PACIFIC GAS AND ELECTRIC COMPANY PG&E
Ref. DRU14799-Case-EUP-SB 884
OEIS Data Request
Requester DR No. Energy Safety-DR-EUP-24-09
Circuit Segments and Spans Traversing HFTD and non-HFTD Boundaries

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Response Date: December 16, 2024

Question No. 001:

Under PG&E's current system hardening program, is there a difference in how projects are scoped in High Fire Threat Districts (HFTD) and High Fire Risk Areas (HFRA)?

How does PG&E scope circuit segments that traverse HFTD, HFRA and/or non-HFTD/HFRA boundaries? Please provide examples of the types of locations where this situation arises.

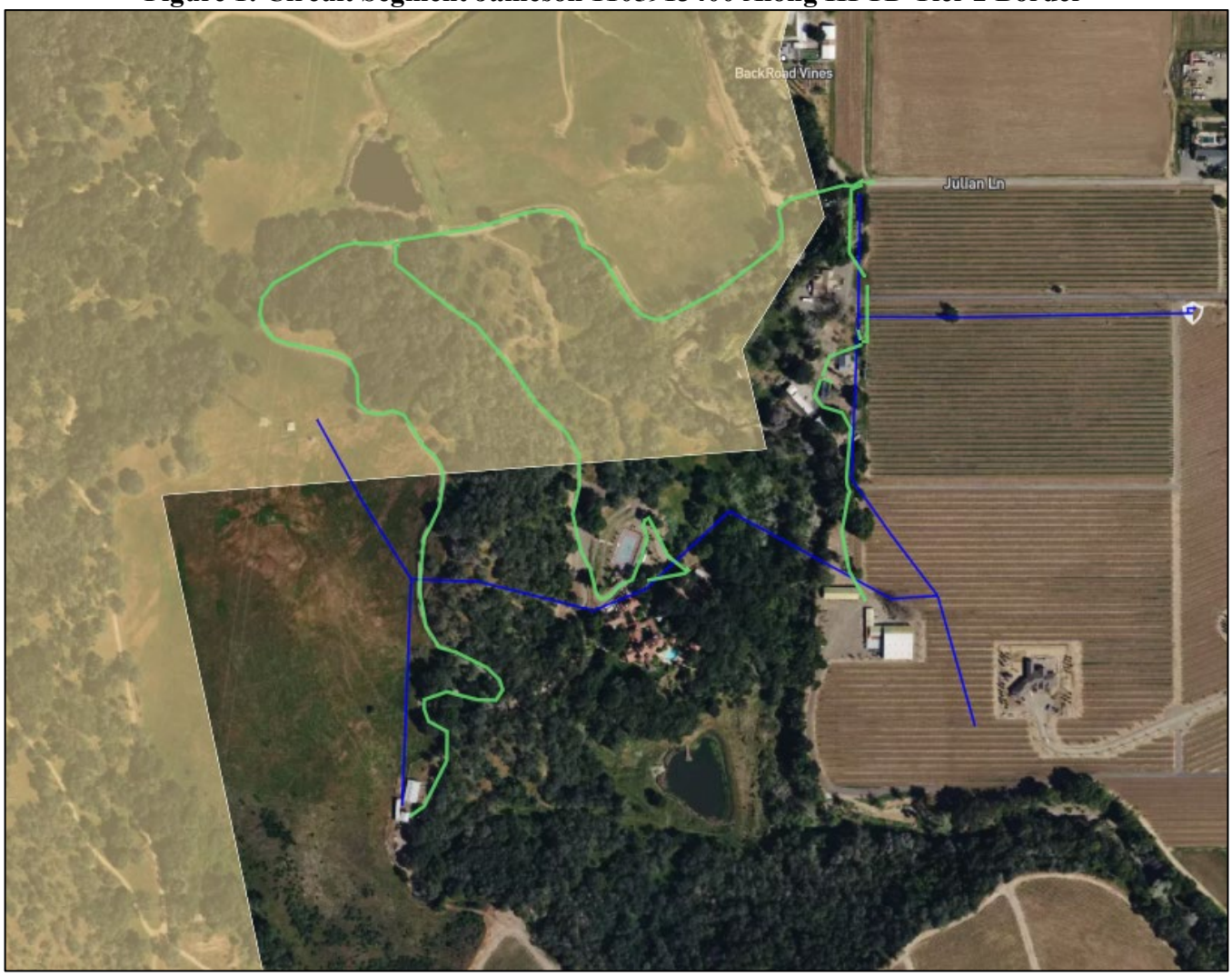
Response to Question No. 001 Response No. 001:

There is no difference in how projects are scoped in an HFTD and HFRA. PG&E considers any HFRA only area as an equivalent to the HFTD and selects mitigations using the same decision process.

The borders of the HFTD maps are not in exact alignment with the fuels and conditions seen today. Thus, we review those non-HFTD areas that are in an HFTD buffer zone (i.e., just outside the border of the HFTD) with the expertise of our Public Safety Specialists (PSS) to determine if the mitigation should be extended some distance into that non-HFTD buffer area.

For example, work for subproject (order) 35320463 on circuit segment Jameson 1105913400 covers areas of HFTD, HFRA, and non-HFTD. At this location, in addition to reducing wildfire risk, we were targeting PSPS reduction. Projects targeted for PSPS reduction are often within these buffer areas outside of the HFTD map layer border. Figure 1 below shows the original overhead line in dark blue, the new underground line in green, and the HFTD area/border overlayed light yellow. As illustrated in the figure, the HFTD border does not directly correlate to the fuels and steep terrain that are apparent in the satellite image of the area.

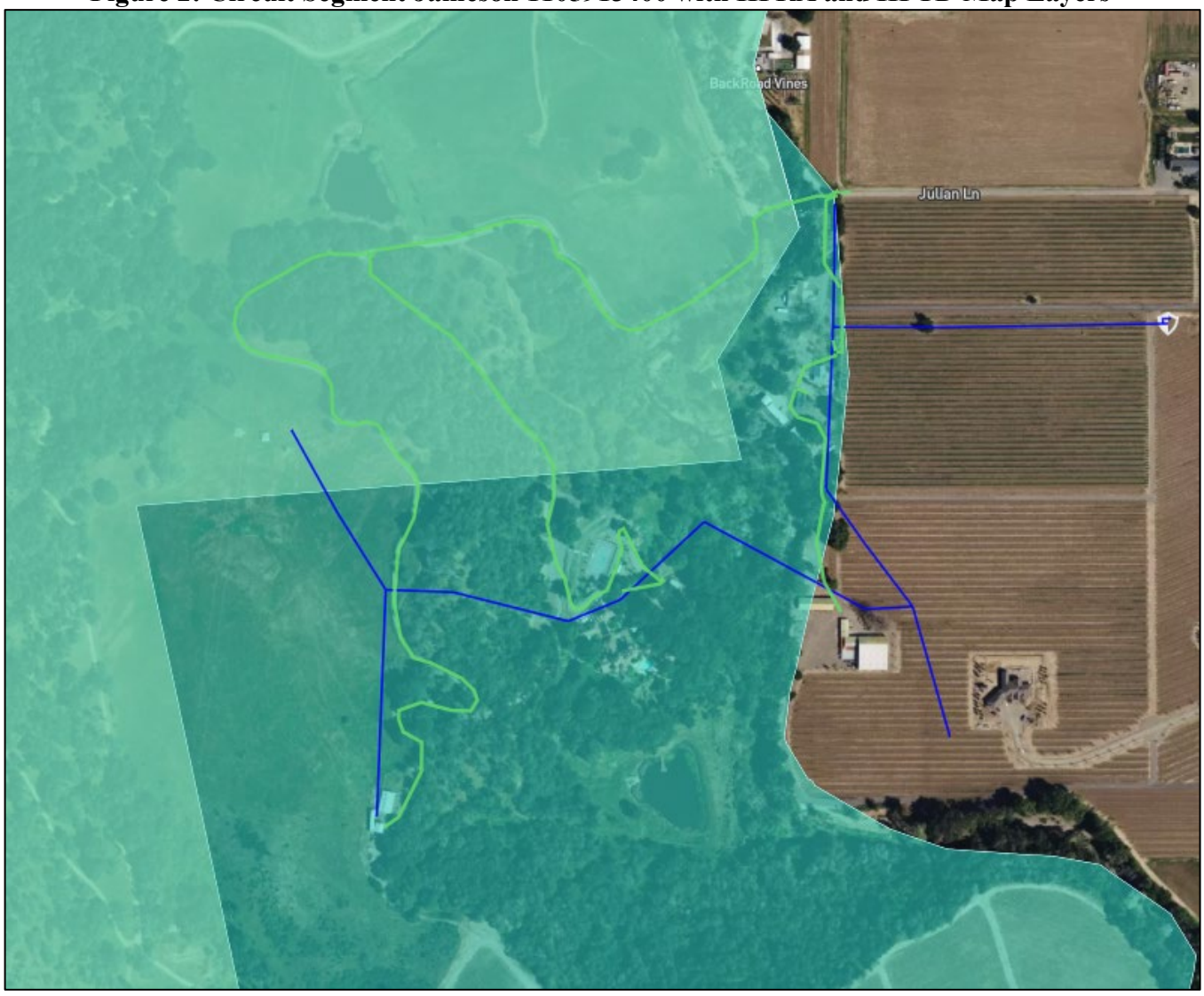
Figure 1: Circuit Segment Jameson 1105913400 Along HFTD Tier 2 Border



When PG&E developed our HFRA layer, the focus was to cover areas where HFTD does not fully represent the ignition risk during a typical wind event that drives PG&E's PSPS activation. Furthermore, terrain is also a factor in scoping work. Note that the path of the underground route (green) differs from the original overhead route. It was infeasible to install underground infrastructure in the same path as the original overhead lines being replaced.

In Figure 2, the HFRA layer has been overlayed (light blueish green) onto the same location to illustrate the additional risk in this area that PG&E chose to target for mitigation to reduce ignition risk.

Figure 2: Circuit Segment Jameson 1105913400 with HFRA and HFTD Map Layers



As depicted in Figure 2 above, the focused underground mitigation includes both the HFRA and HFTD areas leaving the original bare overhead lines in the agricultural non-HFTD area to the east. In order to exclude this circuit segment from a potential future PSPS, PG&E had to include undergrounding in the HFRA boundary because it is used to define where a PSPS may be called.

This approach to scoping would be used for both ignition reduction projects, as well as PSPS reduction projects.

Question No. 002:

What is the approximate total linear miles of overhead primary distribution circuit segments that traverse HFTD and non-HFTD boundaries?

a. What is the maximum number of primary distribution circuit segments that traverse HFTD and non-HFTD boundaries?
b. Of the circuit segments that traverse HFTD and non-HFTD boundaries, approximately how many miles are inside a HFTD? Approximately how may miles are outside a HFTD?

Response to Question No. 002 Response No. 001:

Out of 34,155 total overhead miles that have any portion of the circuit segment within an HFTD/HFRA, there are approximately 21,174 total linear miles of overhead primary distribution circuit segments that traverse HFTD/HFRA and non-HFTD boundaries.

a. There are a total of 2,449 primary distribution circuit segments that traverse HFTD/HFRA and non-HFTD boundaries.
b. Of the 21,174 total linear miles that traverse HFTD/HFRA and non-HFTD/HFRA boundaries:
    - Approximately 12,728 circuit segment miles are in HFTD/HFRA
    - Approximately 8,446 circuit segment miles are in non-HFTD/HFRA

For clarity, the below table outlines the counts of circuit segments and miles in the relevant categories described above:

WDRM v4 SH CS in HFTD/HFRA				
Complete vs. Partial	**CS Count**	**Total OH Miles**	**HFTD/HFRA Miles**	**Non-HFTD/ HFRA Miles**
CS Completely in HFTD & HFRA	1,324	12,981	12,981	(0)
CS Partially in HFTD & HFRA	2,449	21,174	12,728	8,446
Total HFTD-HFRA CS	**3,773**	**34,155**	**25,709**	**8,446**

Question No. 003:

What is the approximate total linear miles of overhead primary distribution spans that traverse HFTD and non-HFTD boundaries?

a. What is the maximum number of primary distribution spans that traverse HFTD and non-HFTD boundaries?
b. Of the spans that traverse HFTD and non-HFTD boundaries, approximately how many miles are inside a HFTD? Approximately how many miles are outside a HFTD?
c. What is the average length of a span?

Response to Question No. 003 Response No. 001:

The calculated estimate of total linear miles of overhead primary distribution spans that traverse HFTD/HFRA and non-HFTD/HFRA boundaries is 578 miles.[1] Note, it is possible that a single circuit segment can have multiple spans that traverse the HFTD/HFRA and non-HFTD/HFRA boundaries.

a. There are 15,251 primary distribution spans that traverse HFTD/HFRA and non-HFTD/HFRA boundaries.
b. PG&E does not currently track and record this specific data. Assuming that the span length is split evenly between HFTD/HFRA and non-HFTD/HFRA on average:
    a. Approximately 289 span miles are in HFTD/HFRA

[1] Prior communication estimated a total of approximately 140 miles considering a *single* crossing on each of the 3,773 circuit segments within the HFTD. The miles reported in this response are a result of a spatial analysis of system-wide spans that may traverse HFTD and non-HFTD boundaries multiple times.

b. Approximately 289 span miles are in non-HFTD/HFRA
c. The average length of a span is approximately 200 feet (0.038 miles).

Question No. 004:

If the entire circuit segment was considered to be within a HFTD if any portion of the circuit segment was in a HFTD:

a. What are the approximate linear miles of overhead primary distribution lines that traverse HFTD and non-HFTD boundaries that PG&E expects to underground through the EUP?
b. What is the approximate number of primary distribution circuit segments that traverse HFTD and non-HFTD boundaries that PG&E would expect to underground through the EUP?

Response to Question No. 004 Response No. 001:

For the purpose of this response, we assume the following:

- If any portion of a circuit segment is in the HFTD/HFRA, the entire circuit segment is in the HFTD.
- The top 1,000 ranked wildfire risk circuit segments would be targeted. We recognize that the number of circuit segments that may be included in the EUP will be determined after the plan mitigation objective and risk thresholds are approved and may be more than or less than the top 1,000 ranked wildfire risk circuit segments used for this analysis.
- Undergrounding is the sole mitigation method deployed. We do not divide circuit segments into subprojects where certain sections are undergrounded and some are overhead hardened.
- The estimated circuit segment miles and circuit segments that would be undergrounded included in this response likely represent a high-end estimate. The actual number of circuit segment miles and circuit segments that traverse the HFTD/HFRA and non-HFTD/HFRA boundaries and that would be undergrounded would likely be lower because we would expect to include a mix of undergrounding and overhead hardening.

a. Where overhead primary lines traverse HFTD/HFRA and non-HFTD/HFRA, approximately 877 circuit segment miles would be expected to be undergrounded through the EUP.
b. Where overhead primary lines traverse HFTD/HFRA and non-HFTD/HFRA, approximately 249 circuit segments would be expected to be undergrounded through the EUP.

Question No. 005:

If the entire span was considered to be within a HFTD if any portion of the span was in a HFTD:

a. What are the approximate linear miles of overhead primary distribution lines that traverse HFTD and non-HFTD boundaries that PG&E expects to underground through the EUP?
b. What is the approximate number of primary distribution circuit segments that traverse HFTD and non-HFTD boundaries that PG&E would expect to underground through the EUP?

Response to Question No. 005 Response No. 001:

For the purpose of this response, we assume the following:

- If any portion of a span is in the HFTD/HFRA, the entire span is in the HFTD.

- The top 1,000 ranked wildfire risk circuit segments would be targeted. We recognize that the number of circuit segments that may be included in the EUP will be determined after the plan mitigation objective and risk thresholds are approved and may be more than or less than the top 1,000 ranked wildfire risk circuit segments used for this analysis.
- Underground all is the sole mitigation method deployed.
- The estimated number of spans that would be undergrounded included in this response likely represent a high-end estimate. The actual number of spans that traverse the HFTD/HFRA and non-HFTD/HFRA boundaries and that would be undergrounded would likely be lower because we would expect to include a mix of undergrounding and overhead hardening.
- All the non-HFTD miles on the span could be included in the EUP undergrounding program.

a. Approximately 57 span miles would be expected to be undergrounded through the EUP. Assuming the mitigated span length is split evenly between HFTD/HFRA and non-HFTD/HFRA on average:
   - Approximately 28 span miles in HFTD/HFRA
   - Approximately 28 span miles in non-HFTD

b. See response to Question 004.b.

Question No. 006:

If only the portion of a circuit segment within a HFTD were to be considered eligible through the EUP:

a. What mitigation options would PG&E consider regarding circuit segments traversing HFTD and non-HFTD boundaries?
b. If PG&E were to scope system hardening work on the circuit segments traversing HFTD and non-HFTD boundaries, how would PG&E pursue funding for the portions of the circuit segment that are ineligible for the EUP? How would pursuing funding through a different program affect the timing and cost of the projects on both the eligible and the ineligible portions of that circuit segment?

Response to Question No. 006 Response No. 001:

a. Every situation is different; therefore, we review all mitigation alternatives even when the alternatives may not be feasible. For example, as seen in Question 1 Figure 1, PG&E would have to overhead harden and use the operational mitigations of EPSS and PSPS as the only constructable and/or cost-effective solution since undergrounding is not feasible at that border crossing where the circuit segment enters the HFTD. When taking into consideration how PSPS events are called (i.e., based on HFRA, not HFTD, borders), PG&E would achieve very little to no operational reliability improvement in this HFTD border area, making it more challenging to meet reliability goals. The fact that many non-HFTD customers are impacted by PSPS and overhead conductors (including covered conductor) are not permitted to be energized in the weather polygon used for PSPS activation, PG&E has recommended at minimum to consider the single span that bridges that border as HFTD so that we can ensure that reliability risk is being addressed. Areas like what is shown in Figure 1 and Figure 2 would be areas where PSPS exclusion would be significantly limited given the currently proposed guidelines.

b. If a non-substantial portion of the work on the subproject traverses outside the HFTD, PG&E recommends that this work be recoverable through the EUP because the ignition risk remains very high, even though the HFTD map layer does not currently extend to the end of the circuit segment. This would allow PG&E to fund an entire project at one time for efficiency.

Pursuing cost recovery outside of the EUP - either in the GRC or approved memorandum accounts - for portions of a project that are ineligible for the EUP (i.e., non-HFTD areas) could impact project cost and risk reduction. Depending on the cost recovery mechanism that is ultimately approved in non-HFTD areas, there could be a lag between the mitigation work completed as part of the EUP and the mitigation work completed as part of a different proceeding. Doing the work for a single project in multiple phases (i.e., in an HFTD and outside of HFTD) is less efficient and leaves risk on the system until both portions of the project are complete.

PG&E may also seek to address this issue by independently filing a Petition to Modify the current HFTD map to include certain non-HFTD areas that are included in PG&E's HFRA based on updated and improved risk modeling or through a new proposed rulemaking to consider modifications to the HFTD boundaries, as referenced by the CPUC in a Proposed Decision issued on December 11, 2024 in Rulemaking (R.) 15-05-006. Thereafter, PG&E would seek cost recovery in the EUP for undergrounding work taking place in the proposed additions to the HFTD map, as appropriate.