

**Wildfire Risk Governance Forum
November 13th, 2020**



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Safety

Earthquake
Duck, Cover & Hold

Emergency Plan & Exit Strategy
Have a plan for you and your household

24/7 Nurse Care Line
If you experience work related discomfort or injury, call [REDACTED] and notify your supervisor.

Wash your hands!

Wear a Mask

Practice social Distancing

Meeting Agenda

Date:	11/13/2020			
Desire Outcomes:	<ul style="list-style-type: none"> Inform: Decision Items & Action Items Decision: System Hardening "No Regrets" approach Inform: Outline Inspections program—focus areas & needed resources Decision: Enhanced Veg Management "No Regrets" approach 			
Meeting Agenda				
What	Content	Who (Facilitator(s))	Slide Number	Duration
1	Safety Moment and Agenda	[REDACTED]	1-2	5 min
2	Decision and Action Item Review	[REDACTED]	8-11	15 min
3	System Hardening	[REDACTED]	12-15	20 min
4	System Inspections	[REDACTED]	16-18	20 min
5	Enhanced Vegetation Management	[REDACTED]	19-24	20 min
6	Follow ups and Next Steps	[REDACTED]	25-26	10 min

Decision and Action Item Review

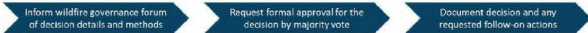


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Key Wildfire Risk Model Governance Forum Decision

Governance Forum Decision Approval Process



Workstream	Decision	Description	Approval Vote	Date
Risk Models	Adoption of the 2023 wildfire risk models for mitigation deployment	<ul style="list-style-type: none">Accept the proposed ignition needs for vegetation ignitions and technology for 2023 EVM workAccept the proposed ignition needs for equipment ignitions and technology for 2023 system addressing work	Approved Approved Approved Not Present	10/26/2023



Key Decision – Adoption of the 2021 Risk Model for Mitigation Deployment

Approval Status: Approved

Decision Detail

The approval is for moving from the 2018 wildfire risk model to the 2021 wildfire risk model to inform system hardening, enhanced vegetation management and operations. These changes included:

- Update to vegetation ignition model (LoRe)
- Update to conductor model (LoRe)
- Update to consequence (CoRe)

Concerns and Mitigations

- Inclusion of non-UTD areas requested in the next model iteration
- Inclusion of Egress model requested in the next model iteration
- Resource availability to complete "not-risk informed planned work" was challenged
- Detailed description of variables in particular "non-burnable area" requested
- The ability to calculate tree density within pixels was challenged

Approvals

Approved
Approved
Approved
Approved
Abstain - Not Present

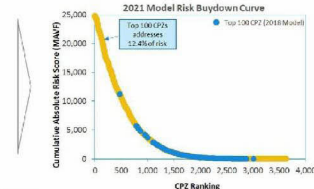
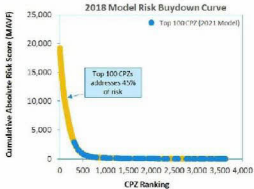
Action Items and Validations

Adoption of the 2021 wildfire risk models for mitigation deployment Deep Dive risk model session	Completed - Adopt the proposed ignition model for vegetation ignition and Technology for 2021 DMS work Completed - Adopt the proposed ignition model for equipment ignitions and Technology for 2021 System Hardening work session
Risk models comparison	Completed - Create risk comparison between the 2020 risk model and 2021 risk model to highlight movement of CPZ (Targeting top 100 circuits or CPZs)
Deep Dive risk model session	Completed - Hold a Deep Dive Session with (1) the Federal Monitor and (2) the Operational Observer
Model process documentation	In Progress - Bring the Model Process Level Documentation to this forum for an official approval
Egress Consideration	Road Mapped - Factor in Egress into process for selecting the protection zones to be worked



Risk Model Action Items

Workstream	Action Item	Description	Responsible party	Resolution	Date
Risk Model	Risk model comparison WGR - 10/30/2020	Create risk comparison between the 2018 risk model and 2021 risk model to highlight movement of CPZs (regarding top 100 results or CPZs)	[Redacted]	Complete - See the Risk Model Follow-up Section	11/13/2020



Key Takeaways

- No CPZs in the top 100 overlap
- This will result in significant change to the prioritization and expected risk buydown of mitigations
- The 2018 risk results were not distance weighted, where the 2021 prioritization included a distance factor.



Risk Model Action Items

Workstream	Action Item	Description	Responsible party	Resolution	Date
Risk Model	Deep dive risk model session W88-11/10/2020	Hold a Deep Dive session with (1) the Federated Monitor and (2) the Operational Observer	[REDACTED]	Complete - Meetings have been scheduled for 11/10 & 11/12	11/12/2020

Updates

- First Deep Dive session held on Monday 11/10/2020 at 1:00pm PST
- Second session will be held on Thursday 11/12/2020 at 12:30pm PST

Risk Model Action Items					
Workstream	Action Item	Description	Responsible Party	Resolution	Date
Risk Model	Risk model contributors	Provide a detailed description of the top model contributors		Complete - Targeted for inclusion in next release	11/17/2020

Vegetation Model – Contributors Description		Conductor Model – Contributors Description	
Variable	Description	Variable	Description
Flow height-avg	Maximum flow height, in meters, for each 100m x 100m area along the distribution grid	High-temperature area	Used surface temperature similar to top temperatures, but vertices surface, that typically don't ignite unless a spark occurs
100-hour-fuel-avg	The dead fuel moisture data from GRDMET	Daily precipitation, mean	The average daily precipitation from the GRDMET dataset
Vapor pressure-deficit-avg	The average vapor pressure deficit from the GRDMET dataset	Conductor material: ACOR	Alignment conductor steel-voided
Windy summer day pct	Percentage of days that have high frequency of gusts	Edwin index-conductor age	Number of years since the installation year
Wind	High low wind deficit	Max tree height	Maximum tree height, in meters, for each 100m x 100m area along the distribution grid
Precipitation-avg	The average daily precipitation from the GRDMET dataset	Reliability Program-splice	Spans with more than three splice per phase
Impervious	Impervious ground cover (i.e. non-permeable)	Vapor pressure-deficit-mean	The average vapor pressure deficit from the GRDMET dataset
Specific humidity-avg	The average specific humidity from the GRDMET dataset	Conductor size-2	Conductor size-2
Burn index-avg	An derived variable based off of the geographical and topographical aspects of a location	Conductor size-4	Conductor size-4
Wind-max	The maximum wind velocity at a height of 10 meters from the Real-Time Mesoscale Analysis (RTMA) dataset at a resolution of 2.5-km	100-hour fuel, mean	The dead fuel moisture data from GRDMET
Temperature-avg	The average temperature from the GRDMET dataset	Max temperature, mean	The average maximum temperature from the GRDMET dataset
Windy summer-day pct	Percentage of days that have a high percentage of days with high average wind speed	Wind speed, mean	The average wind velocity at a height of 10 meters from the Real-Time Mesoscale Analysis (RTMA) dataset at a resolution of 2.5 km
Local-topography	The topographic position index (TPI) was extracted from a USGS digital elevation model (DEM) at 100-meter resolution	Local-topography	The topographic position index (TPI) was extracted from a USGS digital elevation model (DEM) at 100-meter resolution
100-hour-fuel-avg	The dead fuel moisture data from GRDMET		
Energy-release-avg	Average release of energy from fuels		

 Risk Model Action Items

Workstream	Action Item	Description	Responsible Party	Resolution	Date
Risk Model	Model process documentation	Adding the Model Process Level documentation to this forum for an official approval.	[REDACTED]	In Progress - Targeted for discussion keep them available	11/19/2020

1 User Guide
Model procedure and details will be provided in the user guide to the forum for review at the 11/20 session



Risk Model Action Items

Workstream	Action Item	Description	Responsible party	Resolution	Date
Wildfire Governance Charter	Charter update	Update charter to include review of broader set of WFF risk reduction activities and project ownership	[REDACTED]	Completed. Risk charter has been updated, including attached materials	11/06/2020

See updated slide for the updated wildfire governance Charter

Meeting Purpose:

- Review charter meeting on
- Make certain that there is agreement on the charter. The charter is just to guide the work. Provide a forum to discuss key risk-based considerations and associated impacts.
- **Work:**
 - Review resolution to understand the format and the risk reduction work associated with investment, asset, resource and operations; needs, guide charter to needed
 - Ensure the approved work plan is completed and the quality of the completed work is assessed.

Meeting Objectives:

- Integrate and validate wildfire mitigation activities into all high governance sessions
- Identify and focus on system functions, and project organization management; operations and equipment with regard to the fire area of wildfire and WFF mitigation work
- Review topics and supporting material will be used in discussion and report from the meeting.

Attendees:

- **Global Chief Risk Officer**
- **Working Arrangements:**
 - VP Global Risk Management & Community Risk Safety Program
 - VP Major Projects and Programs, Electric Operations
 - VP Global Safety and Health Engineering
 - VP Chief Audit Officer
- **Area Meeting Attendees:**
 - Sr. Director, Electric Asset Strategy
 - Sr. Director, Major Programs & Project Delivery
 - Sr. Director, Risk Management
 - Director, O&M & S&OP
- **Workstream Lead:**
 - Senior Leadership Director, Risk Reduction Strategy
 - Director, Operations Management, Director, Operations Management
 - Responsible & Regional Manager, Program Area Standards
- **Facilitator:**
 - Sr Director, Risk - Special Projects

How Decisions are Made:

- Goal of meeting: understand and focus on alternatives for discussion to be made
- A single leader will be planning committee members
- The leader: Chair until the to break up the

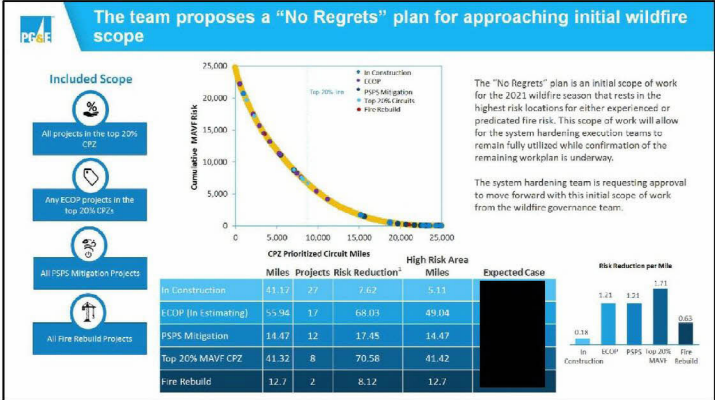
Meeting Logistics:

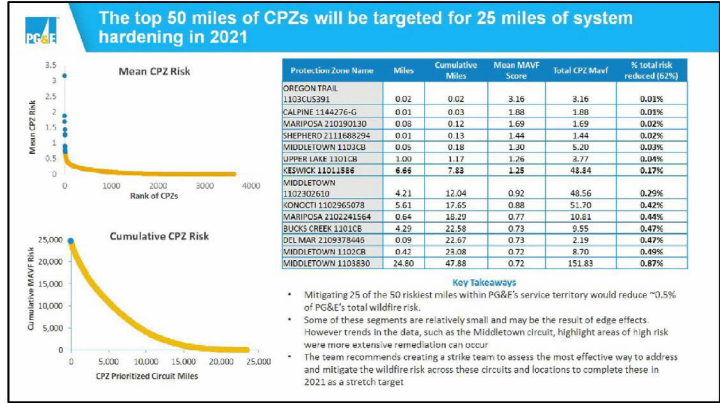
- **Preparation/Execution:** Weekly (over Friday)
- **Materials:**
 - Pre-read materials sent 2 days before meeting
 - Action items include achieving meeting material
 - Agenda: Sr. Director Area - Special Projects or address that agenda

System Hardening



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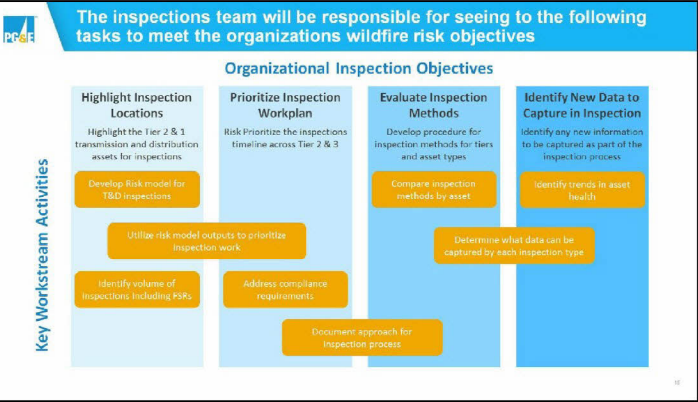


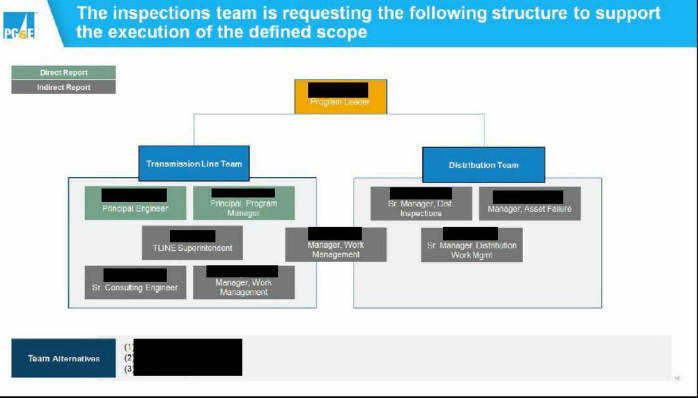


Overhead Inspections



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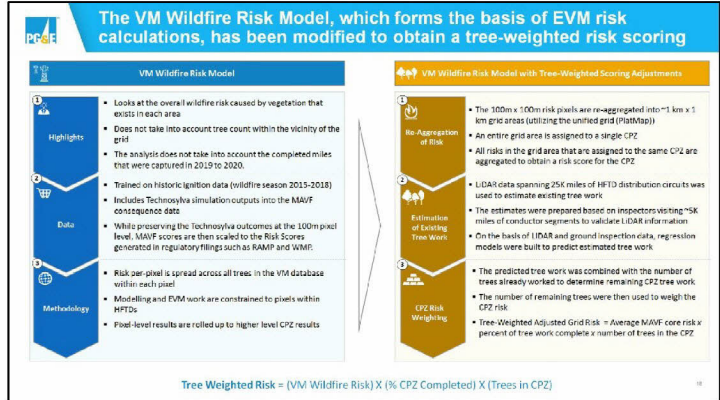


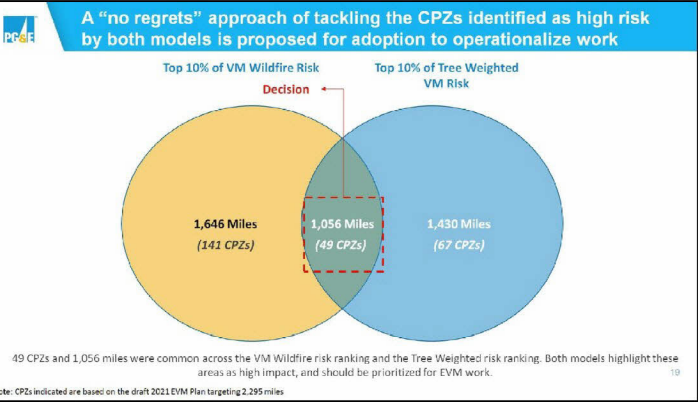


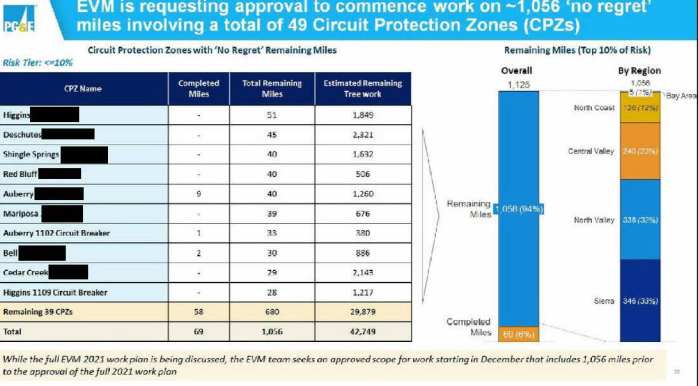
Enhanced Vegetation Management

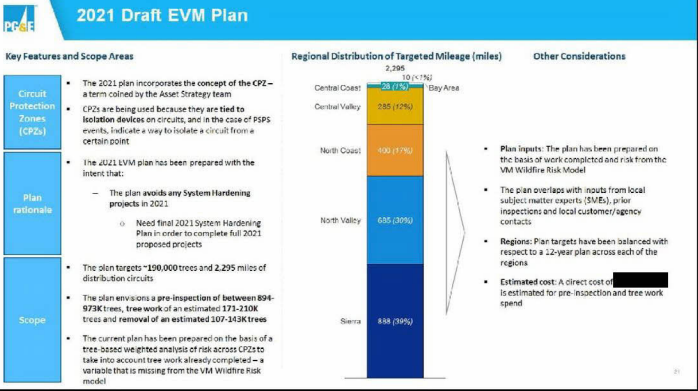



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 Action Items					
Workstream	Action Item (Initial Date)	Description	Responsible party	Resolution	Date
Enhanced Vegetation Management	EVM Risk Buydown Curve WGR- 11/3/2020	Plot and above the 1332 miles (80-90% Carry Over Work that needs to be finished on the EVM-CO; 20 for Trees and Overhang Weights) Risk Buydown Curve	Support - [Redacted]	Not Applicable - Scope has moved away from the prior Carryover plan	11/13/2020
Enhanced Vegetation Management	EVM programs timeframes WGR- 11/3/2020	Determine the overall time frame and pace for the 4 VSM programs for or for potential trees and fractured into the 2500 miles of EFTD. Consider the total of the 2500 miles need EVM work	[Redacted]	In Process - Forecast program time is being developed alongside tree weighted risk	11/20/2020
Enhanced Vegetation Management	EVM programs and resources WGR- 11/3/2020	Provide a full picture of all vegetation management work, excluded just the enhanced vegetation management.	[Redacted]	In Process - Review of other programs underway, dependent upon total EVM scope for resourcing	11/20/2020
Enhanced Vegetation Management	System hardening and EVM work overlay WGR- 11/3/2020	Evaluate the areas that are being targeted by system hardening to align for operational efficiencies between the two programs. Dependency on 2021 SH Work Plan	[Redacted]	Not Applicable - Changes to system assets and structure limit ability to complete to EVM standards	11/13/2020
Enhanced Vegetation Management	Tree density statistic WGR- 11/3/2020	Show Tree Density from the 2018 and 2020 Work. Provide tree density by number per mile proposed as we show future work 2022, 2023	Support - [Redacted]	Road Mapped - LEAD Tree density will be examined for inclusion in future risk modeling	11/13/2020

Follow-Ups and Next Steps



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Upcoming Review Agenda Items

11/20/2020

- Final Decision on System Hardening Plan (if feasible)
- Initial Review into Inspections 2021 Plan
- Initial Review into Repairs 2021 Plan
- Close out Completed Action Items

12/01/2020

- Final Decision on EVM 2021 Plan (if feasible)
- Decision Items needed for Inspections 2021 Work Plan
- Close out Completed Action Items

12/08/2020


- Decision needed on Inspection. Initial views of 2021 Work Plan
- Decisions needed on Repairs 2021 Work Plan
- Tier 1 – Overhead Conductor Replacement Discussion



Complete Action Items from 11/09/2020 (Federal Monitor Meeting)

Workstream	Action Item	Description	Responsible party	Resolution	Date
Risk Model	Risk model comparison Work - 10/30/2020	Include high risk areas outside of 10 10 in the next iteration of the DC Model	[REDACTED]	Royal Maggard - This will be added as an enhancement to the model next step	11/7/2020
Risk Model	Risk Model Enhancement	Incorporate 2020 LEAD data and species data in the next iteration of the DC model	[REDACTED]	Royal Maggard - This will be added as an enhancement to the model next step	11/7/2020
Risk Model	Risk Model Enhancement	Include EGIS on the conservation plan for the next iteration of the DC Model	[REDACTED]	Royal Maggard - This will be added as an enhancement to the model next step	11/7/2020
Risk Model	Model Documentation	Also to be added to charts on slide 22 (ppt: 11.09.2020 Wildlife Risk Model Review final.v2)	[REDACTED]	Completed	11/7/2020

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 Complete Action items					
Workstream	Action Item	Description	Responsible party	Resolution	Date
Inspection	Inspection Workstream Owner	Schedule meeting to identify the owner of the inspection and repair workstream		Completed – inspection lead identified	10/21/2019
Risk model	Risk Model Deep Dive	The risk model needed further detailed discussion before voting and approval could take place		Completed – follow up meeting held provided in advance of 10/30 approval meeting	10/23/2019
EVM	EVM review meeting	Schedule additional meeting for EVM review		Completed – Follow up meeting was held on 11/09	11/09/2019
Customer meetings	Meeting updates	Update meeting to be 90 minutes		Completed – all customer meetings updated – effective 11/13	11/03/2019
Customer meetings	2nd future meetings	to be asked to participate in future meetings to provide additional direction from audit		Completed – has been added to all future governance meetings	10/23/2019



Action Item Tracking

Workstream	Action Item	Description	Responsible party	Resolution	Date
Risk Models	Risk models comparison WGR - 10/30/2020	Create the comparison between the 2018 risk model and 2013 risk model to highlight movement in CPD (Targeting top 100 risks or CPD)	[REDACTED]	Completed	11/18/2020
Risk Models	Deep Dive risk model session WGR - 10/30/2020	Hold a Deep Dive Session with (1) the Political Member and (2) the Operational Observer	[REDACTED] to [REDACTED] to be part of the meeting	Completed	11/12/2020
Risk Models	Risk model contributors	Highlight contributors to the risk model	[REDACTED]	Completed	11/13/2020
Risk Models	Model process documentation	Bring the Model Process Level Documentation to the Forum for an official approval	[REDACTED]	In Process - Targeted for inclusion in deep dive sessions	11/23/2020
Risk Models	Egress Consideration	Factor in Egress into process for selecting the protection areas to be scored	[REDACTED]	Road Mapping - Egress has been considered as a future enhancement for the risk model	11/09/2020
Wildfire Governance Charter	Charter updates	Update charter to include review of broader set of WGR risk reduction activities and project oversight	[REDACTED]	Complete EGIS charter has been updated, included in attached materials	11/09/2020



Action Items from 11/09/2020 (Federal Monitor Meeting)

Workstream	Action Item	Description	Responsible party	Resolution	Date
Risk Models	Risk models comparison WSA - 10/02/2020	Identify risk areas outside of NE ID in the next iteration of the DE Model	[REDACTED]	Road Mapped - This will be added as an enhancement to the model road map	XXX
Risk Models	Risk Model Enhancement	Include 2019 LIDAR data, and topology data in the next iteration of the DE model	[REDACTED]	Road Mapped - This will be added as an enhancement to the model road map	XXX
Risk Models	Risk Model Enhancement	Include Egress on the consequence side for the next iteration of the DE Model	[REDACTED]	Road Mapped - This will be added as an enhancement to the model road map	XXX
Risk Models	Model documentation	Links to be added to charts on slide 22 (ppt: 11.09.2020 collective risk model review final v2)	[REDACTED]	Completed	11/13/2020

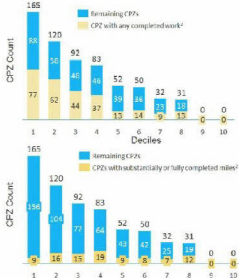
Appendix





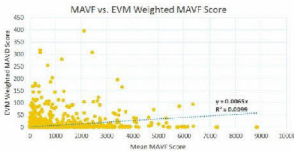
Comparison of the Tree Weighted model to the Dx Model

Overlap between the Risk Models



Key Take-aways

- The correlation between the EVM weighted prioritization scores and the MAVF score is low at 0.0099
- Of the top 20% of circuits that were identified in the Dx model, 285 remained in the top two deciles of the Tree Weighted model.
- Of the top 100 CPZs, only 14 were common across both prioritization lists
- Over 10% of the CPZs identified to have risk in the Dx model were zero risk locations in the tree weighted model.



22 circuits have seen at least five unique PSPS events in the 2019-2020 timeframe

Seven PSPS Events			Six PSPS Events			Five PSPS Events		
Circuit Name	County	Total Customer Events	Circuit Name	County	Total Customer Events	Circuit Name	County	Total Customer Events
ORO FINO 1101	BUTTE	2503	WYANDOTTE 1103	BUTTE	13105	WYANDOTTE 1107	BUTTE	1454
ORO FINO 1102	BUTTE	2156	NOTRE DAME 1104	BUTTE	4317	BANGOR 1101	YUBA	12328
PARADISE 1104	BUTTE	14710	PARADISE 1106	BUTTE	3503	DOBBINS 1101	YUBA	7096
PARADISE 1105	BUTTE	12054				CHALLENGE 1102	YUBA	6719
CLARK ROAD 1102	BUTTE	10410				KANAKA 1101	BUTTE	4572
PARADISE 1103	BUTTE	5234				BANGOR 1101	BUTTE	4215
BUTTE 1105	BUTTE	3194				KANAKA 1101	YUBA	417
BIG BEND 1102	BUTTE	2772				CHALLENGE 1102	BUTTE	266
WYANDOTTE 1105	BUTTE	2560				BUCKS CREEK 1101	PLUMAS	25
BIG BEND 1101	BUTTE	2332						

