Wildfire Risk Governance Committee

Governance Committee

April 9th, 2021

Executive Sponsor(s):

Author(s) & Affiliation: [redacted]

Safety

Earthquake

Duck, Cover, & Hold

Emergency Plan & Exit Strategy

Have a plan for yourself and your household

24/7 Nurse Care Line

If you experience a work-related discomfort or injury, call 1-888-449-7787 and notify your supervisor.

Wash your hands!

Wear a Mask

Practice social Distancing

https://covid19.ca.gov/vaccines/ https://myturn.ca.gov/
https://www.vaccinateca.com/

Meeting Agenda

Date	04/09/2021
Desired Outcomes	• **Inform:** Transformer replacement update • **Inform:** Idle transmission facilities identified • **Decision:** Approve substation inspection methodology update • **Inform:** SI & VM operations execution update • **Inform:** CAP progress update

Meeting Agenda

What – Content	Who - Facilitator(s)	Slides
Agenda and Safety Moment	[redacted]	1-2
Ignition Component Review		3-8
Transmission Idle Lines		9-11
SI Substation Inspections		12-17
VM Operations Update		18-21
SI Operations Update		22-27
CAP Progress Update		28-29
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IGNITION COMPONENT UPDATE

Action Item Update

Workstream	Action Item	Description	Responsible party	Resolution	Target Resolution Date	Resolution Date
Fire Ignition Component Program	List of Equipment Considered for replacement	Outline full list of potential ignition equipment to be considered for replacement	[redacted]	Resolved – compiled full list based on SME input and all reports	4/9/2021	**4/9/2021**
Fire Ignition Component Program	ATS Validation	Confirm that the final list of ignition components includes all items from the ATS failure list		Resolved – added Line Recloser to the ignition component list	4/9/2021	**4/9/2021**
Fire Ignition Component Program	Likelihood of ignition	Provide a comparative assessment of the likelihood of ignition component ignition risk		Component likelihood of ignition analyzed – resulting output can be distributed to interested parties via email, separately	4/9/2021	**4/9/2021**
Fire Ignition Component Program	Option 4C plus fuse gap	Analyze the cost of 424 highest risk fuses that are not addressed by Option 4C in order to hit the top 1,200 highest risk fuses		• Replacing individual fuses on by one to address the 424 gap costs $21K per • This results in inefficiencies like option 1C	4/9/2021	**4/9/2021**
Fire Ignition Component Program	2021 Workplan	Articulate 2021 workplan with supporting information and rationale for this year's actions		In Progress	TBD	

Review of Ignition Components

Electrical equipment that could potentially cause an ignition has been identified in the HFTD. A program to locate and replace this equipment is underway, with the initial identification of 14 potential ignition sources

Identify Ignition Components

Identify the types of equipment that could cause an ignition and should be replaced in the HFRA

- Leverage list of components from CalFire 4292
- Add high severity components from the Distribution FMEA list
- Incorporate ATS input to validate the full set of ignition components
- Refine based on additional SME assessment and overlap with other initiatives

Determine Extent of Condition

Evaluate the known extent of condition for this equipment, and potential unknown exposure

- Open Link Fuses[1] x2
- Solid Blade Disconnects
- In-Line Disconnects
- Surge Arrestors[2] x2
- Auto/Manual Switches
- Selected Connectors
- Potheads
- Transformers
- Boosters
- Regulators
- Capacitors
- Line Recloser

Risk Prioritize Ignition Components

Utilize historical ignition data related to the equipment category to determine the likelihood score and use locational consequence scores for each piece of equipment

- Evaluate all fuse consequence prioritization options first
- Run sensitivity analysis around funding and fuse count variables
- Align on prioritization method to maximize risk reduction in replacing fuses

Execute on Replacements

Execute the risk informed plan to replace the equipment identified and prioritized to reduce risk

NOTE: 1) Open Link Fuses types include those with Operating Numbers vs those at Transformers. 2) Surge Arrestors are evaluated as those at transformers vs those that are standalone

Background: Evolution of Overhead Transformer Replacement Program

Identify | Determine | Prioritize | Execute

Pre-2020
(Emergency Replacement Approach)

- ~20,000 transformers replaced annually on emergency & maintenance: loading, corrosion, and leaking transformers
- Planner relies on multiple data sources to review for transformer loading
  - 1 hour per transformer review

2020
(Pivot to Proactive Replacement)

- Piloted Foundry platform to aggregate multiple data sources to identify overloads
  - 2 minutes per transformer review
- Developed transformer Replacement Action Plan: accelerate replacements, improve prediction tool capabilities, & revise engineering standards

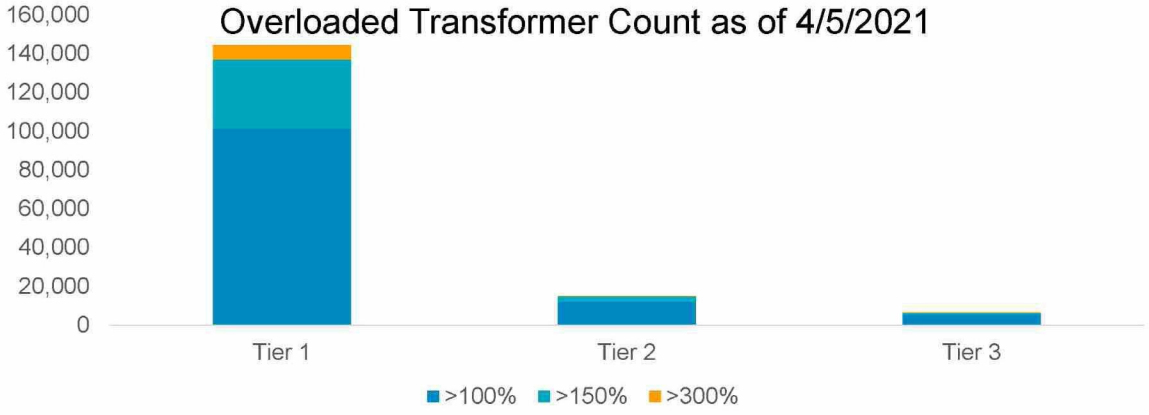
2021 & Beyond
(Proactive Risk-based Replacement)

- Pilot prediction tools like EPIC 3.20 SMARTMeter Voltage Trace, Temperature Alarm Device, & EPIC 3.13 Proactive Communication
- Prioritize replacement by Risk
- Implement (LiDAR) technology to assist reviews
- Utilize mobile platform to capture failure info to guide future strategy

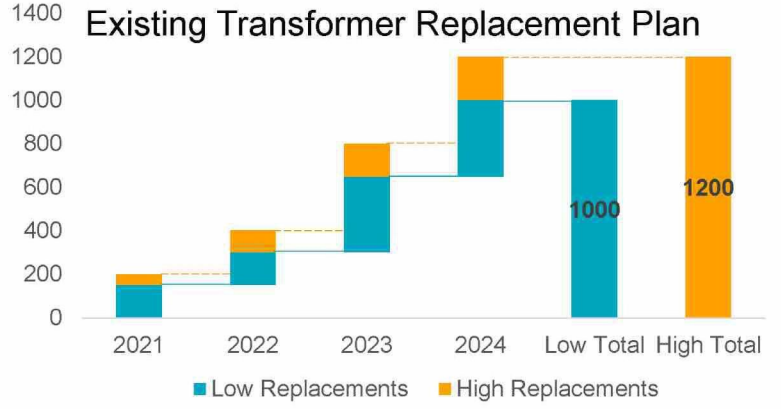
Extent of Condition and Replacement Plan

Identify | Determine | Prioritize | Execute

Results from review of OH transformer overloads utilizing the foundry platform



EDTLM initial un-scrubbed overload information			Distribution Across Tiers		
			Tier 1	Tier 2	Tier 3
Total	**915,152**	**100%**	**687,322**	**154,226**	**73,594**
>100%	**118,700**	**13.0%**	101,497	11,930	5,273
>150%	**39,555**	**4.3%**	35,636	2,756	1,163
>300%	**7,622**	**0.8%**	7,084	394	144



Year	2021	2022	2023	2024
Replacement Volume	150 – 200	150 – 200	350 – 400	350 – 400

NOTE: Foundry Platform Review captures 1) Flag potential illegal "grow houses" (300% to 500% O/L); 2) Expanded to HFTD areas (300% to 500% O/L); 3) Expanded to San Jose following Aug 2020 heat storms (150% or greater O/L)

Next Steps

Target Date 4/9 (today)

- Report out on schedule for when the Extent of Condition for overloaded OH Distribution Transformers can be completed

Target Date 4/13 (or earlier)

- Develop alternatives for further accelerating the OH transformer replacement plan
- For the alternatives considered, identify what the barriers are and what would be needed to address the identified barriers to be successful in ramping up for each alternative

Target Date by End-of-Month

- Update Extent of Condition review to include all OH transformers at 150% loading and greater for entire PG&E System
  - Prioritize by MAVF risk-consequence Technosylva (HFTD)
  - Prioritize Risk-Consequence (Non-HFTD)
- Return to the committee with a recommended approach for consideration and approval

IDLE TRANSMISSION LINES UPDATE

Inform - Transmission Idle Facilities

Situation

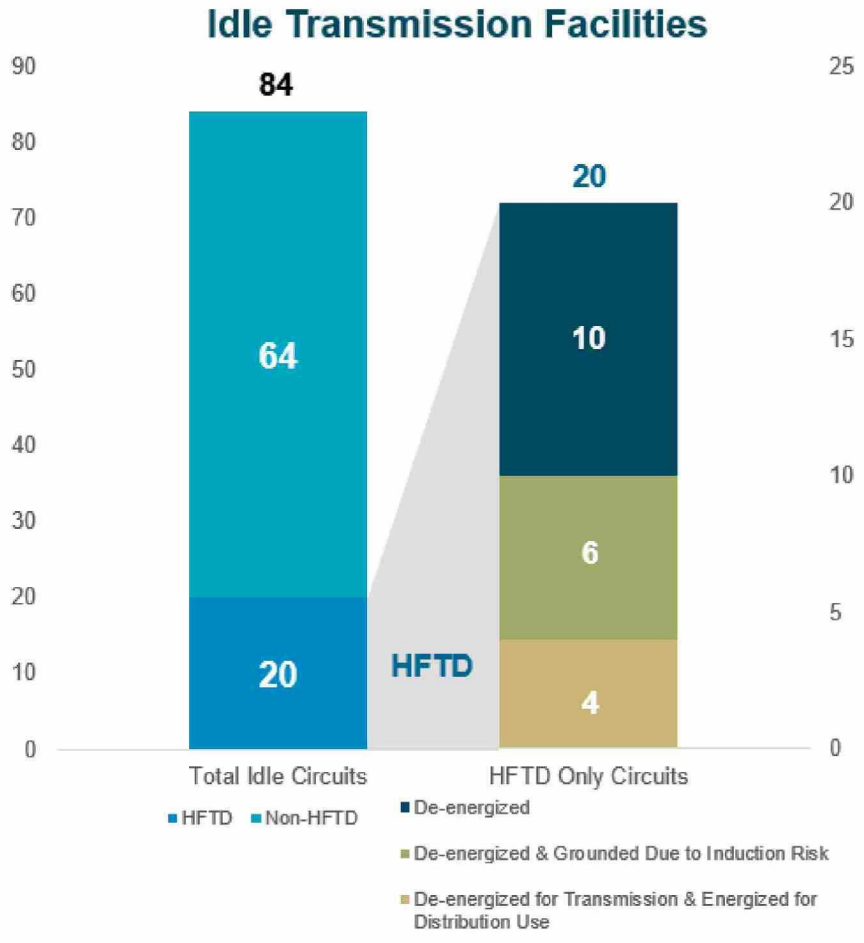
- Idle lines in HFTD pose significant wildfire risk if energized or have induction from nearby energized circuits.
- There are 84 known transmission idle facilities, 20 are HFTD with a combined 167 miles of conductor.
- All Transmission idle circuits in HFTD **de-energized**.

Approach

- Identification: Via desktop review (complete), routine/non-routine inspections and patrols.
- De-energization: Idle lines are investigated and promptly de-energized.
- Transfer: Circuits used by Distribution are transferred to Distribution (in progress).
- Induction Mitigation: Sectionalization and grounding of de-energized circuits.
- Maintenance: Continue to inspect and maintain until assets are removed.
- Removals: Prioritization of circuits in HFTD and have induction risk. Conductors/insulators are removed first then structures are removed later.

Response

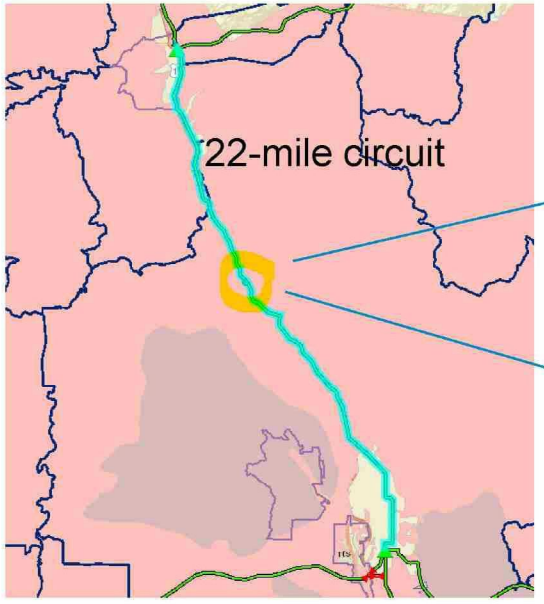
- Rolled out the management of idle facilities Standard (TD-1003S) and Procedure (TD-1003P) in TIL and notified other LOBs of the new process.
- Completed efforts to de-energize all transmission circuits in HFTD.
- 5 high induction risk circuits plus Caribou Palermo sectionalized and grounded.
- Caribou Palermo: 20 mi. removed; 33 grounded mi. to be removed by September 2021.
- Transfer to Distribution (in progress): Approximately 22 Idle lines being transferred.
- Centrally managed, track & monitor all idle facilities with ongoing reporting for visibility.

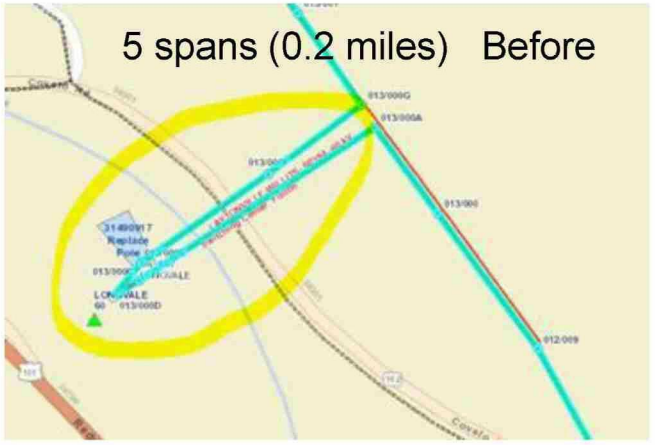


Special Idle Line cases

Team proactively supporting projects to remove idle facility that result from line redesign and other projects.

Laytonville Willits 60 kV circuit (5 short spans)





SUBSTATION INSPECTIONS UPDATE

Background

Background:

Substations and switchyards can be classified into three types:

- Electric Operations only – contains only assets that are owned by EO.
- Power Generation Only – contains only assets that are owned by PG.
- Shared Sites – Contains assets owned by both EO and PG.

Original 2021 Inspection Plan:

- Included EO only sites and Shared sites (inspection of EO assts only).
- Did not include PG only sites or PG owned assets at shared sites .

Original 2021 Substation Inspection Plan

T2	38
T2/3A	20
T3	42
Total	100

2021 Count of Powerhouse

Non-HFTD	1
T2	38
T3	24
Total	63

Self-Report:

Self report was filed for missing the inspection for the PG sites in 2020.

Note: The self report contained a total count of 64, Narrows PH was sold during 2020 so the 2021 total count is 63.

Consolidated Inspection Plan:

Following the self report a detailed analysis was performed to validate the EO and PG sites. Once the analysis was completed a revised inspection plan was created.

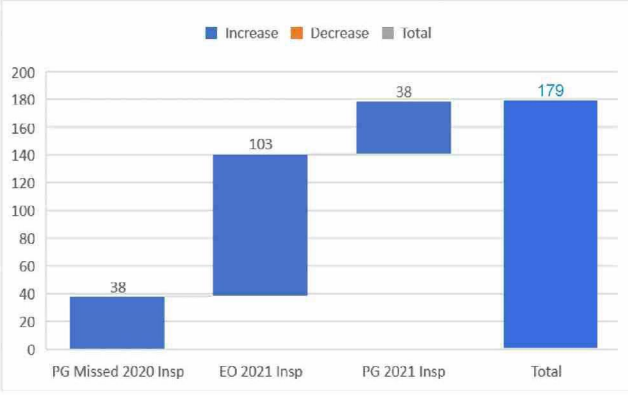
Inspection Plan Methodology

Methodology:

- Previous inspections were counted by sites. Moving to counting by Sites/Owner.
  - Example: a shared facility would have 2 inspections, one for the EO owned Assets and one for the PG owned assets.
- Develop the plan to be in compliance with all requirements and perform inspections on EO & PG sites at the correct frequency (tier 3 – annually, tier 2 & T2/3A sites every 3 years).
- Complete missed 2020 inspection and get back on track for 2021 (Tier 2, Yr 2 of 3-yr cycle).
- The revised 2021 plan includes:
  1. Start with the inspection of all PG tier 3 sites (that should have been performed in 2020). Complete
  2. Inspect >1/3 of the PG tier 2 sites (that should have been performed in 2020). Complete
  3. Inspect all EO & PG tier 3 sites (for 2021).
  4. Inspect ~1/3 EO & PG tier 2 & T2/3A sites (for 2021).
  5. Inspect 2 additional Non-HFTD locations identified by the Risk team (1PG, 1EO Sub).
- In 2021:
  - all 24 PG T3 sites will be inspected twice
  - 28 of 38 PG T2 sites will have been inspected.

2021 Revised Inspection Plan

	Sites	Inspections
T1	2	2
T2	57	65
T2/3A	20	20
T3	79	92
Total	**158**	**179**



Revised 2021 Inspection Plan

103 EO Sites for 2021

Substation	Tier	2021	2021 Priority	2021 Notes
SOLAR SW STA	T2/3A	Yes	39	
COTTONWOOD	T2/3A	Yes	40	
WILLITS A	T2/3A	Yes	41	
KINGS RIVER PH	T2	Yes	42	HT2 - 2nd group (7/1 due)
AG WISHON PH	T3	Yes	43	HT3 - 2021 planned Inspection
MIDDLETOWN	T2	Yes	44	
BUCKS CREEK PH	T3	Yes	45	HT3 - 2021 planned Inspection
ROCK CREEK PH	T3	Yes	46	HT3 - 2021 planned Inspection
GEYSERS 3 & 4 PP SW STA	T3	Yes	49	
KERCKHOFF #2 PH	T2	Yes	50	HT2 - 2nd group (7/1 due)
SAN JOAQUIN #2 PH	T3	Yes	51	HT3 - 2021 planned Inspection
COARSEGOLD	T2	Yes	52	
EAGLE ROCK	T3	Yes	53	
CLAY	T2	Yes	54	
ELECTRA	T2	Yes	55	
ELECTRA PH	T2	Yes	56	HT2 - 2nd group (7/1 due)
PIT #1 PH	T2	Yes	57	HT2 - 2nd group (7/1 due)
SAN JOAQUIN #3 PH	T2	Yes	58	HT2 - 2nd group (7/1 due)
ZACA	T2	Yes	59	
VOLTA #1 PH	T3	Yes	63	HT3 - 2021 planned Inspection
IONE	T3	Yes	65	
WESTWOOD SW STA	T2/3A	Yes	66	
CEDAR CREEK	T3	Yes	67	
HAT CREEK #1 PH	T2	Yes	69	HT2 - 2nd group (7/1 due)
SPAULDING #1 & 2 PH	T2	Yes	70	HT2 - 2nd group (7/1 due)
BIG BEND	T3	Yes	71	
FOOTHILL	T2	Yes	72	
CALAVERAS CEMENT	T2	Yes	73	
SMARTVILLE	T2	Yes	74	
KESWICK	T3	Yes	75	
FORESTHILL	T3	Yes	76	
CRESTA PH	T3	Yes	77	HT3 - 2021 planned Inspection
TIGER CREEK PH	T3	Yes	78	HT3 - 2021 planned Inspection
OREGON TRAIL	T2	Yes	79	
CLARKSVILLE	T2/3A	Yes	80	
POTTER VALLEY PH	T2	Yes	82	HT2 - 2nd group (7/1 due)
KILARC PH	T3	Yes	83	HT3 - 2021 planned Inspection
HARTLEY	T2	Yes	84	
COLUMBIA HILL	T3	Yes	85	
CURTIS	T2/3A	Yes	86	
SPRING GAP PH	T3	Yes	87	HT3 - 2021 planned Inspection
COLGATE PH	T2	Yes	88	
COLGATE SW STA	T2	Yes	89	
POE PH	T3	Yes	90	HT3 - 2021 planned Inspection
POINT MORETTI	T2	Yes	91	
DIABLO CANYON PP	T3	Yes	92	
OCEANO	T2	Yes	93	
WOODACRE	T3	Yes	94	
MARTELL	T2/3A	Yes	96	
POINT ARENA	T2	Yes	97	
CMC	T2	Yes	98	
KANAKA	T3	Yes	99	
OAKHURST	T3	Yes	101	
WOODCHUCK	T1	Yes	103	
GARBERVILLE	T3	Yes	104	
DRUM #1 PH	T3	Yes	105	HT3 - 2021 planned Inspection
DIAMOND SPRINGS	T2/3A	Yes	107	
GANSNER	T2/3A	Yes	108	
ELK	T2	Yes	109	
FORT SEWARD	T2	Yes	110	
OTTER	T3	Yes	111	
COTATI	T2	Yes	112	
PIKE CITY	T3	Yes	113	
PHILO	T2/3A	Yes	114	
TOCALOMA	T2	Yes	115	
ALLEGHANY	T3	Yes	116	
CENTERVILLE PH	T3	Yes	117	HT3 - 2021 planned Inspection
CHALLENGE	T3	Yes	118	
SHINGLE SPRINGS	T3	Yes	120	
CARLOTTA	T2	Yes	121	
CARBERRY SW STA	T2	Yes	122	
WILLOW CREEK	T3	Yes	123	
DUNBAR	T2/3A	Yes	124	
BONNIE NOOK	T3	Yes	125	
MORAGA	T2	Yes	128	
BENTON	T2	Yes	129	
TRINITY	T2/3A	Yes	130	
FLINT	T2	Yes	131	
MORRO BAY SW STA	T2/3A	Yes	132	
HOOPA	T2/3A	Yes	133	
WEST POINT PH	T3	Yes	134	HT3 - 2021 planned Inspection
ORO FINO	T3	Yes	136	
BRUNSWICK	T2/3A	Yes	137	
OAKMONT SOUTH	T3	Yes	138	
BIG BASIN	T3	Yes	139	
EL DORADO PH	T3	Yes	140	
BOLINAS	T2	Yes	141	
MI-WUK	T3	Yes	142	
PAUL SWEET	T2/3A	Yes	143	
BURNS	T3	Yes	144	
PINECREST	T3	Yes	145	
MONTE RIO	T3	Yes	146	
RIDGE	T2	Yes	147	
CLEAR LAKE	T2/3A	Yes	148	
FELTON	T3	Yes	149	
GRASS VALLEY	T2	Yes	150	
PLACERVILLE	T3	Yes	151	
ESTUDILLO	T2/3A	Yes	152	
ROB ROY	T2	Yes	153	
SAN ANDREAS	T2/3A	Yes	154	
TAR FLAT	T2/3A	Yes	155	
BEN LOMOND	T3	Yes	156	
EMERALD LAKE	T2	Yes	158	

Revised 2021 Inspection Plan

38 PG Sites for 2020

Substation	Tier	2021	2021 Priority	2021 Notes
AG WISHON PH	T3	Yes	1	HT3 - 2020 Make up insp
BUCKS CREEK PH	T3	Yes	2	HT3 - 2020 Make up insp
ROCK CREEK PH	T3	Yes	3	HT3 - 2020 Make up insp
SAN JOAQUIN #1A PH	T3	Yes	4	HT3 - 2020 Make up insp
SAN JOAQUIN #2 PH	T3	Yes	5	HT3 - 2020 Make up insp
VOLTA #1 PH	T3	Yes	6	HT3 - 2020 Make up insp
VOLTA #2 PH	T3	Yes	7	HT3 - 2020 Make up insp
CRESTA PH	T3	Yes	8	HT3 - 2020 Make up insp
TIGER CREEK PH	T3	Yes	9	HT3 - 2020 Make up insp
ALTA PH	T3	Yes	10	HT3 - 2020 Make up insp
KILARC PH	T3	Yes	11	HT3 - 2020 Make up insp
SPRING GAP PH	T3	Yes	12	HT3 - 2020 Make up insp
POE PH	T3	Yes	13	HT3 - 2020 Make up insp
CHILI BAR PH	T3	Yes	14	HT3 - 2020 Make up insp
DUTCH FLAT #1 PH	T3	Yes	15	HT3 - 2020 Make up insp
DRUM #1 PH	T3	Yes	16	HT3 - 2020 Make up insp
DRUM #2 PH	T3	Yes	17	HT3 - 2020 Make up insp
CENTERVILLE PH	T3	Yes	18	HT3 - 2020 Make up insp
CRANE VALLEY PH	T3	Yes	19	HT3 - 2020 Make up insp
TOADTOWN PH	T3	Yes	20	HT3 - 2020 Make up insp
DEER CREEK PH	T3	Yes	21	HT3 - 2020 Make up insp
WEST POINT PH	T3	Yes	22	HT3 - 2020 Make up insp
GRIZZLY PH	T3	Yes	23	HT3 - 2020 Make up insp
DESABLA PH	T3	Yes	24	HT3 - 2020 Make up insp
STANISLAUS PH	T2	Yes	25	HT2 - 1st Group (3/31 due)
BALCH #1 & #2 PH	T2	Yes	26	HT2 - 1st Group (3/31 due) - insp ir
SOUTH PH	T2	Yes	27	HT2 - 1st Group (3/31 due) - insp ir
SALT SPRINGS PH	T2	Yes	28	HT2 - 1st Group (3/31 due) - insp ir
HAAS PH	T2	Yes	29	HT2 - 1st Group (3/31 due)
CARIBOU PH #1	T2	Yes	30	HT2 - 1st Group (3/31 due)
CARIBOU PH #2	T2	Yes	31	HT2 - 1st Group (3/31 due)
KERCKHOFF #1 PH	T2	Yes	32	HT2 - 1st Group (3/31 due)
NARROWS	T2	Yes	33	HT2 - 1st Group (3/31 due) - insp ir
PIT #3 PH	T2	Yes	34	HT2 - 1st Group (3/31 due)
COW CREEK PH	T2	Yes	35	HT2 - 1st Group (3/31 due)
NEWCASTLE PH	T2	Yes	36	HT2 - 1st Group (3/31 due)
COLEMAN PH	T2	Yes	37	HT2 - 1st Group (3/31 due) - insp ir
WISE 1 & 2 PH	T2	Yes	38	HT2 - 1st Group (3/31 due)

38 PG Sites for 2021

Substation	Tier	2021	2021 Priority	2021 Notes
KINGS RIVER PH	T2	Yes	42	HT2 - 2nd group (7/1 due)
AG WISHON PH	T3	Yes	43	HT3 - 2021 planned Inspection
BUCKS CREEK PH	T3	Yes	45	HT3 - 2021 planned Inspection
ROCK CREEK PH	T3	Yes	46	HT3 - 2021 planned Inspection
SAN JOAQUIN #1A PH	T3	Yes	47	HT3 - 2021 planned Inspection
TULE RIVER PH	T2	Yes	48	HT2 - 2nd group (7/1 due)
KERCKHOFF #2 PH	T2	Yes	50	HT2 - 2nd group (7/1 due)
SAN JOAQUIN #2 PH	T3	Yes	51	HT3 - 2021 planned Inspection
ELECTRA PH	T2	Yes	56	HT2 - 2nd group (7/1 due)
PIT #1 PH	T2	Yes	57	HT2 - 2nd group (7/1 due)
SAN JOAQUIN #3 PH	T2	Yes	58	HT2 - 2nd group (7/1 due)
PHOENIX PH	T2	Yes	60	HT2 - 2nd group (7/1 due)
HAT CREEK #2 PH	T2	Yes	61	HT2 - 2nd group (7/1 due)
SPAULDING #3 PH	T2	Yes	62	HT2 - 2nd group (7/1 due)
VOLTA #1 PH	T3	Yes	63	HT3 - 2021 planned Inspection
INSKIP PH	T2	Yes	64	HT2 - 2nd group (7/1 due)
VOLTA #2 PH	T3	Yes	68	HT3 - 2021 planned Inspection
HAT CREEK #1 PH	T2	Yes	69	HT2 - 2nd group (7/1 due)
SPAULDING #1 & 2 PH	T2	Yes	70	HT2 - 2nd group (7/1 due)
CRESTA PH	T3	Yes	77	HT3 - 2021 planned Inspection
TIGER CREEK PH	T3	Yes	78	HT3 - 2021 planned Inspection
ALTA PH	T3	Yes	81	HT3 - 2021 planned Inspection
POTTER VALLEY PH	T2	Yes	82	HT2 - 2nd group (7/1 due)
KILARC PH	T3	Yes	83	HT3 - 2021 planned Inspection
SPRING GAP PH	T3	Yes	87	HT3 - 2021 planned Inspection
POE PH	T3	Yes	90	HT3 - 2021 planned Inspection
CHILI BAR PH	T3	Yes	95	HT3 - 2021 planned Inspection
DUTCH FLAT #1 PH	T3	Yes	100	HT3 - 2021 planned Inspection
HELMS PH	T1	Yes	102	HT2 - 2nd group (7/1 due)
DRUM #1 PH	T3	Yes	105	HT3 - 2021 planned Inspection
DRUM #2 PH	T3	Yes	106	HT3 - 2021 planned Inspection
CENTERVILLE PH	T3	Yes	117	HT3 - 2021 planned Inspection
CRANE VALLEY PH	T3	Yes	119	HT3 - 2021 planned Inspection
TOADTOWN PH	T3	Yes	126	HT3 - 2021 planned Inspection
DEER CREEK PH	T3	Yes	127	HT3 - 2021 planned Inspection
WEST POINT PH	T3	Yes	134	HT3 - 2021 planned Inspection
GRIZZLY PH	T3	Yes	135	HT3 - 2021 planned Inspection
DESABLA PH	T3	Yes	157	HT3 - 2021 planned Inspection

Key Decision – Changes to the 2021 EVM Plan

Approval Status	PENDING
Date Approved	

Decision Detail

Acceptance of the specific plan and prioritization of substation and power generation assets in the HFTD

Concerns and Mitigations

Approvals

[redacted]	

Action Items and Validations

Communications Plan

VEGETATION MANAGEMENT EXECUTION UPDATE

Week 13

Vegetation Management Operational Dashboards

Account Director: [redacted]

Operational Period 13: March 28 – April 3*

4DX		
	Patrol - Routine Dist.	33%
	Patrol - Routine Trans.	37%
	Patrol Mid-Cycle (CEMA)	32%
	Timeliness – Priority Tags	99.8%
	EVM Cleared	3%
	Trans ROW – WMP Commitment Miles	22%
	Dollars Spent, Remaining	$1,208M

① 4DX METRICS

EXECUTION WIG

Execute Vegetation Management inspection programs on Distribution and Transmission lines and equipment, and conduct appropriate tree work to maintain system reliability, and compliance with clearance regulations.

% Complete by Workstream

EXECUTION LEADING INDICATORS

Quarterly Patrol Completion (% projects complete) – Q1	D-Rou:92%/21.8% CEMA: 92.3%/52.8%
EVM Monthly Actual v. Forecast (miles)	32 miles YTD; 1 mile Mar cleared, >1% of mth. Plan
EVM Productivity - Trees/TC HC/week v. Budget Target	TBD
Days Lost Due to Major Events (PSPS, etc.)	PSPS - 1/19; 6 Days - Jan OEC activation
Notices of Violation: violations reported/ confirmed/ Total	Week: 0 / 1 / 1 YTD: 6 / 11 / 17 2020: 18 / 64 / 82
TC Headcount Actuals: D-Rou / CEMA / EVM	2,157 / 117 / 528

COST WIG – 2021 Budget

Deliver Vegetation Management work within +/-2% of EOY budget by executing work efficiently and meeting our customer commitments.

Unit Cost (Mile/Tree)	$/ Unit	RAG	Variance
EVM YTD (M)	208K		- Low monthly production as Risk-based plan constraint review in progress
EVM Plan (M)	298K		
Dist-Rou YTD (T)	331		- Reduced Feb costs recognized due to switch to % completion accrual basis for Defined Scope
Dist-Rou Plan (T)	448		

QUALITY INDICATORS

Q.A. YTD % Compliance (D-Rou/T-Rou/Pole Clearing)	'20: 99.45 / 100 / 93.44 '21: 99.80 ← / - / -
Q.C. – Work Validation	TBD

COST LEADING INDICATORS

VM Inspector Hiring – 31 Cumulative Offers Extended by 1/31	Completed - 40 offers completed by 1/31
Forecast Accuracy (% variance to actual) – EOY Flash Forecast	Rou-D: 29% EVM: 23% Rou-T: -80% CEMA: 51%
% of Overtime & Double-time YTD Spend v. Target – Current Mth. (Prior Mth.)	[TBD]
% of Headcount on T&E v. Target	[TBD]

② SAFETY – YTD

	NCL <24hr /Total	Near Hits	PMVI	OSHA RIS	SIFP	SIF	Procedure Errors	Line Strikes	DART	Hi-Risk Findings	Life Threats
Week	0 / 0	2	0	1	0	0	0	1	0	0	0
PG&E	0 / 1	0	0	0	0	0	0	0	0	0	0
Contractor	N/A	6	8	1	2	1	0	17	N/A	2	0

③ OPERATIONS

Execution Overview- YTD 4/3/2021

(Units – Trees, Poles, Acres)	Inspection Complete(1)	Inspection Var.(2)	Inspection Trend	Tree Work '21 Plan	Tree Work '21 Frcst.	Tree Work Complete(1)	Tree Work Var.(2)	Tree Work Trend
Rou-Trans-NERC (T)	42%	24.8%	↑	15,710	14,843	15%	5%	←
Rou-Trans-Non-NERC (T)				75,239	61,514	21%	0%	←
Rou–Dist-2021 (T)	34%	(4)%	←	1,241,625	1,332,523	23%	1.9%	←
Rou–Dist-2020 (T)	N/A	N/A	N/A	250,000	205,498	70%		
Tree Mortality - (T)	43%	5%	←	65,000	77,397	27%	2.1%	↑
EVM (M)	12%	2%	←	1,890	1,890	3%	(5)%	↓
Pole Clearing Inspection & Clearing (04/30/2021) (P)	102%	48%	←	87,074	86,908	87%	7%	←
Trans–IVM/Fee (A)	53%	14%	↑	10,289	9,612	14%	2%	↑
Trans – ROW Expansion (T)	54%	16%	↓	285,020	286,050	17%	(3)%	←
Trans – PSPS Targeted (T)	5%	TBD	↓	10,144	10,296	3%	TBD	↓
Trans–Orchard Removal (T)	72%	34%	↓	8,400	8,743	27%	12%	↓

(1) Expressed as % of plan, apart from Trans Rou which is % Forecast. RAG criteria Red/Amber 85% plan; Amber/Green 96% plan, unless otherwise indicated by * | 2) Absolute variance – e.g., Act 5% Plan 6% Delta. 1% | (3) ^ Pending Change Control

④ OTHER INITIATIVES

Leader in the Field

Job Level	Trend	Month	Trend	YTD
Sr. Leader	↓	19%	↓	15%
Manager	↓	27%	–	25%
Supervisor	↑	30%	↑	28%
VMI	↑	50%	–	48%

Priority Tags

Non-Timely (trees)	Week: Non-Constrained	Week: Constrained	Total	Data Correction	YTD Prior Week	YTD	YTD Timeliness
Priority 1	0	0	0	1	0	0	100.00%
Priorty 2	0	27	27	25	37	38	99.76%

*Excludes trees considered timely based upon identified and pending data corrections

EVM

Plan (Miles) / Risk Tranche (%)	Actual YTD	Plan YTD	2021 Plan
'21 Plan	32	126	1,905
<= 10%	97.5%	-	86.0%
>10 - 20%	0%	-	3%
>20%	2.5%	-	12.0%
Prior Plan	18	-	-
Total	50	126	1905

CAP Timeliness

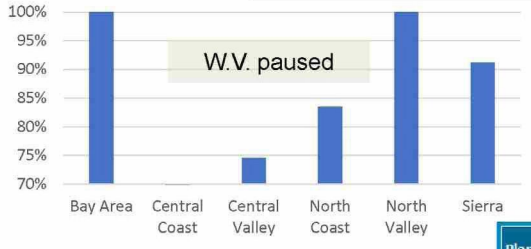
Issue	CW	PW
Closed/Due	Inc.	6/11
Overdue	0	1
Actions Overdue	1	-

Overdue Training

Week	Assignments	Trend
CW	0	–
PW	0	–

Quality Observations

Work Verification – EVM First Pass



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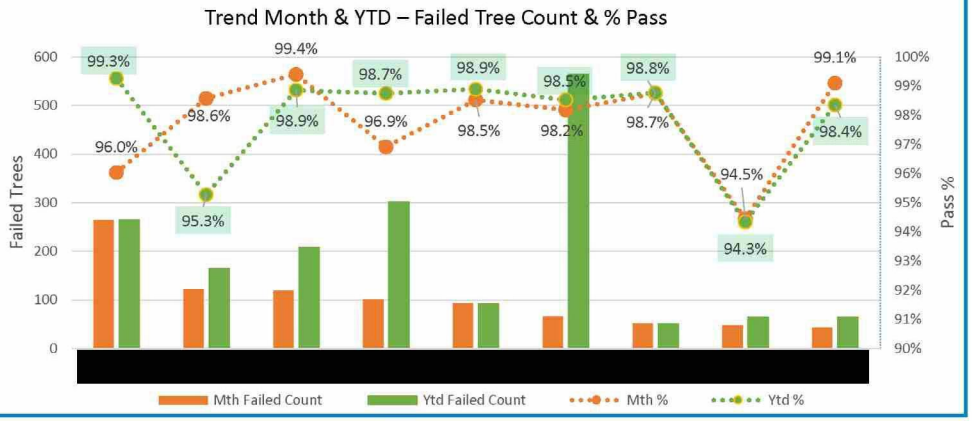
>20%	2.5%	-	12.0%
Prior Plan	18	-	-
Total	50	126	1905

Work Verification Non-EVM Performance



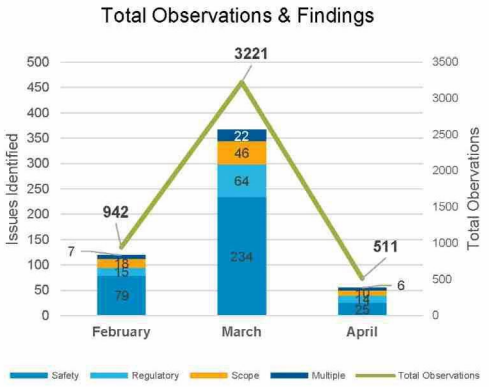
Trends	• YTD Cleared mileage: decrease excludes approx.18 miles initially targeted for '21 that were not included in the subsequently approved '21 plan. Credit for any of this mileage is subject to approval by the Wildfire Governance Steering Committee. (Note: 8.0 miles, or 45%, of the 18 miles is in the top 20% risk tranche) • WV on pause pending confirmation that current miles cleared methodology i.e., tree/segment mapping • First Pass Rate (mile): 2021 80.1% - 50 miles verified (2020: 85.4%; 2019: 68.4%)
Actions	• Incorporating QA feedback on cleared miles method (tree/segment assignment) – *in progress* • Inform WGSC on Grid Area work execution of 2021 plan based upon CPZ risk ranking - *to be scheduled* • Revise data format above to better show trends in Work Verification – *pending work validation restart*

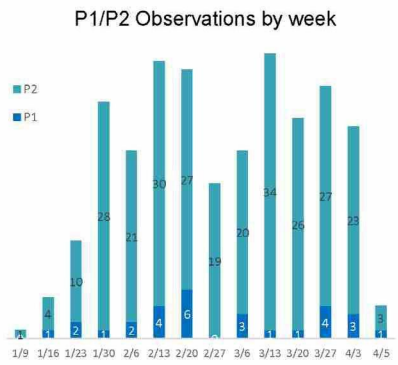
Trends	• Chart tracks vendor performance based upon current month failed tree volume and compares to YTD performance (>1,000 units completed W.V. YTD) – limited data set at present • *Trend Identified:* inconsistency in criteria being applied to assess dead/dying trees, observed across divisions particularly when PI considers that the tree will hold till next year • *Trend Identified: failed trees being identified due construction activities occurring*
Actions	• Inspection Dead/Dying – Reviewing 5 Minute Meeting with contractors in benchmark sessions reinforcing basis of inspection for dead/dying trees. Vendors have agreed that W.V.-conducted tree assessment (TAT) will result in removal (included in observations findings) • Conducting Benchmark Sessions in field with contractors to align expectations. As a result vendors are directing inspectors to run TAT on these trees. Recurring • Individual vendor findings review: Daily local operations teams, Weekly with prime vendors, and real-time meetings occur when possible, to provide feedback to vendors

NOTE: Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

Quality Observations

VMI Observations





Trends	• Observations reflect PG&E Veg. Mgt. Inspector (employee and contractor) reports from observing VM contractor field operations. Findings indicate corrective actions taken in the field by the contractor based upon VMI insight. • Total observations increase is driven by build out of VMI organization (57 head count) • Corrective action % steady - Mth:13%, YTD: 12% • Vendor-wide communication on COVID protocols has shown improvement with compliance based on VMI observations
Actions	• Weekly Observation-driven Feedback Topics – Data quality – internal reinforcement on how to categorize findings - Regulatory – permit compliance to prevent NOVs; Scope e.g., risk/clearance work identified • VMI Focus for Month of April – Continue to resolve issues onsite when observed; Continue to share weekly findings including trends to vendors; Preparing VMI for fire season inspections per TD-1464S procedure • Org build out – continue to add internal headcount; tracking training completion (structured learning path) as part of onboarding

NOTE: Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wi

External Party Observations

Federal Monitor – 2021	March		YTD	
	Monitor	WSD	Monitor	WSD
Field Assessment in Progress	24	0	24	0
Assessment Outcomes				
A. Concur with Assessment (yes/no)	3 / 1	0 / 10	3 / 1	0 / 10
B. Remediation Required (yes/no)	0 / 4	0 / 0	0 / 4	0 / 0
C. Remediation Complete (yes/no)	N/A	N/A	N/A	N/A
Reviewed with Monitor/ provided to DRU	4	10	4	10

Trends	Monitor • Findings generally consistent with PG&E – 1 non-concurrence relates to a strike tree that was worked (topped) in 2020 and is no longer deemed a danger to PG&E facilities • Monitor field work being conducted along circuits with active patrol and tree work – findings related to work being identified by patrol, tree crews, or Work Verification • 24 new observations have been reviewed in the field and are currently being analyzed. 3 new observations recognized trees were signed up by Work Verification • Currently meeting 10-day turnround from receipt by VM, however there are delays in VM receipt WSD • Two severe findings determined to be in compliance with state regulatory requirements • Eight findings are currently in compliance with G.O. 95 Rule 35 and do not require mitigation work at this time. • Three new WSD findings are being evaluated in the field on 4/7.
Actions	Monitor • Weekly meeting with agenda based upon Monitor requests for information/discussion, includes detailed review of finding assessments • Scheduling benchmark field meeting to align on process • Tracking closeout of remaining tree work from '27 findings permitted to wait for next trim cycle WSD • Weekly meeting with WSD, reviewing detailed findings. • Validating process to ensure findings are consistently routed to ensure timely mitigation – *in progress*

SYSTEM INSPECTION EXECUTION UPDATE

Inspections – Open Action Items

Workstream	Action Item	Description	Responsible party	Resolution	Target Resolution Date	Resolution Date
Inspections	Field unit delta's	Feedback loop considerations and improvement opportunity capture (upgrades, downgrades, and cancellations) All Quality Control	[redacted]	In progress	4/9/2021	
Inspections	Inspections quality initiatives	Provide additional detail and update on inspections quality initiatives		In progress	4/9/2021	

Good Catch

3/29/21

[redacted], our Senior Construction Manager, was onboarding our newly contracted inspectors from Rokstad. They were inspecting the Laytonville-Covelo line. The inspectors finished up for the day and headed home while [redacted] stayed behind to respond to a few emails prior to his drive.

On his way back, he spotted a small fire along the side of the road. This fire was not near any of our PG&E equipment. [redacted] pulled over and was able to use our fire mitigation tools to extinguish the fire safely. [redacted] was also able to flag down a passing CHP officer to notify him of the situation. Cause for the fire was unknown. Great example of situational awareness and duty to act. Also a good example of what our fire mitigation tools can do, regardless of how the fire started.

System Inspections Operational Dashboards

Account Director: [redacted]

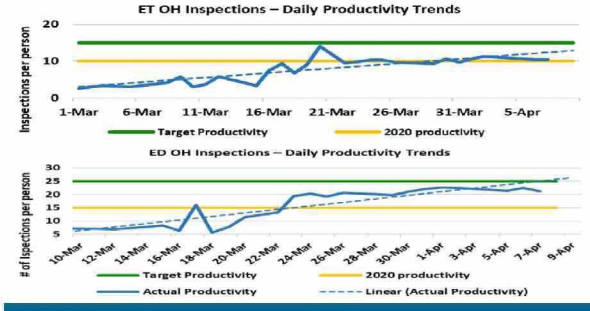
Operational Period 14: April 1st – April 7th

4DX		
	% of WMP Work Completed	10%
	% of Workplan Completed	20%
	% Op Ex Spent v. Plan	8%
	CIRT B Tag Cycle – Target 5 Days	2.25

① 4DX METRICS

EXECUTION WIG

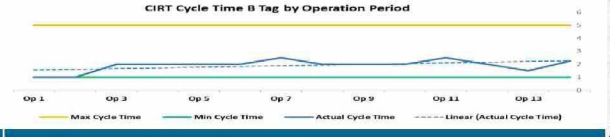
Inspect all in-scope 2021 work to reduce the likelihood of catastrophic wildfire caused by PG&E equipment.



EXECUTION INDICATORS

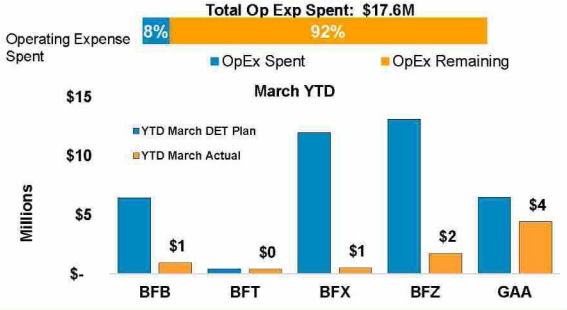
CGIs	OP Open	OP Resolved	YTD Resolved	Remain Open
TLine	1	0	0	22
Aerial	0	0	99	53
Distribution	33	11	217	237

CIRT	Pending Review	Reviewed	YTD Up grade	YTD Down grade	Cycle Time B Tag	Cycle Time E Tag
TLine	3,483	5,119	134	495	2.5	2.8
Dist.	1,701	10,223	608	620	2	2
Sub.	95	2,729	3	52	0	1



COST WIG

Inspect all in-scope 2021 work, within 2% of budget by executing work efficiently & meeting our customer commitments



COST INDICATORS

DT % total Time (Goal < / = 5%)	6.9%	
Total B Tags Generated Transmission	1:23	
Total B Tags Generated Distribution	916	
Total B Tags Generated Substation	645	
Total FSR Escalated B Tags Transmission	948	
Total Field Safety Reassess Comp Dist.	33,066	40,200
Total Field Safety Reassess Comp Tline.	3,973	12,000
Total FSR Escalated B Tags Transmission	71	
Total FSR Escalated B Tags Distribution	217	

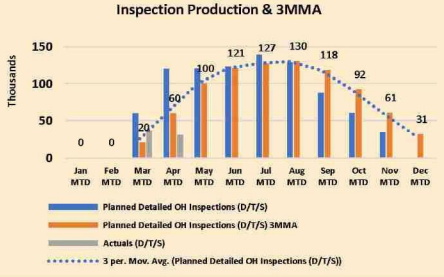
② SAFETY

	Nurse Care	Near Hits	LWDC	DART	OSHA	SPMVI	PMVI
YTD	8	1	0	0	1	0	2
OP Internal	0	0	0	0	0	0	0
OP Contractor	0	0	0	0	0	0	0

③ OPERATIONS

Program	OP Gain	YTD Actual	YTD Target (April)	2021 Target	% Complete
Detailed OH Distribution BFB	25,675	52,817	162,830	807,025	6%
Detailed OH Tline Ground BFZ	5,284	14,137	16,397	63,440	22%
Detailed OH Tline Climb BFT	160	579	985	4,037	14%
Aerial Transmission BF2	471	1,856	16,397	64,544	3%
Supplemental Substation	7	14	51	141	10%
Underground Inspections BFE	2,840	34,403	40,856	136,187	23%
Underground Patrol BFD	2,477	75,197	83,169	252,027	29%
Distribution Patrols BFA	15,493	368,116	426,186	1,183,849	30%
Transmission Patrols BFX*	19,240	19,240	46,240 (Q2)	124,495	15%
PT&T	4,780	47,221	79,200	240,000	20%

④ OTHER INITIATIVES



Wildfire Mitigation Plan			
Program	OP Gain	YTD Comp	Plan
Dist.	21,347	42,692	394,936
Tline*	179	443	24,290
Sub	7	14	141
IR	301	778	4,283

System Inspections Operational Dashboards

Account Director: [redacted]

Operational Period 14: April 1st – April 7th

Transmission, Distribution and Substation Execution Review (HFTD)

Notifications by Inspections HFTD Assets

Distribution Top 4 HFTD Tags		
Tag Type	A Tag	B Tag
Anchor	23	5
Conductor	19	29
Jumper	15	1
Pole	18	3

Transmission Top 4 HFTD Tags		
Tag Type	A Tag	B Tag
Conductor	-	74
Insulator-Wood	-	36
Insulator-Steel	-	34
Splice-Wood	-	21

Notifications by Inspections HFTD Assets

Substation Top 4 HFTD Tags		
Tag Type	A Tag	B Tag
Trans/Regulator -Power	4	24
Insulators	-	10
Structure	-	6
Measurement & Control	-	5

WMP Operations HFTD Assets Only

Wildfire Mitigation Activity	March MTD		April MTD		May MTD		June MTD		July MTD	
	Actual Units	Plan Units	Actual Units	Plan Units	Actual Units	Plan Units	Actual Units	Plan Units	Actual Units	Plan Units
Distribution	21,345	49,266	21,347	99,364		98,533		98,533		77,161
Transmission	264	4,858	179	8,016		6,315		6,315		3,380
Substation	7	13	7	44		35		35		20
Infrared (miles)	477	385	301	600		600		899		899

Notification by FSR Escalation HFTD Assets YTD

Distribution Top 4 HFTD Tags		
Tag Type	A Tag	B Tag
Pole	-	134
Hardware	-	4
Conductor	-	11
Anchor	-	4

Transmission Top 4 HFTD Tags		
Tag Type	A Tag	B Tag
Insulator	-	2
Conductor	-	3
Structure	-	4
Guy	-	-

****HFRA attribute is not yet available at the asset level and thus it is not currently tracked****

*High Fire Risk Area (HFRA) : Mapping terminology that aligns with other California utilities use of maps **supplemental** to the CPUC **HFTD Map**. While the HFTD is a foundational tool to identify areas of elevated or extreme wildfire risk for utilities, it was not developed at the electric asset level and is not operationally informed for PSPS program scoping and execution. HFRA refinements may also serve to inform future adjustments or recommendations to improve the HFTD map.*

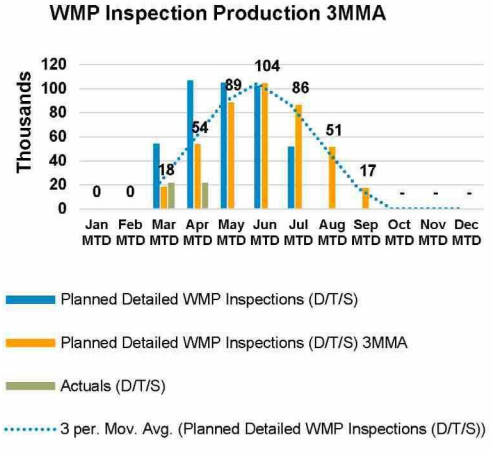
Total HFTD Partial Inspections

CIRT/ WMP	TLine.	Dist.	Sub.
Pending Review	1,211	615	-
Reviewed	5,902	2,841	170
YTD Up grade	322	77	0
YTD Down grade	309	349	7
B Tag cycle	2	2.5	-
Total B Tags	169	345	55
% Canceled	10%	42%	2%

Tline Partial Inspections (HFTD)

Tline HFTD Partial Inspections **Do Not Use for WMP Reporting**		
Program	YTD Insp	EOY Plan
Climbing	501	1,387
Ground	8,702	24,290
Air	1,074	24,290

WMP Plan (T/D/S) 3MMA



Digital Catalyst Update

Item #	Issue Description	IT Status	Target Fix Date/Notes
ET - 5	FSRs - Availability of photos/document for Air+ LCs on to Inspect and Construct	In Progress	Inspect is fixed – released 3/31 They are still working on Construct fix
ET - 6	Inspect pulling closed/deleted notifications on inspections - FSR's pulling old SAP correctives causing submission to fail (we have the documentation in the back end)	In Progress	If notification has a Cancel/NOCO status – this issue has been fixed This issue will still occur If notification was deleted Complexities due to Tech down (paper) process for FSR assignment (Backoffice work could cancel or complete while inspector is working off of a paper list in the field)
ET-8	Inspect – LDSP/non-steel form "4 leg tower photos required on pole structures"	In progress	Fix is in and ready for release the week of 4/5/21
ET-16	Light Duty Steel Pole (LDSP) checklist issues	In Progress – in Backlog	3 scenarios: 1) Training issue if the form matches the actual asset in the field 2) Immediate technical fix needed – form and asset in the field do not match there is a technical fix that needs to be developed (in backlog) 3) Longer term solution - Discovery required (Data=field=form)
ET-17/ET-19	Engage - SAP data mismatch (Mismatch of equipment count between SAP and Engage & Engage not synced to MP/WP)	In Progress	Many layers to this mismatch – An edge case scenario for equipment mismatch between SAP and Engage for Assigned Work to be resolved 4/14. More discovery work needed to determine resolution for other scenarios
ET-21	Customer info on ET (similar to ED)	In Backlog	In backlog with a high priority for Q2

CORRECTIVE ACTION PLAN PROCESS UPDATE

Enhanced Oversight and Enforcement Process

On **Feb 25, 2021 CPUC proposed placing PG&E into step one of the Enhanced Oversight** and Enforcement process citing shortcomings in the 2020 EVM program. The first step **directs PG&E to submit a corrective action plan** and progress reports to the CPUC

	Corrective Action Plan Elements	Owner	Status (RAG)
1	A description of the circumstances that contributed to PG&E's failure to adequately prioritize the highest risk lines, as described in this Resolution and the WSD's EVM Audit, in its EVM in 2020	[redacted]	
2	A description of its risk model(s) for determining where to target EVM in the next 90 days		
3	A detailed list of the EVM projects for the 12 months following the reporting date		
4	A description of how the list in item 3 above ensures PG&E is prioritizing the power lines with highest risk first		
5	An explanation of any planned EVM work does not target the power lines with highest risk first		
6	Any changes to its risk model occurring over the prior 90 days or planned for the subsequent 90 days		
7	A description of the circumstances that contributed to PG&E management's inconsistent reporting on the details of its risk modeling and risk ranking lists		
8	Verification by a senior officer of PG&E that the risk model it is using to prioritize EVM is as set forth in its report		
9	Verification by a senior officer of PG&E that it will target EVM to the highest risk power lines first, as shown by its risk model or other ranking, in the next 90 days for EVM		
10	Verification by a senior officer of PG&E that it targeted EVM to the highest risk power lines first, as shown by its risk model or other ranking, in the prior 90 days		
11	Verification by a senior officer of PG&E that the company has communicated information in items 3, 4 and 9 above to personnel of PG&E's EVM programs and that such personnel is aware of where to target EVM in the subsequent 90 days		
12	A proposed timeline for ending the required reporting, with a detailed explanation of why the proposal ensures PG&E is in compliance with the requirement that it prioritize high risk circuits in its EVM work. The timeline shall include milestone goals for June 1, 2021, September 1. 2021, and December 31, 2021. These goals shall include a targeted percentage of high-risk power line circuits to be completed by those dates.		
13	A description of how the Corrective Action Plan proposed in response to this Resolution will complement and not undermine PG&E's compliance activities ordered in D.20-05-019		