PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans Discovery 2023
Data Response

PG&E Data Request No.:	OEIS_003-Q007		
PG&E File Name:	WMP-Discovery2023_DR_OEIS_003-Q007		
Request Date:	April 21, 2023	Requester DR No.:	P-WMP_2023-PG&E-003
Date Sent:	April 27, 2023	Requesting Party:	Office of Energy Infrastructure Safety
DRU Index #:		Requester:	Colin Lang

SUBJECT: REGARDING FOCUSED TREE INSPECTIONS

QUESTION 007

a. During the decision process to discontinue use of the Tree Assessment Tool (TAT) and adopt the ISA's Basic Tree Risk Assessment Form (ISA form), did PG&E consider incorporating elements from the ISA's form into the TAT?

b. Is PG&E collecting a digital record of each ISA form generated by inspectors, in OneVM or another system?

c. How does PG&E plan to incorporate known localized risk factors (e.g., wind, outage rates by species) into tree risk assessments?

d. Did PG&E perform any analysis or study that compared the outcomes of the TAT and the ISA's checklist in the field? If so, provide this analysis or study.

e. Has PG&E benchmarked and/or discussed the latest version of its TAT and the associated risk assessment procedure and its new tree risk assessment procedures using the ISA's checklist with other utilities, including, but not limited to, SCE and its Tree Risk Calculator? If so, provide a summary of that benchmarking/discussions.

f. Provide the logic and any documentation of methodologies, stakeholders, and data sources for the most recent version of the TAT. Include a list of the factors considered in TAT scoring methodology.

ANSWER 007

a. Yes, as part of normal practice, we considered enhancing the TAT by incorporating additional elements of the ISA Form in 2022.

b. At this time, the TRAQ form will not be digitized for the Focused Tree Inspection Program (FTI). It is the current plan that FTI Inspections will be performed by 100% TRAQ certified arborists and the TRAQ form will be used as a guide.

c. We will utilizing the TRAQ form for tree risk assessments which considers local weather patterns. Inspection will also be informed by historical vegetation cased outage trends within the area of concern,

d. Yes, we did informally compare the outcomes of the TAT and the ISA form. The comparison included a field testing of a sample of locations and trees for validation purposes. This study and analysis effort was not finalized.

e. As part of the TAT improvement efforts in 2022, our subject matter experts met on a recurring basis with counterparts from SCE and SDG&E to share experiences, methodology and other ideas regarding hazard tree assessment.

f. Please see below for Logic and Methodology of the TAT that was last used by the EVM program until the program concluded at the end of 2022. Please see attachment "WMP-Discovery2023_DR_OEIS_003-Q007Atch01_CONF.pdf" for the white paper describing the basis for the development of the TAT as well as the stakeholders and data sources.

1. Preliminary Strike Assessment-
    a. Questions and results of the survey (in red font) are listed below. If no result is listed, the survey continues to the next question.
        i. Is tree tall enough to strike the facilities?
            1. Yes
            2. No- STOP TAT. TAT NOT REQUIRED
            3. No- tree already removed- ABATE
        ii. Is the tree completely blocked from falling towards facilities? *Some trees are tall enough to strike, but cannot because the path is blocked. CONSIDER that other trees can reduce the likelihood of a tree falling toward facilities, but only in extreme cases do they completely and reliably block the path to facilities*
            1. Yes- DO NOT ABATE
            2. No
        iii. Is the tree leaning severely (>25 degrees)?
            1. No
            2. Toward Facilities- ABATE
            3. Away from Facilities- DO NOT ABATE
            4. Parallel to Facilities
2. Tree Health Score
    a. Questions and results of the survey listed below (if no result is listed, the survey continues to the next question.)
        i. Is the tree dead or clearly dying?
            1. Yes- ABATE
            2. No
        ii. Are there fruiting bodies produced by (known) decay causing fungi on roots, butt or trunk (if unknown, assume decay causing)?
            1. Yes- ABATE
            2. No
        iii. Are there major wounds on the roots, butt or trunk? (widest/deepest spot where failure can result in strike of facility) Major Wound= Cavity opening, or canker/ bleeding wound whose width > 1/4 of trunk/stem diameter at wound site AND wound depth penetrates beyond bark and into the tree xylem?
            1. Yes- ABATE
            2. No
        iv. Are there significant insect attacks to the butt or trunk (insect boring holes and evidence of frass)?
            1. Yes- ABATE
            2. No

The line below marks the end of the survey questions that dictate a TAT result. All additional questions are used to calculate a tree health score. This tree health score is used in conjunction with the Tree Environmental Score to determine an end result based upon where the result falls in a matrix.

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v. Canopy Health/Transparency & Branch Condition *An unnatural diminished canopy and presence of dead branches can be an indicator of a weakened, declining tree.*
   Crown less than 20% transparent 0
   Crown 20% to 60% transparent and or 4 or less dieback branches 10
   Crown greater than 60% transparent and or 4 or more dieback branches 15

vi. Location of Wounds *(larger than 3" wide and 12" long and .75" deep)*
   1. No wounds larger than this size 0
   2. Found on upper half of the tree or scaffold 10
   3. Found on lower half of the tree or scaffold 15

vii. Lean *(part most likely to fail)*
   1. Tree leaning AWAY from facilities (>5°) -12
   2. Minor tree lean (<5°) or parallel lean 0
   3. Tree leaning TOWARDS facilities (>5°) 8
   4. Tree leaning TOWARDS facilities (>5°) AND the Tree is a Conifer 12
      a. This is not a question on the TAT but a calculation using the combination of whether a tree is Conifer (which is auto populated from the Species list) and the selection of the Lean Question

viii. Codominance
   1. Codominance 10
   2. No Codominance 0

3. Tree Environment Score
   a. Questions and values for the option selected listed below
      i. Regional Species Fire Risk Rating
         1. Not a selectable question, scores are auto-populated using a provided value based upon the Region Species Fire Risk rating
            a. Possible scores include
               i. 5
               ii. 15
               iii. 26
               iv. 36
      ii. Number of trees in the immediate area with risk signs *(disease/pathogen spreading, past failures, trees at high risk of failing and causing domino strike of facilities)*
         1. None (0) 0

2. One to four trees 3
3. More than four trees 9

iii. Slope at base of tree
1. Less than 15° slope 0
2. 15° - 45° slope 3
3. Greater than 45° slope 6

iv. Surrounding Terrain
1. Plain, Flat 0
2. Valley 2
3. Creek 4
4. Hillside 6

v. Wind Score- This question in EVM is auto filled from a wind speed reference table using the parcel info and not selectable by users
1. SLIGHTWIND 0
2. MODERATEWIND 3
3. SEVEREWIND 9

vi. Disturbance to site that can impact tree health, stability or exposure to wind force
1. None (0) 0
2. Low to moderate (20% or less tree change) 8
3. High to very high (more than 20% tree change) 15

The matrix below shows the breakdown of TAT results based upon Tree and Environment scores.

Tree Health Score	5	>= 35	ABATE	ABATE	ABATE	ABATE
	4	>= 27 to < 35	THS >= 27 TES <= 10 ABATE if(${TREE_HEALTH_SCR} >= 27 and not (${TREE_HEALTH_SCR} < 27) and (${TREE_ENV_SCORE} <= 10) and not (${TREE_ENV_SCORE} > 10), 'Abate','') THS - >=27 TES - <= 10 ABATE	THS > = 27 TES 11 to 20 ABATE if(${TREE_HEALTH_SCR} >= 27 and not (${TREE_HEALTH_SCR} < 27) and (${TREE_ENV_SCORE} > 10) and not (${TREE_ENV_SCORE} < 10) and (${TREE_ENV_SCORE} <=20) and not (${TREE_ENV_SCORE} > 20),'Abate','')	ABATE	ABATE
	3	>=20 to < 27	THS < 27 TES <= 10 DO NOT ABATE if(${TREE_HEALTH_SCR} < 27 and not (${TREE_HEALTH_SCR} >= 27) and (${TREE_ENV_SCORE} <= 10) and not (${TREE_ENV_SCORE} > 10), 'Do Not Abate','')	THS < 27 TES 11-20 DO NOT ABATE if(${TREE_HEALTH_SCR} < 27 and not (${TREE_HEALTH_SCR} >= 27) and (${TREE_ENV_SCORE} > 10) and not (${TREE_ENV_SCORE} < 10) and (${TREE_ENV_SCORE} <=20) and not (${TREE_ENV_SCORE} > 20),'Do Not Abate','')	THS >=20 TES 21 - 35 ABATE if(${TREE_HEALTH_SCR} >= 20 and not (${TREE_HEALTH_SCR} < 20) and (${TREE_ENV_SCORE} > 20) and not (${TREE_ENV_SCORE} < 20) and (${TREE_ENV_SCORE} <=35) and not (${TREE_ENV_SCORE} > 35),'Abate','')	ABATE
	2	>=15 to < 20	DO NOT ABATE	DO NOT ABATE	THS < 20 TES 21 - 35 DO NOT ABATE if(${TREE_HEALTH_SCR} < 20 and not (${TREE_HEALTH_SCR} >= 20) and (${TREE_ENV_SCORE} > 20) and not (${TREE_ENV_SCORE} < 20) and (${TREE_ENV_SCORE} <=35) and not (${TREE_ENV_SCORE} > 35),'Do Not Abate','')	THS >=15 TES > 35 ABATE if(${TREE_HEALTH_SCR} >= 15 and not (${TREE_HEALTH_SCR} < 15) and (${TREE_ENV_SCORE} > 35) and not (${TREE_ENV_SCORE} < 35),'Abate','')
	(Very Low	< 15	DO NOT ABATE	DO NOT ABATE	DO NOT ABATE	THS < 15 TES > 35 DO NOT ABATE if(${TREE_HEALTH_SCR} < 15 and not (${TREE_HEALTH_SCR} >= 15) and (${TREE_ENV_SCORE} > 35) and not (${TREE_ENV_SCORE} < 35), 'Do Not Abate','')
			<=10	11 to 20	21 to 35	> 35
			0 (Very Low)	1 (Low)	2 (Mod)	3 (High)
			Tree Environment Score			