PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans
Rulemaking 18-10-007
Data Response

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PG&E Data Request No.:	MGRA_001-Q01		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q01		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 01

How many individual distribution and transmission circuits have elements within HFTD Tier 2 and Tier 3 (some portion of the circuit passes through HFTD Tier 2 or Tier 3)? Please specify answers for distribution and transmission circuits separately.

ANSWER 01

PG&E interprets this question as applying to overhead circuits within PG&E's service area. These answers are subject to change as the system is reconfigured or as lines are constructed or removed.

Not including idle/deenergized lines and excluding customer-owned lines, as of March 6, 2019, some portion of approximately 800 overhead distribution circuits pass through HFTD Tier 2 and/or Tier 3.

Not including idle/deenergized lines and excluding customer-owned lines, as of March 6, 2019, some portion of approximately 530 overhead transmission circuits pass through HDTD Tier 2 and/or Tier 3.

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PG&E Data Request No.:	MGRA_001-Q02		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q02		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 02

What is the current average length in miles of the distribution and transmission circuits specified in question MGRA-1? Please specify answers for distribution and transmission circuits separately.

ANSWER 02

PG&E interprets this question as applying to overhead circuits within PG&E's service area. These answers are subject to change as the system is reconfigured or as lines are constructed or removed.

As of March 6, 2019, the average length of the overhead distribution circuits specified in response to MGRA_001, Q01 is approximately 271,700 feet.

As of March 6, 2019, the average entire length of the overhead transmission circuits specified in response to MGRA_001, Q01 is approximately 100,400 feet.

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PG&E Data Request No.:	MGRA_001-Q03		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q03		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 03

What is the current median length in miles of the distribution and transmission circuits specified in question MGRA-1? Please specify answers for distribution and transmission circuits separately.

ANSWER 03

PG&E interprets this question as applying to overhead circuits within PG&E's service area. These answers are subject to change as the system is reconfigured or as lines are constructed or removed.

As of March 6, 2019, the current median length of the overhead distribution circuits specified in response to MGRA_001, Q01 is approximately 184,600 feet.

As of March 6, 2019, the current median length of the overhead transmission circuits specified in response to MGRA_001, Q01 is approximately 76,100 feet.

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PG&E Data Request No.:	MGRA_001-Q04		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q04		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 04

What is the current average length in miles of the top 10% longest distribution and transmission circuits specified in question MGRA-1? Please specify answers for distribution and transmission circuits separately.

ANSWER 04

PG&E interprets this question as applying to overhead circuits within PG&E's service area. These answers are subject to change as the system is reconfigured or as lines are constructed or removed.

As of March 6, 2019, the average length of the top 10% longest overhead distribution circuits specified in response to MGRA_001, Q01 is approximately 806,700 feet.

As of March 6, 2019, the average length of the top 10% longest overhead transmission circuits specified in response to MGRA_001, Q01 is approximately 271,700 feet.

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PG&E Data Request No.:	MGRA_001-Q05		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q05		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 05

How many circuits specified in MGRA-1 are planned for resectionalization into smaller circuit segments in 2019 and 2020 time frame? What will be the average segment length before and after such modifications, if any are planned?

ANSWER 05

PG&E's distribution sectionalization plans are still being finalized and are subject to change as the system is reconfigured, but as of March 4, 2019, PG&E has identified 330 distribution circuits that will require the installation of 760 new automated sectionalizing devices in order to remotely isolate the High Fire Threat District (HFTD) Tier 2 and Tier 3 areas from non-fire threat areas to minimize customer impact during a Public Safety Power Shutoff (PSPS) event. These automated sectionalizing devices will consist of Line Reclosers, Motor Switch Operators (MSO), and FuseSavers. PG&E is developing a plan during the 2019 – 2020 timeframe to install as many of these 760 automated devices as possible. PG&E has identified the resulting circuit segments in terms of customer impacts rather than segment lengths. The resulting circuit segments can be categorized into the following customer impact ranges:

CUSTOMER IMPACT RANGE PER NEW DEVICE SEGMENT	NUMBER OF NEW PSPS DEVICE SEGMENTS
Less than 100 customers	504
Between 100 and 500	170
Between 500 and 1,000	35
Between 1,000 and 2,000	37
Between 2,000 and 3,000	7
Between 3,000 and 4,000	4
Greater than 4,000	3

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PG&E Data Request No.:	MGRA_001-Q06		
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Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 06

What are longer term plans for circuit division into smaller segments for the 2020- 2025 time frame?

ANSWER 06

As described in MGRA_001, Q05, PG&E is developing a plan during the 2019 – 2020 timeframe to install as many of required 760 automated distribution sectionalizing devices as possible. Any devices not able to be completed in this timeframe will roll-over into the 2021-2025 timeframe.

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PG&E Data Request No.:	MGRA_001-Q07		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q07		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 07

How many of the circuits specified in MGRA-1 can currently be remotely de- energized or re-energized via SCADA? Please specify answers for distribution and transmission circuits separately.

ANSWER 07

The distribution sectionalization plans are still being finalized and are subject to change as the system is reconfigured, but as of March 4, 2019, PG&E has identified 679 existing sectionalizing devices on 509 distribution circuits that are currently automated and can be remotely de-energized via SCADA to isolate the HFTD Tier 2 and Tier 3 areas during a PSPS event.

As a networked system, the transmission sectionalizing opportunities are contingent on real-time system configuration. It is anticipated that sectionalization plans will occur via SCADA and qualified electrical field personnel, as needed, to isolate the HFTD Tier 2 and Tier 3 areas and during a PSPS event.

PACIFIC GAS AND ELECTRIC COMPANY
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PG&E Data Request No.:	MGRA_001-Q08		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q08		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 08

How many of the circuits specified in MGRA-1 will have capability to be remotely de-energized or re-energized via SCADA after 2019-2020 work is completed? Please specify answers for distribution and transmission circuits separately, and include any new circuits created by sectionalization of existing circuits.

ANSWER 08

While the distribution sectionalization plans are still being finalized and are subject to change as the system is reconfigured, PG&E anticipates that only about three dozen distribution circuits will still be manually operated after the sectionalization plans are completed. Many of these are small 4kV circuits and there are currently no plans to add SCADA capability to these circuits and they will continue to be manually operated.

PG&E is currently gathering information responsive to this request for the transmission system and will provide it as soon as reasonably possible.

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PG&E Data Request No.:	MGRA_001-Q08Supp01		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q08Supp01		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 8, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 08

How many of the circuits specified in MGRA-1 will have capability to be remotely de-energized or re-energized via SCADA after 2019-2020 work is completed? Please specify answers for distribution and transmission circuits separately, and include any new circuits created by sectionalization of existing circuits.

ANSWER 08

While the distribution sectionalization plans are still being finalized and are subject to change as the system is reconfigured, PG&E anticipates that only about three dozen distribution circuits will still be manually operated after the sectionalization plans are completed. Many of these are small 4kV circuits and there are currently no plans to add SCADA capability to these circuits and they will continue to be manually operated.

PG&E is currently gathering information responsive to this request for the transmission system and will provide it as soon as reasonably possible.

SUPPLEMENTAL ANSWER

For transmission, PG&E has the ability to de-energize and re-energize all transmission lines within Tier 2 and Tier 3 areas remotely via SCADA. A few lines may require indirect removal of adjacent equipment to get the desired line deenergized.

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PG&E Data Request No.:	MGRA_001-Q09		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q09		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 09

How many of the circuits specified in MGRA-1 can currently reset recloser settings via SCADA? Please specify answers for distribution and transmission circuits separately.

ANSWER 09

Based on the SCADA software functionality, PG&E's Control Centers cannot remotely change any of the actual preprogrammed settings within a controller/relay. As required, any preprogrammed settings must be changed by field personnel at the device site. Thus, the answer is none. However, PG&E does note that its Distribution Control Centers can remotely change from preprogrammed "normal configuration" settings to preprogrammed "alternate configuration" settings on each individual SCADA controlled Line Recloser. Currently PG&E has approximately 1,700 SCADA controlled Line Reclosers on 552 Distribution circuits feeding into, or within, the HFTD Tier 2 and Tier 3 fire areas.

Transmission lines do not utilize line reclosers as used in distribution. Transmission lines are controlled by circuit breakers in substations and in some cases have switches for further line sectionalization. PG&E does not change settings of relays via SCADA but does have features that can be enabled/disabled via SCADA. For a SCADA enabled circuit breaker with a reclosing feature, automatic reclosing can be enabled or disabled via SCADA.

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PG&E Data Request No.:	MGRA_001-Q10		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q10		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 10

How many of the circuits specified in MGRA-1 will have capability to reset recloser settings via SCADA after 2019-2020 work is completed? Please specify answers for distribution and transmission circuits separately, and include any new circuits created by sectionalization of existing circuits.

ANSWER 10

Please see PG&E's response to Question MGRA_001, Q09.

PG&E notes that after the plan described in MGRA_001, Q05 is completed, PG&E plans to have approximately 2,200 SCADA controlled Line Reclosers on the various distribution circuits feeding into, or within, the HFTD Tier 2 and Tier 3 fire areas.

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PG&E Data Request No.:	MGRA_001-Q11		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q11		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 11

How many of the circuits specified in MGRA-1 have a weather station within 1/4 mile of some portion of the circuit? Please specify answers for distribution and transmission circuits separately.

ANSWER 11

PG&E interprets this question as applying to overhead circuits within PG&E's service area. These answers are subject to change as the system is reconfigured or as lines are constructed or removed.

As of March 4, 2019, approximately 140 overhead distribution circuits specified in response to MGRA_001-Q01 have at least one weather station within 1/4 mile of some portion of the circuit.

As of March 4, 2019, approximately 50 overhead transmission circuits specified in response to MGRA_001-Q01 have at least one weather station within 1/4 mile of some portion of the circuit.

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PG&E Data Request No.:	MGRA_001-Q12		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q12		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

SUBJECT: THE FIRST SET OF QUESTIONS PERTAINS TO THE LENGTH OF TRANSMISSION AND DISTRIBUTION CIRCUITS IN THE UTILITY HFTD TIER 2 AND TIER 3 TERRITORY AND THE DEGREE TO WHICH THEY CAN BE INDIVIDUALLY MONITORED AND CONTROLLED.

QUESTION 12

How many of the circuits specified in MGRA-1 will have a weather station within 1/4 mile of some portion of the circuit after 2019-2020 work is completed? Please specify answers for distribution and transmission circuits separately, and include any new circuits created by sectionalization of existing circuits

ANSWER 12

PG&E interprets this question as applying to overhead circuits within PG&E's service area. PG&E is in the process of determining the locations of the new weather stations that will be installed in 2019 and cannot reply with certainty. Based on the answer to MGRA_001, Q11, PG&E estimates that by the end of 2019 approximately 420 of the overhead distribution circuits specified in response to MGRA_001-Q01 may have at least one weather station within 1/4 mile of some portion of the circuit, and approximately 150 of the overhead transmission circuits specified in response to MGRA_001-Q01 may have at least one weather station within 1/4 mile of some portion of the circuit. PG&E estimates that this same rate of increase would continue in 2020.

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PG&E Data Request No.:	MGRA_001-Q13		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q13		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:	Matthew Pender	Requester:	Joseph W. Mitchell

SUBJECT: THE FOLLOWING SET OF QUESTIONS PERTAINS TO PLANS FOR EXPANDED OR "ENHANCED" VEGETATION MANAGEMENT PLANNED BY MAJOR UTILITIES TO BE APPLIED TO "AT RISK" OR "RELIABILITY" TREES IN THE "STRIKE ZONE".

QUESTION 13

What tree species are regarded to be "at risk" or "reliability" trees in the utility service area? If this is a long list, restrict to the top ten most likely to be associated with outages.

ANSWER 13

The at-risk tree species included in PG&E's enhanced vegetation management program are identified in footnote 57 at the bottom of page 80 of PG&E's Wildfire Safety Plan and are also listed below:

Black Oak, Gray Pine, Tanoak, Coast Live Oak, Live Oak, Ponderosa Pine, Eucalyptus/Blue Gum, Douglas Fir, Valley Oak and Monterey Pine.

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PG&E Data Request No.:	MGRA_001-Q14		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q14		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:	Matthew Pender	Requester:	Joseph W. Mitchell

SUBJECT: THE FOLLOWING SET OF QUESTIONS PERTAINS TO PLANS FOR EXPANDED OR "ENHANCED" VEGETATION MANAGEMENT PLANNED BY MAJOR UTILITIES TO BE APPLIED TO "AT RISK" OR "RELIABILITY" TREES IN THE "STRIKE ZONE".

QUESTION 14

Please give the fraction of total vegetation-caused outages are caused by fall-in of "at risk" or "reliability" tree species, by top ten species if available, averaging over the past five years. Provide the same for vegetation-caused ignitions. Restrict analyses to cases where the tree and all limbs were outside of the 12 foot trim zone. Also provide the total fraction of the same species within the utility tree database if available.

ANSWER 14

For the purposes of this data request, PG&E reviewed all vegetation-caused electric distribution system outages throughout the PG&E service territory from 2014-2018. Of all vegetation-caused outages during that time where the tree or limb that caused the outage was originally more than 12 feet from the powerline, the top ten "at-risk" tree species drove 58% of the outages.

A similar analysis of ignition data across the entire PG&E service territory where the tree or limb that caused the ignition event was originally more than 12 feet from the powerline, the top ten "at-risk" tree species drove 71% of the incidents, where the tree species was identified.

Within PG&E's utility tree database, 51% of the trees that are 40 feet in height or taller (and therefore have the possibility of a fall-in risk into powerlines) are from the top ten "at-risk" tree species. Please note that the trees in PG&E utility database are those trees that have been prescribed for work or monitored due to the potential to need work to protect utility infrastructure; this database is not intended to capture the full population of all trees with fall-in potential to PG&E powerlines.

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PG&E Data Request No.:	MGRA_001-Q15		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q15		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:	Matthew Pender	Requester:	Joseph W. Mitchell

SUBJECT: THE FOLLOWING SET OF QUESTIONS PERTAINS TO PLANS FOR EXPANDED OR "ENHANCED" VEGETATION MANAGEMENT PLANNED BY MAJOR UTILITIES TO BE APPLIED TO "AT RISK" OR "RELIABILITY" TREES IN THE "STRIKE ZONE".

QUESTION 15

Are all trees of "at risk" or "reliability" species within the "strike zone" of utility equipment planned for trimming or removal? If arborist discretion is to be used, what factors will be used to determine which trees will be trimmed or removed, and what approximate fraction of "at risk" or "reliability" tree species will be trimmed or removed as enhanced vegetation management is implemented?

ANSWER 15

Not all individual trees of the at-risk tree species population will be trimmed or removed. The determination on which trees to trim or remove is made by a utility arborist leveraging the in-field criteria provided below. Because PG&E does not have comprehensive data on the total population of at-risk tree species trees with strike potential of powerlines, the data is not available to estimate the "approximate fraction of 'at risk' or 'reliability' tree species [that] will be trimmed or removed as enhanced vegetation management is implemented".

Targeted Tree Species Outside of 4' Overhang Zone

The species below should be considered for treatment. The guidelines below should be used to inform the vegetation management prescription for trees with the potential to impact electric overhead primary conductors. The Hazard Tree Rating System (HTRS) scoring below provides guidance to complement local conditions and considerations. Exact scores for trees (whether they are identified to be worked or not) are not expected to be recorded or tracked.

Targeted Tree Species with High Failure Likelihood List Outside of 4' Overhang Zone

#	Tree Species	Consider removal of	Remove limbs or tree if

		limbs or tree if HTRS Strike Likelihood score is:	HTRS Strike Likelihood score is greater than:
1	Black oak	0-1	1
2	Tanoak	1-4	4
3	Gray Pine	1-4	4
4	Coast Live Oak	1-4	4
5	Blue Gum / Eucalyptus	4-6	6
6	Valley Oak	4-6	6
7	Douglas-fir	4-11	11
8	Live Oak	4-11	11
9	Ponderosa Pine	4-11	11
10	Monterey Pine	4-11	11

Relevant excerpt (Strike Likelihood Assessment tool) from the Hazard Tree Rating System:

TD-7102P-07-F01 Hazard Tree Rating System, 1/25/2018, Rev. 1

Decide if the assessment will evaluate a tree or part of a tree that has the potential to make contact with electrical facilities.
More than one assessment can be completed on a single tree.

ELEMENT	CONDITION (RATING IN BLUE)							Assessment A	B	C
STRIKE LIKELIHOOD										
Total height & distance to the conductor of the part that is most likely to fail	Tree height < conductor (STOP)	Distance > than tree height (STOP)	Distance = Tree Height (0)	Distance ≤ 90% of tree height (1)	Distance ≤ 75% of tree height (3)	Distance ≤ 50% of tree height (5)	Distance ≤ 25% of tree height (7)			
Path (part most likely to fail)					No path to facility (0)	Possible path or domino to facility (1)	Likely path or domino to facility (3)			
Lean (part most likely to fail)		Severe away from facility (-7)	Mod away from facility (-5)	Slight away from facility (-3)	Vertical or slight to facility (3)	Mod to facility (5)	Severe to facility (7)			
Weight (part most likely to fail)		Severe away from line (-5)	Mod away from line (-3)	Slight away from line (-1)	Neutral or slight line side (1)	Mod line side (3)	Severe line side (5)			
							STRIKE TOTAL	0	0	0
<1=None; STOP	1-4= Very Low (VL)	5-6= Low (L)	7-11= Mod (M)	12-16= High (H)	>16 Very High (VH)		**Strike Likelihood Level**	**STOP**	**STOP**	**STOP**

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PG&E Data Request No.:	MGRA_001-Q16		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q16		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:	Matthew Pender	Requester:	Joseph W. Mitchell

SUBJECT: THE FOLLOWING SET OF QUESTIONS PERTAINS TO PLANS FOR EXPANDED OR "ENHANCED" VEGETATION MANAGEMENT PLANNED BY MAJOR UTILITIES TO BE APPLIED TO "AT RISK" OR "RELIABILITY" TREES IN THE "STRIKE ZONE".

QUESTION 16

What fraction of outages from "at risk" or "reliability" tree fall-ins occur during 1) winter storms or rain storms? 2) high-wind events during dry periods, including fire-weather events 3) dry periods with no wind? This can be an approximate estimation using calendar periods to estimate "wet" and "dry" seasons. High wind designations should be based on weather data.

ANSWER 16

PG&E has not historically tied specific wind conditions, e.g., "high-wind events during dry periods", to outage records. Therefore the data is not available to be completely responsive to the three categories of conditions asked in this question. However, segregating the data by time of year provides the following insights.

- 58% of all vegetation-caused outages were driven by the top ten at-risk species
- 54% of vegetation-caused outages from December to May (approximation of the "wet" / winter & spring seasons) were driven by the top ten at-risk species
- 66% of vegetation-caused outages from June to November (approximation of the "dry" / summer & fall seasons) were driven by the top ten at-risk species
- Of all vegetation-caused outages driven by the top ten at-risk species, 34% occurred from June to November (approximation of the "dry" / summer & fall seasons)

For the purposes of this data request, PG&E reviewed all vegetation-caused electric distribution system outages from 2014-2018 where the tree or limb that caused the outage was more than 12 feet from the powerline (representing "tree fall-ins" as requested in the question).

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Data Response

PG&E Data Request No.:	MGRA_001-Q17		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_001-Q17		
Request Date:	March 3, 2019	Requester DR No.:	001
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:	Matthew Pender	Requester:	Joseph W. Mitchell

SUBJECT: THE FOLLOWING SET OF QUESTIONS PERTAINS TO PLANS FOR EXPANDED OR "ENHANCED" VEGETATION MANAGEMENT PLANNED BY MAJOR UTILITIES TO BE APPLIED TO "AT RISK" OR "RELIABILITY" TREES IN THE "STRIKE ZONE".

QUESTION 17

How many instances of outages due to vegetation contact or fall-in occurred over the last five years for circuits using covered conductor or "tree wire"? How many ignitions? What is the rate per deployed mile of vegetation-caused outages and vegetation-caused ignitions for covered conductor? How does this compare to bare conductor?

ANSWER 17

For the purposes of this data request, PG&E reviewed all vegetation-caused electric distribution system outages throughout the PG&E service territory from 2014-2018. During that period 1,693 vegetation-caused outages were on spans where "tree wire" was reported to be present.

A similar analysis of ignition data across the entire PG&E service territory identified that 11 vegetation-caused fire ignitions were on spans where "tree wire" was reported to be present.

Unfortunately, PG&E used the term "tree wire" broadly for the purposes of classifying conductors in the outage and ignition databases, and this use is not consistent with PG&E's current definition of covered conductor. So, while PG&E estimates that there were approximately 245 circuit miles in service with covered conductor as of late 2018, there was an uncertain volume of additional circuits equipped with other classes of "tree wire." This "tree wire" designation in some cases included circuits with only a fabric sleeve over the conductor to provide minimal insulation if a line were to come into contact with vegetation. Therefore, PG&E is unable to calculate the rate of vegetation-cause outages or ignitions per mile of covered conductor and how that compares against bare conductors.

PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans
Rulemaking 18-10-007
Data Response

PG&E Data Request No.:	MGRA_002-Q01		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_002-Q01		
Request Date:	March 3, 2019	Requester DR No.:	002
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

QUESTION 01

What is the internal enforcement mechanism that the utility will use to ensure that all goals set in the Wildfire Mitigation Plans are met?

ANSWER 01

PG&E interprets the phrase “internal enforcement mechanism” to mean auditing and monitoring the Wildfire Safety Plan (Plan) targets. Monitoring and auditing are addressed in Section 6.3 of the Plan. In addition to PG&E’s internal monitoring and auditing, the CPUC will conduct an annual review of PG&E’s compliance with the Plan, including the use of an independent evaluator, as explained in California Public Utilities Code Section 8386(h).

PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans
Rulemaking 18-10-007
Data Response

PG&E Data Request No.:	MGRA_002-Q02		
PG&E File Name:	WildfireMitigationPlans_DR_MGRA_002-Q02		
Request Date:	March 3, 2019	Requester DR No.:	002
Date Sent:	March 7, 2019	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph W. Mitchell

QUESTION 02

Provide three realistic scenarios in which a utility might start a wildfire and then be held to be imprudent for purposes of cost recovery and in which that imprudence would be tied back to lack of compliance with the Wildfire Mitigation Plan. These scenarios would assume the absence of any other Prudent Manager Standard.

ANSWER 02

PG&E objects to the question to the extent that it calls for speculation, legal conclusions, and/or information protected by the attorney-client privilege and/or work product doctrine.