 2021 Wildfire Distribution Risk Model as it will be heavily influenced by both the percent complete (0-1 scale) and the tree multiplier (0-n).

3.4 Independent Variables

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Independent variables are factors that may indicate the occurrence of the dependent variable. For this analysis, several different factors were considered for the CPZ/Grid level analysis. These factors are:

Data Column	Definition
PZ_IDX	The project-internal numerical CPZ identifier (used to correlate between raster data and protection zone data) - when referring to specific CPZs, please use the CIRCUIT_PR field noted below.
CIRCUIT_PR	The CPZ identifier, defined as the feeder name concatenated with the operating number of the protective device.
TOTAL_GRID_mavf_core_risk	sum of values of each risk pixel, or portion of pixel, that is inside of the MAPNO Grid areas covered by the CPZ.
GRID_RISK_AREA_SQHM	The total area covered by the risk pixels that are inside of the MAPNO Grid areas covered by the CPZ.
TOTAL_MILES	Total length of EVM conductor spans in the MAPNO Grid areas that are covered by the CPZ, in miles.
COMPLETED_MILES	Total length of EVM conductor spans in the MAPNO Grid areas that are covered by the CPZ completed to EVM scope, in miles.
REMAINING_MILES	Total length of EVM conductor spans in the MAPNO Grid areas that are covered by the CPZ remaining to be worked to EVM scope, in miles.
INSPECTED_MILES	Total length of EVM conductor spans in the MAPNO Grid areas that are covered by the CPZ that have been inspected to EVM scope, in miles.
ACTUAL_TREE_COUNT	Actual number of Trees that a PI has so far identified along the CPZ
ACTUAL_TREE_WORK	Actual number of Trees requiring some kind of work that a PI has so far identified along the CPZ
ACTUAL_TREE_WORK_REMOVAL	Actual number of Trees requiring removal that a PI has so far identified along the CPZ
COMPLETED_TREE_WORK	Number of trees that have already been worked along the CPZ

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COMPLETED_TREE_WORK_REMOVAL	Number of trees that have already been removed along the CPZ.
REMAINING_FACTOR	Percentage of CPZ that remains to be inspected. This is used to adjust the Estimated tree counts.
EST_TREE_COUNT	The estimation of how many EVM trees exist along the CPZ. If the "REMAINING_FACTOR" = 0, then the EST_TREE_COUNT will be equal to the ACTUAL_TREE_COUNT. If "REMAINING_FACTOR" =1, then the EST_TREE_COUNT will be based entirely on and estimate derived from the LiDAR data available along the CPZ. That LiDAR data is adjusted using a factor that was calculated from an analysis that used LiDAR data that was reviewed by an Inspector.
EST_TREE_WORK	The estimation of how many EVM trees that will require work exists along the CPZ. This column is calculated in a similar fashion to the EST_TREE_COUNT column, but uses an adjustment factor related to the trees requiring work, and doesn't include trees that need only be assessed.
EST_REMAINING_TREE_PI	The estimation of how many trees remain to be pre-inspected along the CPZ. This estimation is based on the EST_TREE_COUNT – ACTUAL_TREE_COUNT
EST_REMAINING_TREE_WORK	The estimation of how many trees remain to be worked along the CPZ. This estimation is based on the EST_TREE_WORK – COMPLETED_TREE_WORK
EST_REMAINING_REMOVAL	The estimation of how many trees remain to be removed along the CPZ. This estimation is based on the EST_TREE_REMOVAL – COMPLETED_TREE_REMOVAL
ZONE_RISK_INTENSITY_FACTOR	TOTAL_GRID_mavf_core_risk/ GRID_RISK_AREA_SQHM
TW_ADJ_GRID_RISK	ZONE_RISK_INTENSITY_FACTOR * EST_REMAINING_TREE_WORK
AVG_MAVF_CORE_RISK_RANK_RN	Risk Rank directly from the RaDA Dx Ranking method
Total CPZ Risk	RaDA Dx mean_mavf_core_risk for the CPZ times the number of risk pixels on the CPZ,
mean_mavf_core	The average across pixel-level MAVF core values in the protection zone

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CPZ_EXCLUSION	Filter for CPZs identified to be excluded from any workplans as they exist in System Hardening or have at least 90% work completed.
MUST_KEEP	Filter for CPZs marked as commitments to move into a plan regardless of its risk rank.
RISK_GROUP_Dx	1-n rank group by VM Wildfire Risk Model =[AVG_MAVF_CORE_RISK_RANK_RN] grouped into trenches of 10% intervals
RISK_GROUP_EVM	1-n rank by Tree Weighted model =([@[TW_ADJ_GRID_RISK]] grouped into trenches of 10% intervals
RISK_VALUE_ADDRESSED	=[Total CPZ Risk]]*[@[REMAINING_MILES]]/[@[TOTAL_MILES]]

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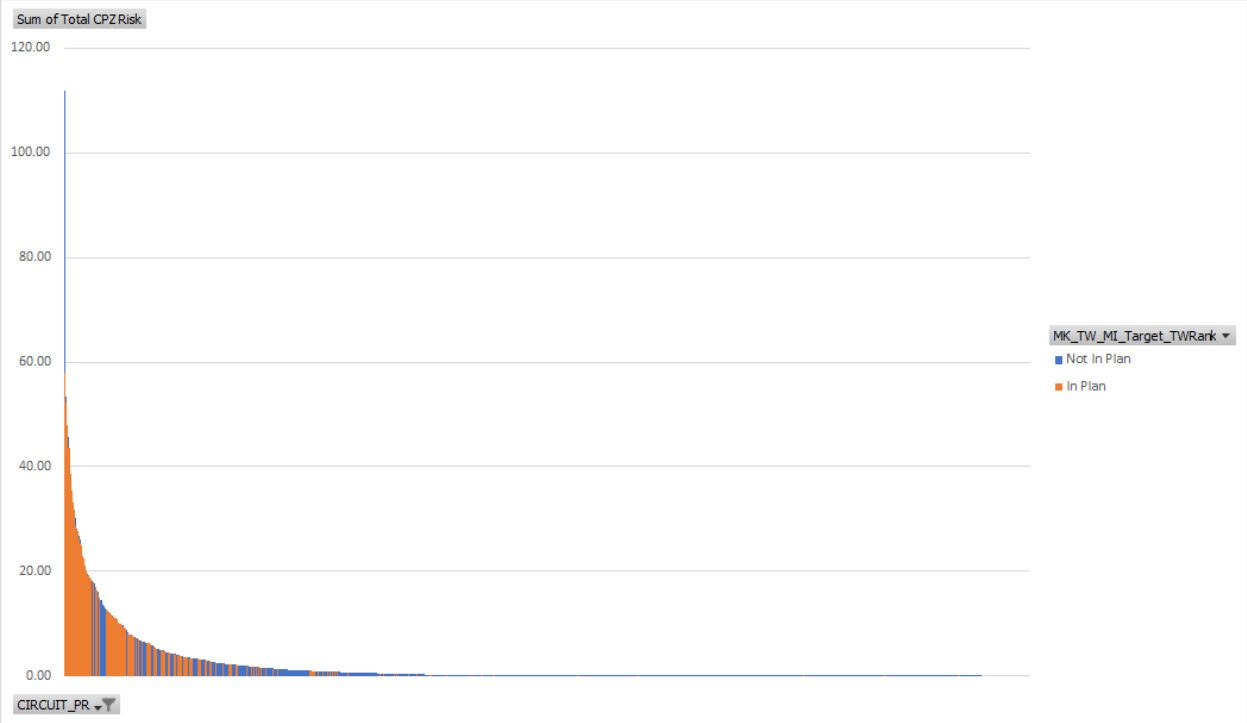
4. Outcomes

The main outcomes of the analysis can be found in the "Portfolio Analysis", "PIVOT - No Regrets" and "Dx Buy-down Graph" tabs in the "**EVM_2021_Portfolio_Analysis_CPZ_v20201221.xlsx**" file. The "Portfolio Analysis" tab provides estimated program costs, target miles and tree work figures by region and by risk tier for various plan scenarios. These include the following:

Plan/Scenario	Description
WGC_Approved_Plan	Plan identified and constrained by the Top 10% of risk in both the 2021 Wildfire Distribution Risk Model and the EVM tree-weighted prioritization list. Colloquially named "No Regrets". Plan yields 1,056 miles.
1800_Mile_Plan ($538M))	Plan identified and constrained by: CPZs that exist in MUST_KEEP, total miles, total tree work, and EVM Tree Weighted Prioritization List. Plan yields 1,800 miles.
$420M_Plan (1646 Miles)	Plan identified and constrained by total EVM Program cost allowance of $420M.
2100_Mile_Plan ($647M)	Plan identified and constrained by: CPZs that exist in MUST_KEEP, total miles, total tree work, and EVM Tree Weighted Prioritization List. Plan yields 2,100 miles.
MK_TW_MI_Target_TWRank	Plan identified and constrained by CPZs that exist in MUST_KEEP, Miles, total Tree Work, and EVM Tree Weighted Prioritization List. Plan yields 2,300 miles.
MI_Unconstrained_EVM_RR	Plan identified with no constraints based on the EVM tree-weighted prioritization list.
MI_Unconstrained_Dx_RR	Plan identified with no constraints based on the 2021 Wildfire Distribution Risk Model ranking.

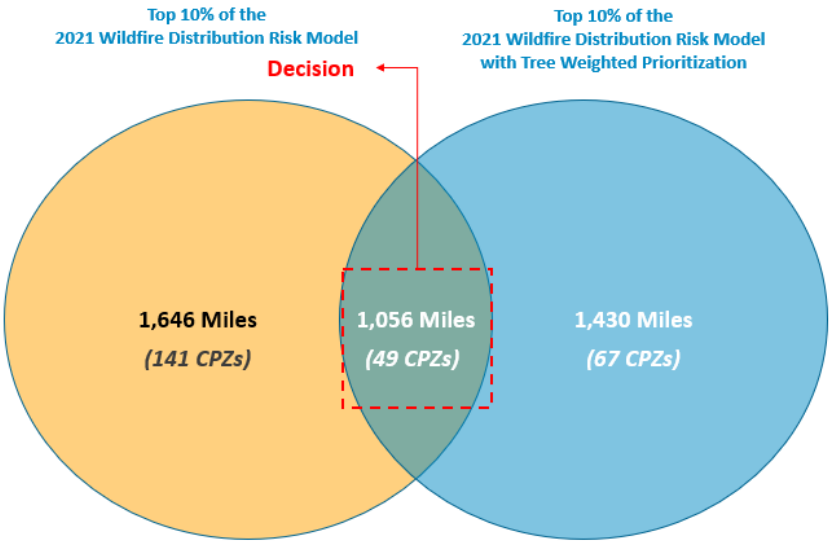
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The “Dx Buy-down Graph” tab comprises 2,661 CPZs that have been ranked on the basis of the highest to lowest EVM tree-weighted prioritization list grid risk score and displays those highest risks CPZs that have been included as part of the 2021 EVM plan.



The “PIVOT – No Regrets” tab shows the total remaining miles that comprise the top 10 percent of risk in both the 2021 Wildfire Distribution Risk Model and the EVM tree-weighted prioritization list. The tab indicates that “No Regrets” miles for which the EVM team has sought approval to commence work in December 2020 ahead of the approval of the full EVM 2021 plan. As per the figure below, there are ~1,056 miles and 49 CPZs that are common across the model and prioritization list and are considered to be high impact by both approaches. As such, they have been prioritized for immediate work.

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49 CPZs and 1,056 miles were common across the 2021 WDRM and the EVM tree-weighted prioritization list. Both highlight these CPZs as high impact and should be prioritized for EVM work.

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Enhanced Vegetation Management (EVM) Update

Information Updated as of 29 January, 2021

Contents

1 **Workbook Description** - Overview of workbook contents and key definitions
2 **Summary Reporting** - Summary statistics of the components of 2021 plan and execution of EVM work on mileage
3 **2021 Certified EVM Plan -** List of projects determined to be in scope of 2021 plan (composed of the WGC Approved Plan "No Regrets", Commitments, and Additional Optimized Miles
4 **PI In Progress Mileage Details** - Patrol Inspections In Progress (not confirmed)
5 **PI Complete Mileage Details** - Patrol Inspections Completed (not confirmed)
6 **WV Ready Mileage Details** - Work Verification Ready (not confirmed)
7 **WV Pass Mileage Details** - Work Verification Passed (not confirmed)

Glossary - *In order of presentation*

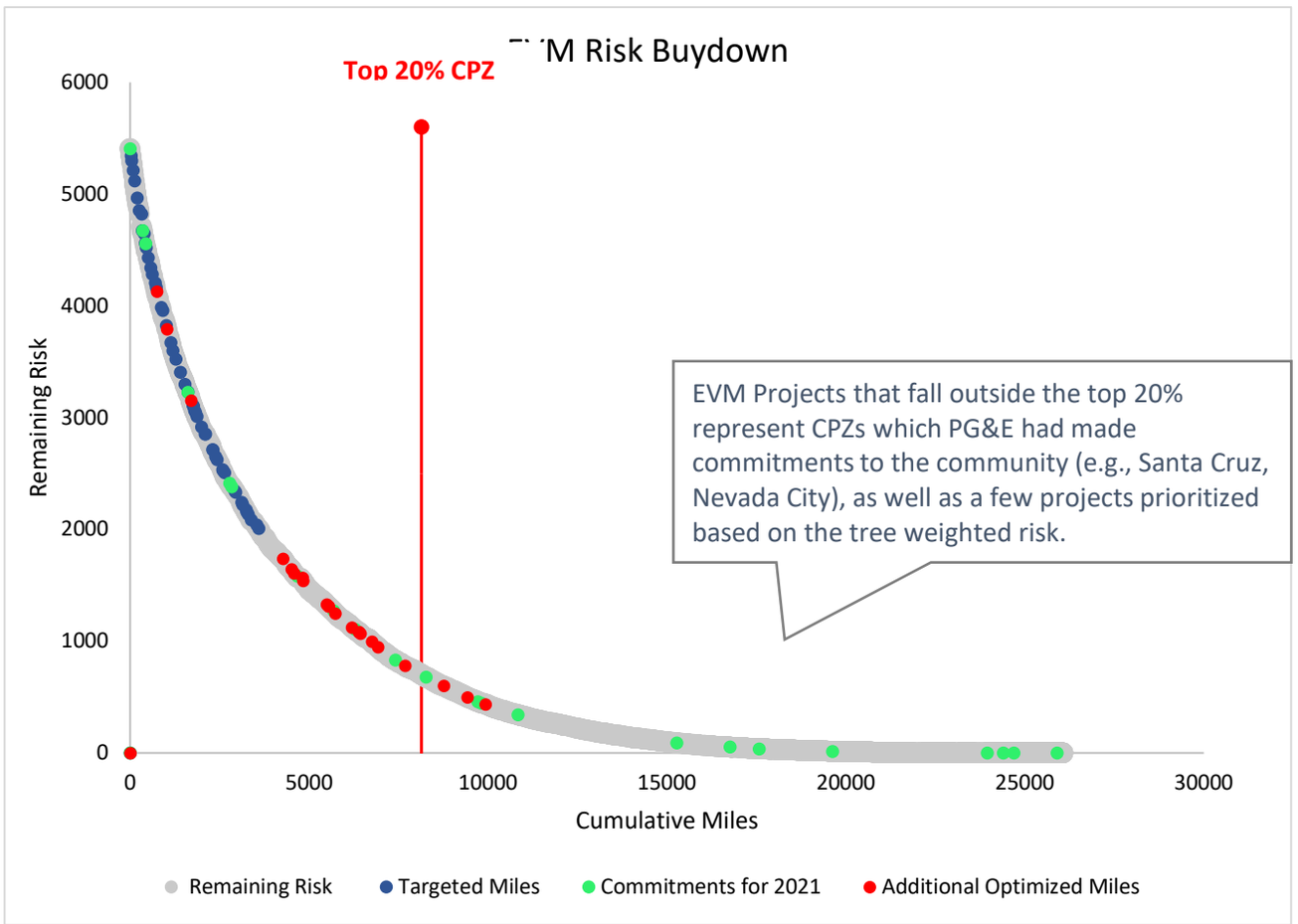
Summary Reporting	
Targeted Miles	Miles in the plan was approved on 11/13/20
Commitments for 2021	The Commitment Miles were approved on 12/18/20
Additional Optimized Miles	The Additional Optimized Miles were approved on 12/18/20
2021 Certified EVM Plan	
DIVISION	Division where CPZ is located.
CIRCUIT_PR	Circuit Protection Zone Name
REMAINING_MILES	Miles to be done in CPZ according to workplan.

Enhanced Vegetation Management (EVM) Summary Reporting

Information Updated as of 29 January, 2021

2021 Plan Summary

	Total Miles
Targeted Miles	1,056
Commitments for 2021	252
Additional Optimized Miles	441
Total	**1,749**



REGION	DIVISION	CIRCUITNAME	PZ_IDX	CIRCUIT_PR	TARGET_MILES	WGC_Approved_Plan	1800_Mile_Plan	Commitments	Additional Optimized	RISK_GROUP_EVM	RISK_VALUE_ADDRESSED
North Coast	NC_North Coast	RIO DELL 1102	6060	RIO DELL 11024230	22.70738636	1	1	0	0	1. <= 10%	18.58025253
Sierra	SI_Sierra	APPLE HILL 2102	3901	APPLE HILL 2102circuit_breaker	37.26912879	0	1	0	1	1. <= 10%	25.25893657
Central Valley	YO_Yosemite	OAKHURST 1101	2763	OAKHURST 110110090	26.66098485	1	1	0	0	1. <= 10%	24.82256169
North Coast	HU_Humboldt	FORT SEWARD 1121	6600	FORT SEWARD 11211690	10.43257576	1	1	0	0	1. <= 10%	10.82567562
North Coast	HU_Humboldt	MIDDLETOWN 1101	6356	MIDDLETOWN 1101622	11.28503788	1	1	0	0	1. <= 10%	26.83995314
North Valley	NV_North Valley	OREGON TRAIL 1104	1601	OREGON TRAIL 11041574	16.16268939	1	1	0	0	1. <= 10%	41.50163487
North Valley	NV_North Valley	BIG BEND 1102	3547	BIG BEND 11021972	21.15890152	0	1	0	1	1. <= 10%	8.028040061
Sierra	SI_Sierra	HIGGINS 1109	5504	HIGGINS 110950072	51.46988636	1	1	0	0	1. <= 10%	42.09391412
North Valley	NV_North Valley	DESCHUTES 1101	2237	DESCHUTES 11011580	45.43276515	1	1	0	0	1. <= 10%	20.46313547
Sierra	SI_Sierra	DIAMOND SPRINGS 1105	3079	DIAMOND SPRINGS 11057722	48.43655303	0	1	0	1	1. <= 10%	27.44303785
North Valley	NV_North Valley	CHALLENGE 1102	5557	CHALLENGE 11021064	19.80662879	0	1	0	1	1. <= 10%	9.199111751
Central Valley	YO_Yosemite	OAKHURST 1101	1973	OAKHURST 11015490	10.14734848	0	1	0	1	1. <= 10%	15.93695895
Sierra	SI_Sierra	SHINGLE SPRINGS 2109	2248	SHINGLE SPRINGS 210913322	40.39867424	1	1	0	0	1. <= 10%	33.07173163
North Valley	NV_North Valley	DESCHUTES 1104	3638	DESCHUTES 11041370	14.04943182	1	1	0	0	1. <= 10%	37.07723472
North Valley	NV_North Valley	STILLWATER 1102	4317	STILLWATER 1102circuit_breaker	25.57405303	1	1	0	0	1. <= 10%	21.62532337
North Coast	HU_Humboldt	UKIAH 1111	3596	UKIAH 1111534	18.27746212	1	1	0	0	1. <= 10%	18.946418
Sierra	SI_Sierra	WISE 1102	3716	WISE 11022230	23.67386364	1	1	0	0	1. <= 10%	34.07607568
North Valley	NV_North Valley	OREGON TRAIL 1104	5783	OREGON TRAIL 11041634	16.63068182	1	1	0	0	1. <= 10%	50.92742554
North Valley	NV_North Valley	OREGON TRAIL 1104	662	OREGON TRAIL 1104circuit_breaker	10.72140152	1	1	0	0	1. <= 10%	17.03004319
Bay Area	NB_North Bay	PUEBLO 2103	3568	PUEBLO 2103678	34.09943182	0	1	0	1	1. <= 10%	13.06975732
North Valley	NV_North Valley	CEDAR CREEK 1101	39	CEDAR CREEK 11011664	28.91685606	1	1	0	0	1. <= 10%	18.94233991
Central Valley	FR_Fresno	AUBERRY 1101	4967	AUBERRY 1101R2578	39.55814394	1	1	0	0	1. <= 10%	22.87532011
Sierra	SI_Sierra	HIGGINS 1109	5121	HIGGINS 1109circuit_breaker	27.67973485	1	1	0	0	1. <= 10%	18.31444687
North Coast	SO_Sonoma	FITCH MOUNTAIN 1113	7148	FITCH MOUNTAIN 11136751	20.59526515	0	1	0	1	1. <= 10%	7.955326844
Sierra	SI_Sierra	PIKE CITY 1101	3018	PIKE CITY 1101circuit_breaker	19.36666667	0	1	0	1	1. <= 10%	3.758969306
Central Valley	YO_Yosemite	MARIPOSA 2102	3795	MARIPOSA 210210880	39.24564394	1	1	0	0	1. <= 10%	51.84480558
Sierra	SA_Sacramento	VACA DIXON 1105	4403	VACA DIXON 110540092	24.80359848	1	1	0	0	1. <= 10%	57.91251687
North Coast	HU_Humboldt	BRIDGEVILLE 1102	4918	BRIDGEVILLE 1102circuit_breaker	25.15814394	0	1	0	1	1. <= 10%	4.434737148
North Coast	HU_Humboldt	GARBERVILLE 1102	9323	GARBERVILLE 110256048	4.842234848	0	1	0	1	1. <= 10%	2.545162149
North Valley	NV_North Valley	CEDAR CREEK 1101	2436	CEDAR CREEK 11011656	31.30549242	0	1	0	1	1. <= 10%	6.927257096
Sierra	SI_Sierra	BELL 1107	1508	BELL 11072400	10.93030303	0	1	0	1	1. <= 10%	13.87362094
North Coast	HU_Humboldt	LAYTONVILLE 1102	2529	LAYTONVILLE 1102500	14.71325758	1	1	0	0	1. <= 10%	9.221478692
Sierra	SI_Sierra	BANGOR 1101	749	BANGOR 11017446	24.9467803	0	1	0	1	1. <= 10%	8.868641342
Sierra	SI_Sierra	MOUNTAIN QUARRIES 2101	3848	MOUNTAIN QUARRIES 2101circuit_breaker	25.83958333	1	1	0	0	1. <= 10%	26.03021042
North Valley	NV_North Valley	CEDAR CREEK 1101	3510	CEDAR CREEK 11011608	32.82935606	0	1	0	1	1. <= 10%	12.82998442
Sierra	SI_Sierra	BELL 1107	1789	BELL 110750172	5.660606061	0	1	0	1	1. <= 10%	9.090153139
North Coast	HU_Humboldt	PHILO 1101	6519	PHILO 110137222	25.11647727	1	1	0	0	1. <= 10%	11.30771941
North Coast	HU_Humboldt	WILLITS 1103	1520	WILLITS 110391810	26.03560606	0	1	0	1	1. <= 10%	4.30445046
Central Coast	CC_Central Coast	BIG BASIN 1102	1416	BIG BASIN 1102circuit_breaker	7.528409091	0	1	1	0	6. >50%	0.126411371
North Coast	SO_Sonoma	GEYSERVILLE 1101	2778	GEYSERVILLE 1101166	11.12784091	1	1	0	0	1. <= 10%	9.952160567
North Valley	NV_North Valley	RED BLUFF 1101	864	RED BLUFF 11011334	39.97424242	1	1	0	0	1. <= 10%	43.71545482
Central Valley	YO_Yosemite	OAKHURST 1103	1817	OAKHURST 1103circuit_breaker	26.55852273	1	1	0	0	1. <= 10%	19.31248393
North Coast	HU_Humboldt	FRUITLAND 1142	8284	FRUITLAND 114293234	10.69128788	0	1	0	1	1. <= 10%	0.940729877
Sierra	SI_Sierra	BELL 1108	4798	BELL 11082202	29.81742424	1	1	0	0	1. <= 10%	26.30112599
North Coast	SO_Sonoma	SALMON CREEK 1101	6598	SALMON CREEK 110188998	7.873863636	1	1	0	0	1. <= 10%	11.67780146
North Coast	HU_Humboldt	LAYTONVILLE 1102	7640	LAYTONVILLE 1102572	20.90587121	0	1	0	1	1. <= 10%	6.637395795
Sierra	SI_Sierra	APPLE HILL 2102	1194	APPLE HILL 21021532	36.91401515	0	1	0	1	1. <= 10%	6.996754172
North Valley	NV_North Valley	WYANDOTTE 1109	1486	WYANDOTTE 110979932	21.14507576	1	1	0	0	1. <= 10%	23.42885749
North Valley	NV_North Valley	STILLWATER 1102	6222	STILLWATER 110248952	10.02462121	1	1	0	0	1. <= 10%	16.27456682
Sierra	SI_Sierra	PENRYN 1103	1224	PENRYN 11032198	17.04450758	1	1	0	0	1. <= 10%	23.26128396
North Valley	NV_North Valley	DESCHUTES 1104	1665	DESCHUTES 110449024	15.7625	1	1	0	0	1. <= 10%	47.98740382
North Valley	NV_North Valley	STILLWATER 1102	538	STILLWATER 11021644	22.81534091	1	1	0	0	1. <= 10%	16.77456462
Sierra	SA_Sacramento	VACAVILLE 1108	2360	VACAVILLE 110838316	16.58219697	1	1	0	0	1. <= 10%	31.91109377
Central Valley	FR_Fresno	AUBERRY 1102	204	AUBERRY 1102circuit_breaker	32.9280303	1	1	0	0	1. <= 10%	42.96801528
Sierra	SI_Sierra	BRUNSWICK 1103	3632	BRUNSWICK 11032784	14.53390152	0	1	1	0	6. >50%	0.000137606
Bay Area	NB_North Bay	LAS GALLINAS A 1105	7713	LAS GALLINAS A 110599904	5.465530303	1	1	0	0	1. <= 10%	5.83913869
North Valley	NV_North Valley	DESCHUTES 1104	1661	DESCHUTES 11049718	20.30587121	1	1	0	0	1. <= 10%	27.71453422
Sierra	SI_Sierra	BROWNS VALLEY 1101	7209	BROWNS VALLEY 110193870	21.03030303	1	1	0	0	1. <= 10%	19.65782145
North Valley	NV_North Valley	COTTONWOOD 1101	6616	COTTONWOOD 110168190	23.68484848	1	1	0	0	1. <= 10%	27.67062059
Central Valley	YO_Yosemite	OAKHURST 1103	4692	OAKHURST 110363334	13.87556818	1	1	0	0	1. <= 10%	16.7654752
Sierra	SI_Sierra	WISE 1102	105	WISE 11022054	12.88863636	1	1	0	0	1. <= 10%	22.55877546
Sierra	SI_Sierra	SHINGLE SPRINGS 2109	1980	SHINGLE SPRINGS 210912392	14.62935606	1	1	0	0	1. <= 10%	11.12917451
North Coast	HU_Humboldt	WILLITS 1102	3495	WILLITS 1102circuit_breaker	4.925568182	1	1	0	0	1. <= 10%	5.299287883
Sierra	SI_Sierra	LINCOLN 1104	4729	LINCOLN 11042070	21.09583333	1	1	0	0	1. <= 10%	18.63288756
Central Valley	FR_Fresno	TIVY VALLEY 1107	6372	TIVY VALLEY 1107584840	24.06363636	1	1	0	0	1. <= 10%	10.72044261
North Valley	NV_North Valley	DESCHUTES 1104	1301	DESCHUTES 1104circuit_breaker	12.18541667	1	1	0	0	1. <= 10%	22.42076172
Sierra	SI_Sierra	BRUNSWICK 1103	957	BRUNSWICK 1103circuit_breaker	5.289393939	0	1	1	0	6. >50%	2.25986E-05
Central Valley	YO_Yosemite	SAN JOAQUIN NO2 1103	1374	SAN JOAQUIN #2 110310320	11.46590909	1	1	0	0	1. <= 10%	11.66450077
Central Valley	YO_Yosemite	COARSEGOLD 2103	1577	COARSEGOLD 210310820	25.52613636	1	1	0	0	1. <= 10%	32.33089303
North Valley	NV_North Valley	DESCHUTES 1104	3707	DESCHUTES 11049726	15.00132576	1	1	0	0	1. <= 10%	35.4738672
Sierra	SI_Sierra	DIAMOND SPRINGS 1105	2148	DIAMOND SPRINGS 110519910	18.59886364	1	1	0	0	1. <= 10%	17.51756877
Sierra	SI_Sierra	BRUNSWICK 1104	4033	BRUNSWICK 11041020	28.16136364	0	1	1	0	4. >30 - 40%	0.525487858
Sierra	SI_Sierra	BRUNSWICK 1104	1085	BRUNSWICK 11042112	18.37064394	0	1	1	0	4. >30 - 40%	0.825206059
Central Coast	CC_Central Coast	CAMP EVERS 2105	1759	CAMP EVERS 210510912	4.54469697	0	1	1	0	6. >50%	0.067156116
North Valley	NV_North Valley	GIRVAN 1101	5926	GIRVAN 11011330	30.51098485	0	1	1	0	1. <= 10%	7.30798765
North Valley	NV_North Valley	GIRVAN 1101	5137	GIRVAN 11011636	19.10606061	0	1	1	0	3. >20 - 30%	5.42614901
North Valley	NV_North Valley	GIRVAN 1101	4039	GIRVAN 1101323094	35.30700758	0	1	1	0	1. <= 10%	11.09803767
North Valley	NV_North Valley	GIRVAN 1101	4392	GIRVAN 11019732	20.0625	0	1	1	0	4. >30 - 40%	3.228840459
Central Coast	SJ_San Jose	MORGAN HILL 2105	3082	MORGAN HILL 2105XR564	5.213068182	0	1	1	0	4. >30 - 40%	2.423404433
North Valley	NV_North Valley	OREGON TRAIL 1103	2683	OREGON TRAIL 11031500	7.571212121	0	1	1	0	4. >30 - 40%	1.029612199
Central Coast	LP_Los Padres	PASO ROBLES 1103	6910	PASO ROBLES 1103N58	0.516477273	0	1	1	0	6. >50%	1.017718439
Central Coast	LP_Los Padres	PASO ROBLES 1104	2761	PASO ROBLES 1104P02	0.109280303	0	1	1	0	6. >50%	0.172410514
Central Coast	LP_Los Padres	PASO ROBLES 1107	7938	PASO ROBLES 1107circuit_breaker	0.646590909	0	1	1	0	6. >50%	0
Central Coast	LP_Los Padres	SAN LUIS OBISPO 1107	4945	SAN LUIS OBISPO 1107V60	15.17727273	0	1	1	0	5. >40 - 50%	1.517882504
Central Coast	LP_Los Padres	SANTA YNEZ 1102	270	SANTA YNEZ 1101circuit_breaker	0.325757576	0	1	1	0	6. >50%	0
Central Coast	LP_Los Padres	ZACA 1102	8297	SANTA YNEZ 1104circuit_breaker	1.094318182	0	1	1	0	4. >30 - 40%	1.029066365
Bay Area	NB_North Bay	SILVERADO 2104	5665	SILVERADO 2104632	7.29905303	0	1	1	0	1. <= 10%	5.102171938
Bay Area	NB_North Bay	SILVERADO 2104	4559	SILVERADO 210478268	5.763636364	0	1	1	0	2. >10 - 20%	2.860265209
Bay Area	DI_Diablo	SOBRANTE 1102	3496	SOBRANTE 1102circuit_breaker	10.65814394	0	1	1	0	6. >50%	0.003824758
Bay Area	PE_Peninsula	WOODSIDE 1101	5540	WOODSIDE 11018974	11.24753788	0	1	1	0	1. <= 10%	2.690568334
Central Coast	LP_Los Padres	ZACA 1102	2756	ZACA 1102Y48	3.449431818	0	1	1	0	5. >40 - 50%	3.654264989
					1749.33						

ATTACHMENT C
STATEMENT FOR ELEMENTS 8 AND 9

Elements 8 and 9 in the Wildfire Safety Division's (WSD) *Audit of PG&E's Implementation of their Enhanced Vegetation Management Program in 2020* (Audit Report) require a signed statement from PG&E's Vice President of Regulatory Affairs. Accordingly, I am making the following statements:

- Element 8: PG&E is committed to notifying WSD whenever a defect is corrected, even if PG&E is actively disputing the defect but chooses to remedy it for any reason as further explained in Pacific Gas and Electric Company's (PG&E) Enhanced Vegetation Management Audit Response and Corrective Action Plan (Plan) dated February 23, 2021.

- Element 9: PG&E is committed to providing complete and thorough responses to WSD's requests for workplans, including all wildfire mitigation-related projects, regardless of internal project categorization. The current scope of workplans provided is explained in PG&E's Plan.

The Plan includes additional, specific information about PG&E's understanding of and compliance with both of these Elements.

Executed at San Francisco, California this 23rd day of February, 2021.



ROBERT S. KENNEY
VP Regulatory and External Affairs
PACIFIC GAS & ELECTRIC COMPANY