

Comparison of PG&E High Fire Risk Area (HFRA) Map With Climate Change Wildfire Projections

5/26/20

DRAFT AND CONFIDENTIAL

Summary of Approach and Conclusions (1)

- This deck contains the results of ICF’s comparison of PG&E’s High Fire Risk Area (HFRA) map with future climate-driven wildfire projections from the California Fourth Climate Assessment.
- ICF’s analysis indicates that the conservative extent of the High Fire Risk Area map—which covers the great majority of high-fuel landscape across PG&E’s service territory—makes it likely to be significantly effective in accounting for projected climate-driven change in the extent of high wildfire risk areas through mid-century.
- Projected areas of higher wildfire risk (upper half and above of distribution), accounting for climate change in a high-emission future (RCP 8.5), are almost entirely encompassed by the HFRA.
 - Wildfire risk is assessed here in terms of annual average acres burned per 6x6km grid cell, as projected by best-available climate modeling studies from the California Fourth Climate Assessment (Westerling, 2018).
 - “Areas of higher wildfire risk” are categorized here using two thresholds, based on relative percentile of projected wildfire activity across the PG&E service territory:
 - **Greater than 75th percentile based on 2025 projections** – This criterion provides a view of higher-end and nearer-term risk areas
 - **Greater than 50th percentile based on 2050 projections** – This criterion provides a more inclusive view of potential risk areas. It also seeks to “sensitivity test” the conclusions with longer-term projections, which generally serves to amplify the climate change signal that is observed in earlier projection periods.
 - Note: These thresholds do not purport to capture *all* future wildfire risk or represent a vetted designation of significant versus insignificant risk (indeed, the HFRA covers more than 50% of PG&E’s service territory). Rather, they seek to test whether the HFRA is effectively capturing the areas of highest projected wildfire risk within the territory.
- The HFRA expands on the High Fire Threat Districts (HFTD) in several key forested areas that correlate with areas of higher projected future wildfire risk (e.g. filling the “cutout” in the HFTD map coverage in the northern coastal region, adding additional coverage of forested area in the southern coastal region).

Summary of Approach and Conclusions (2)

- In several limited areas, the projection thresholds analyzed exceed the boundaries of the HFRA*:
 - **The northwest corner of the territory**, where a small of projected higher wildfire risk extends beyond the boundary of the HFRA in a forested area near the coast.
 - **The southern coastal portion of the territory**, where projected higher wildfire risk areas extend beyond the HFRA across a relatively large area that is primarily grasslands/scrub.
 - **The southern portion of the Sierras**, where the projected higher wildfire risk areas extend east beyond the HFRA into areas that are a mixture of barren and sparsely forested alpine terrain.
- **The above-listed areas may reflect areas where further assessment is appropriate. There is also a possibility, however, that PG&E's HFRA analysis will remain correct into the future in indicating these areas as lower risk for catastrophic fire associated with PG&E equipment. Reasons for this may include:**
 - 1) Areas may be subject to wildfire, but may not be of primary concern to PG&E due to:
 - A lack of PG&E infrastructure (e.g. in the high Sierras).
 - A land type (e.g. scrub/grass in the southern coastal region) that may be conducive to wildfire, but not the type of catastrophic utility-linked, high spread risk wildfire that is of most concern to PG&E.
 - 2) Limitations in the ability of region-scale climate projections to capture site-specific risk.
 - The projections used here (Westerling) simulate time-dependent wildfire ignitions and area burned using projections of future climate and land cover.
 - The projections do not consider utility-driven ignitions and do not purport to simulate local-scale (i.e., < 6km x 6km resolution) landscape characteristics or wildfire dynamics. Projections also carry uncertainty driven by underlying datasets (e.g., land cover) and other factors.
 - Westerling wildfire projections best resolve regional scale wildfire conditions driven by climate change. Pairing this view with an understanding of local wildfire dynamics characterized by PG&E's HFRA provides a more complete view of future risk.

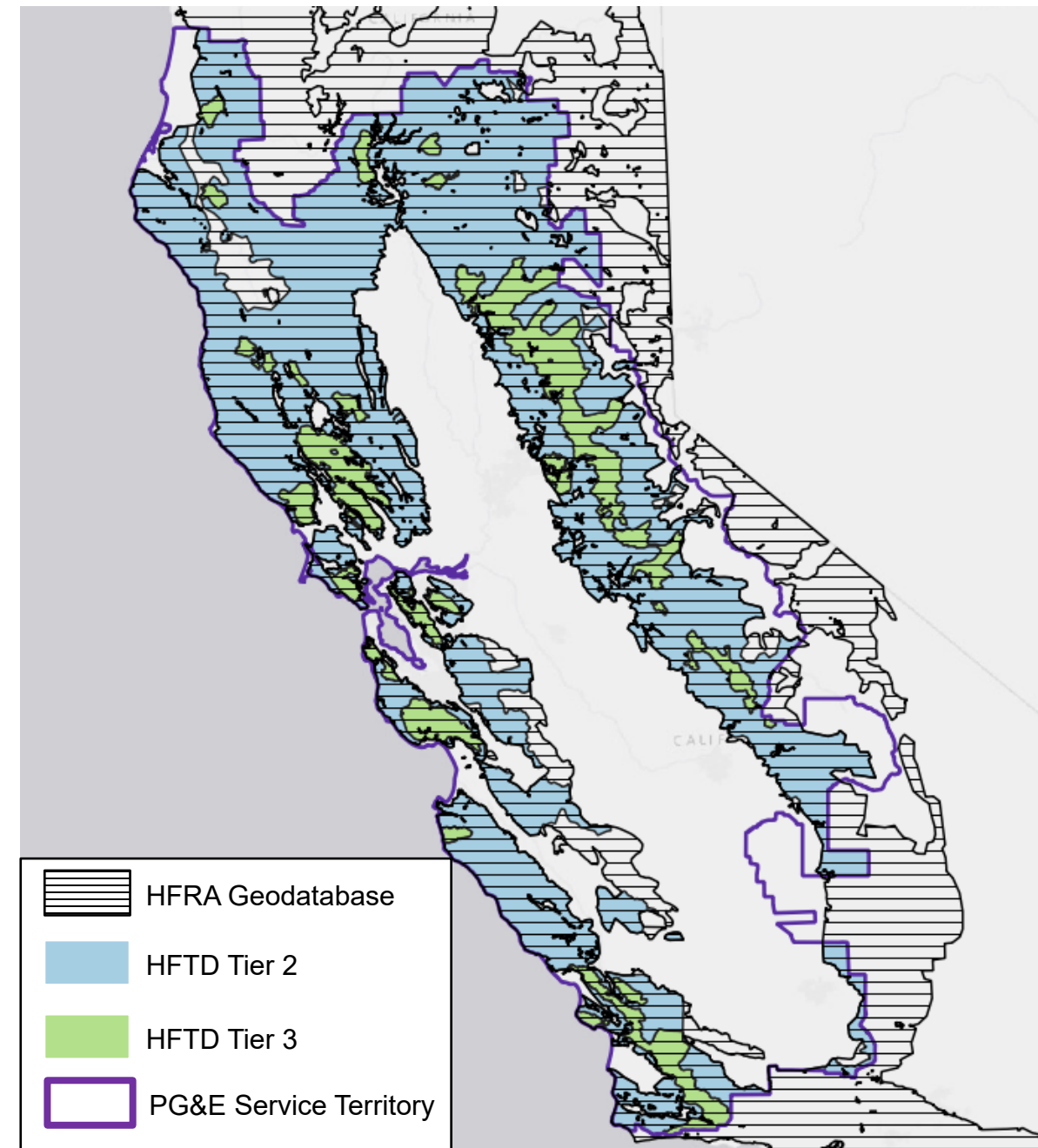
*This analysis did not consider the many small cutouts or "holes" apparent within the HFRA, as it is assumed that the finer granularity of PG&E's HFRA analysis exceeds the ability of the region-scale climate projections to capture small areas of cleared or otherwise reduced-risk land.

Summary of Approach and Conclusions (3)

- Overall, the broad-based projected increase in wildfire risk across PG&E's service territory indicates that *any* landscape type with the presence of significant potential fuel should be assessed for future wildfire risk.
- The HFRA encompasses the great majority of these areas. As a conservative measure, PG&E may consider analyzing the remaining high-fuel areas that do not fall within the HFRA on a site-specific basis.
- Climate change may result in risks that are neither captured by the HFRA nor well-projected by current models.
 - For example, preliminary consultation of literature suggests that climate-driven changes in infectious disease may cause coastal redwoods to be more vulnerable to wildfire than has been the case historically ([Metz et al, 2013](#)). This could have implications for wooded coastal areas that are currently outside the HFRA.
- Existing region-scale climate-wildfire models, such as the one considered here, continue to offer potential value in informing the *relative* future risk of wildfire *within* the large geographic area covered by the HFRA.

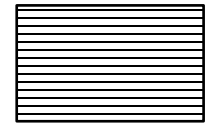
High-Level Comparison of HFRA and HFTD

- The HFRA encompasses a greater geographic extent than the HFTD.
- Most of the additional areas captured, as shown at right and on the slides that follow, are areas that reflect presence of high-density wildfire fuel and higher-end projected future wildfire risk.



Comparison of HFRA With Projections

75th-100th percentile for 2025



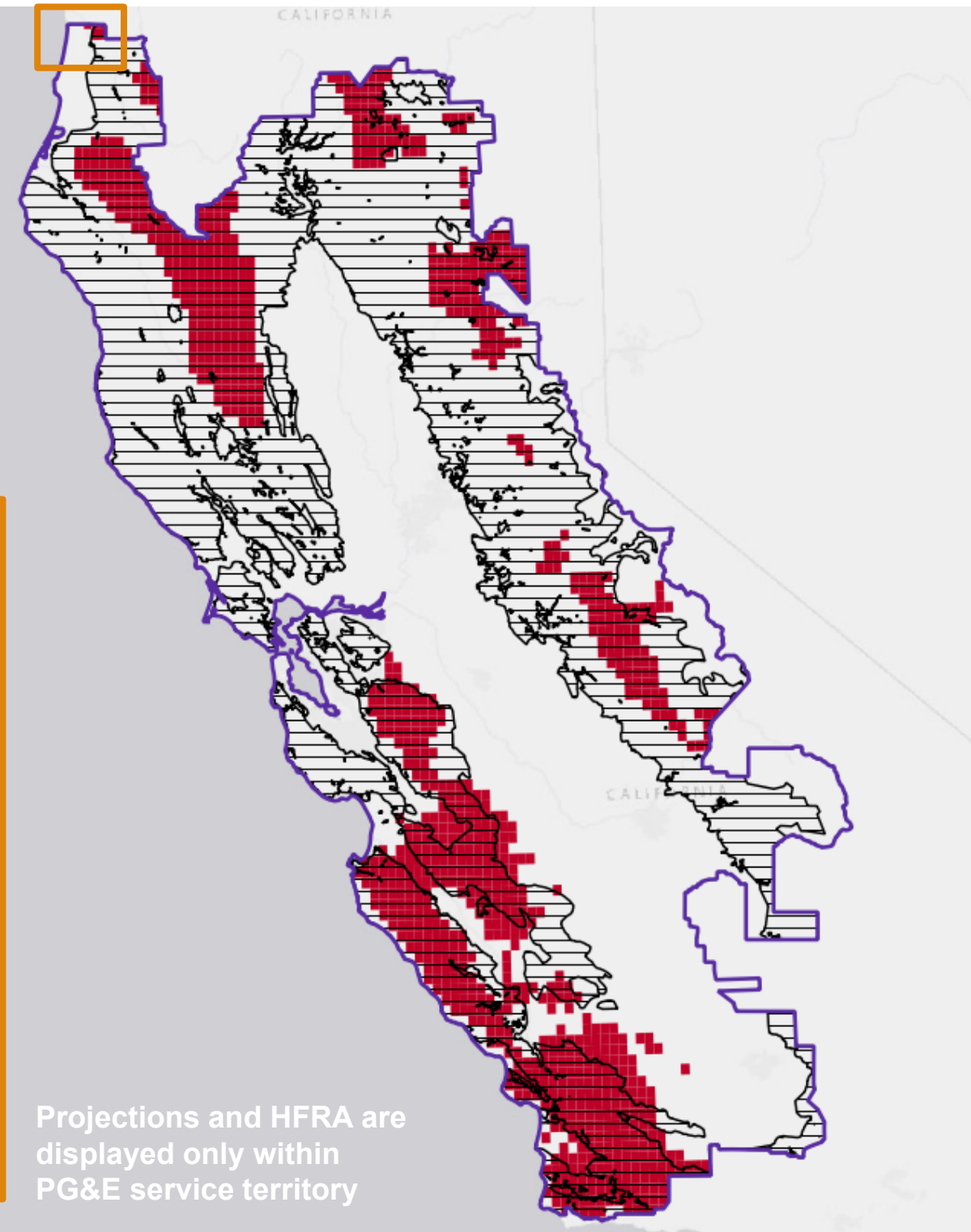
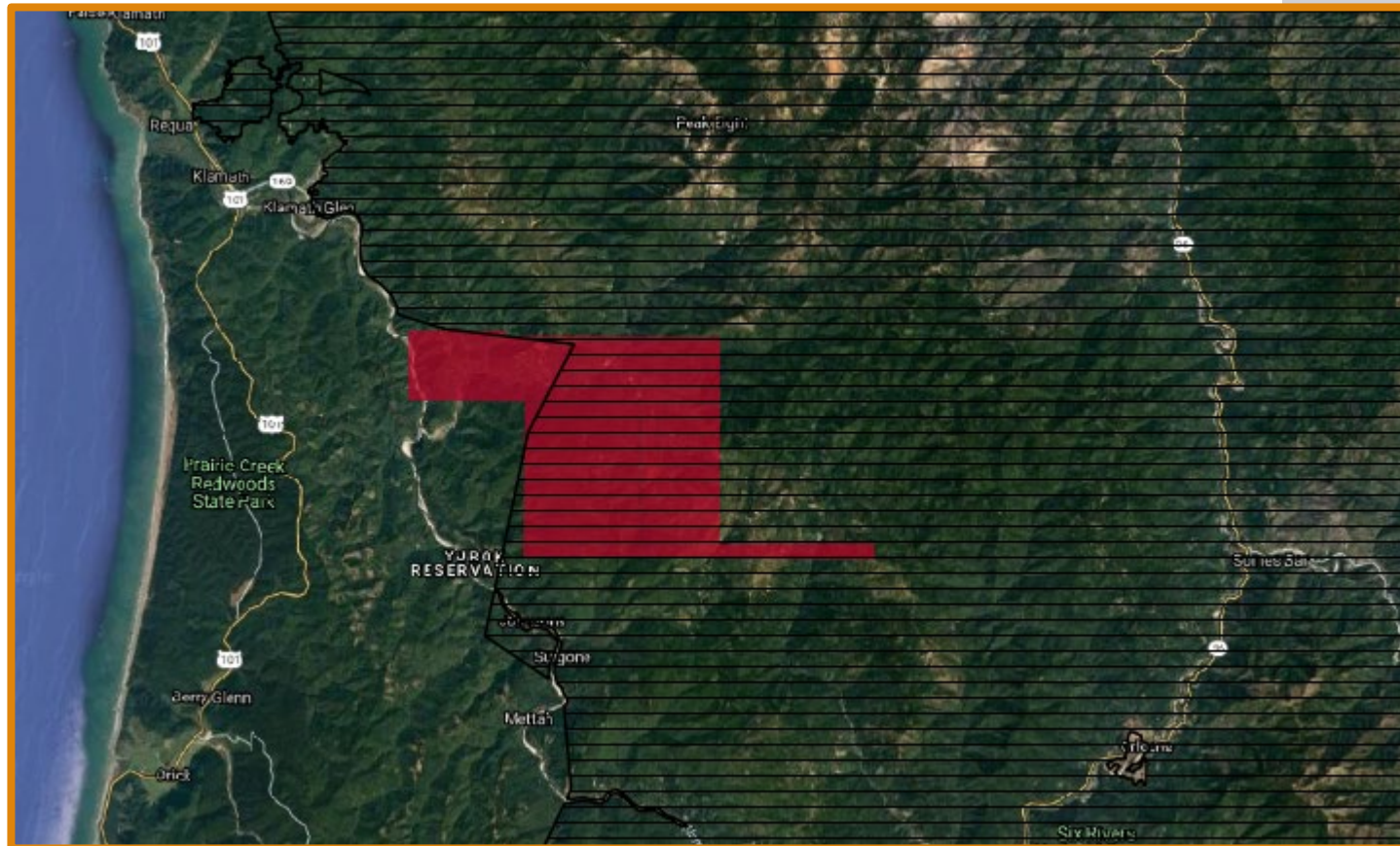
HFRA

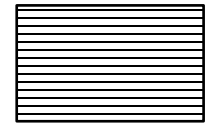


2025 Projected Hectares Burned
(RCP 8.5): 75th – 100th percentile



PG&E Service Territory





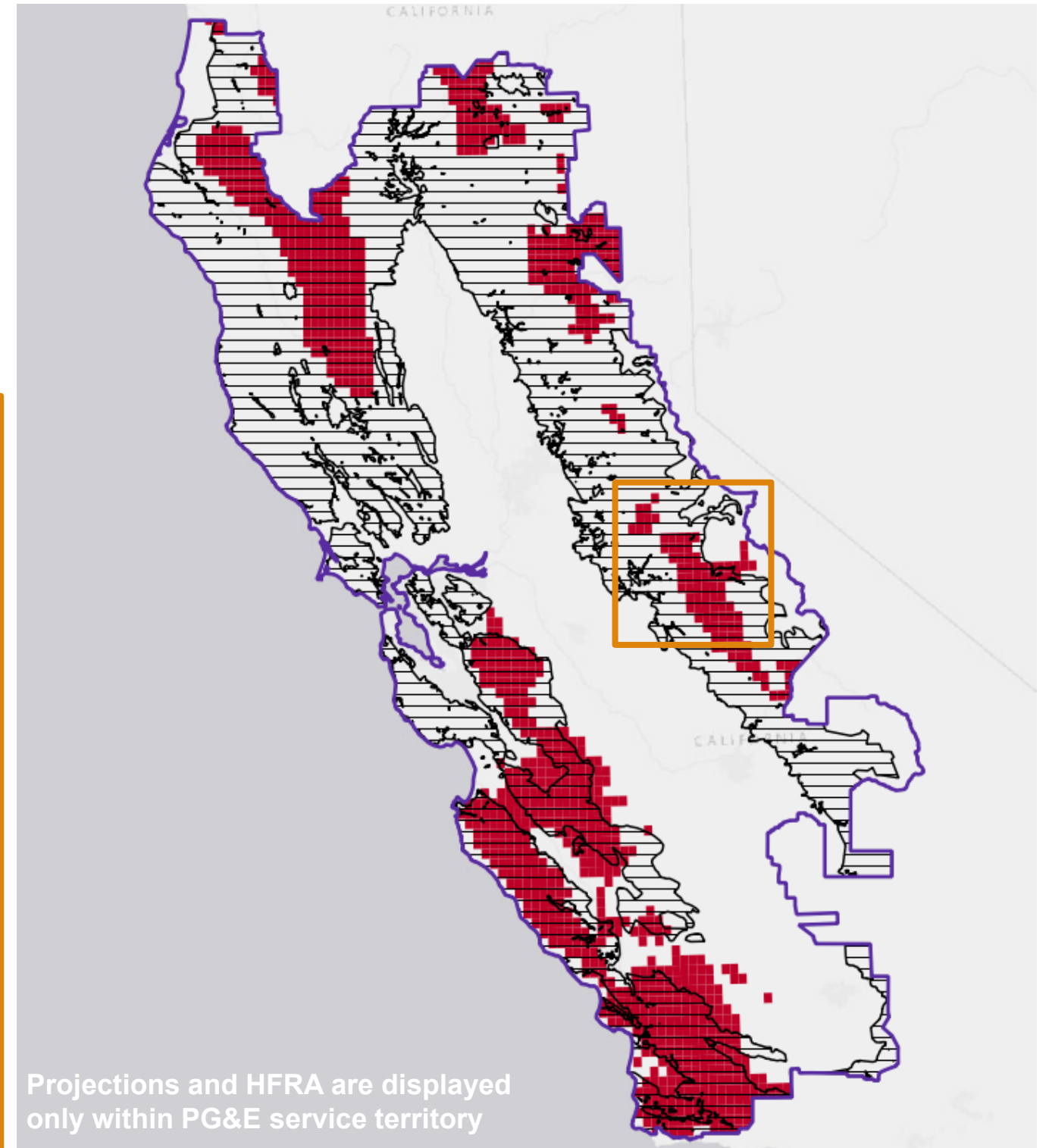
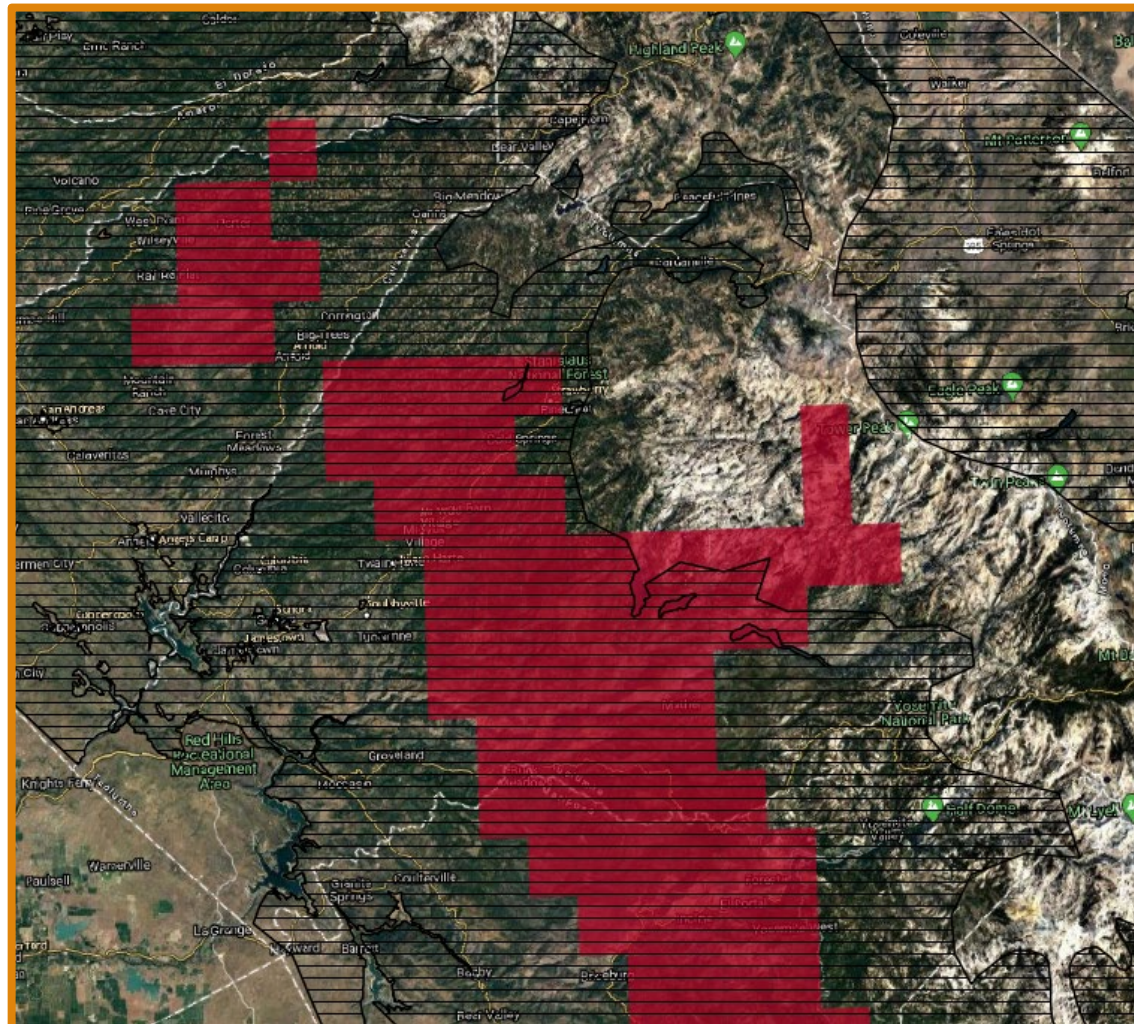
HFRA



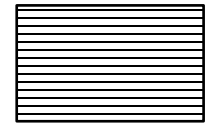
2025 Projected Hectares Burned
(RCP 8.5): 75th – 100th percentile



PG&E Service Territory



Projections and HFRA are displayed
only within PG&E service territory



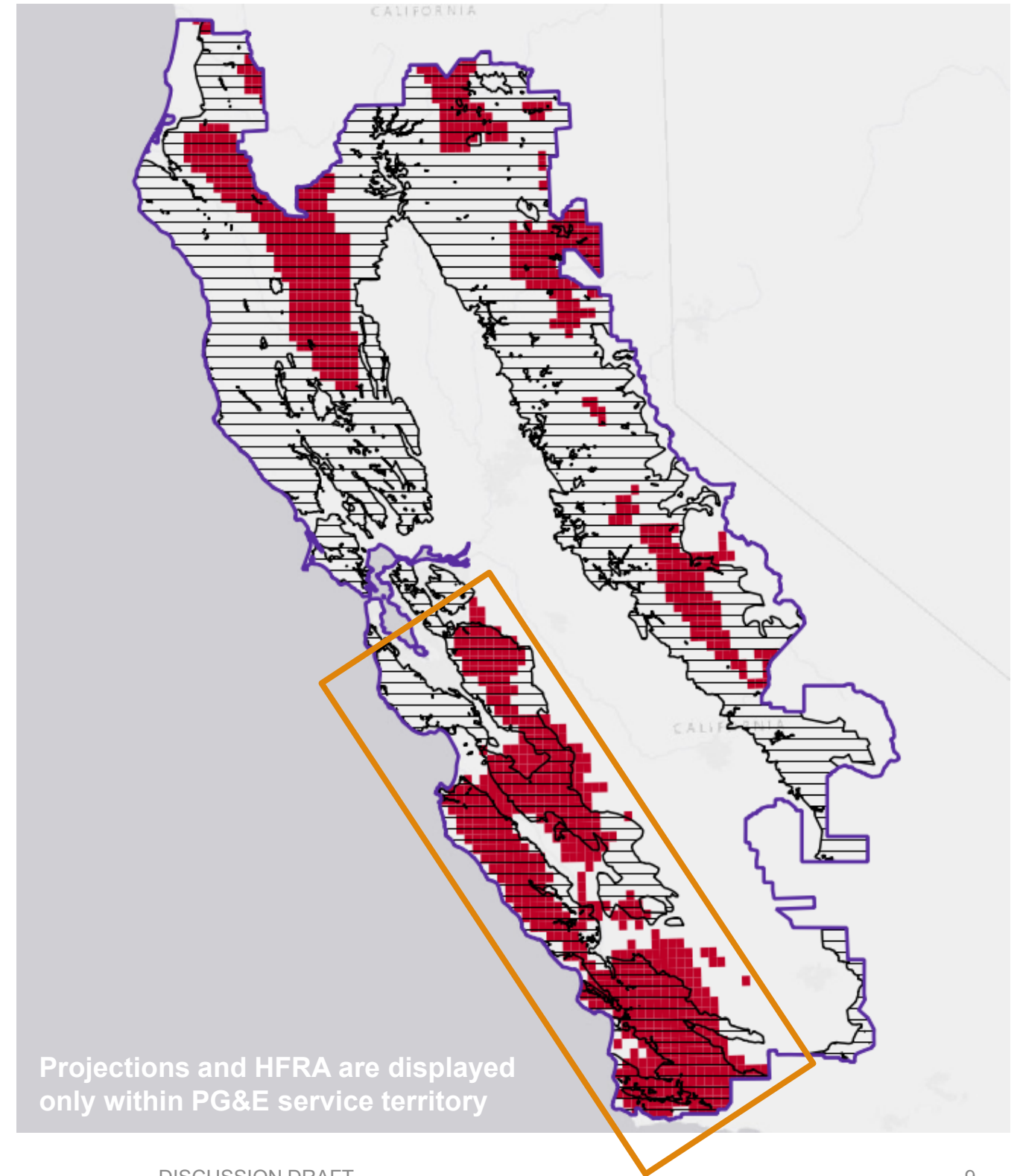
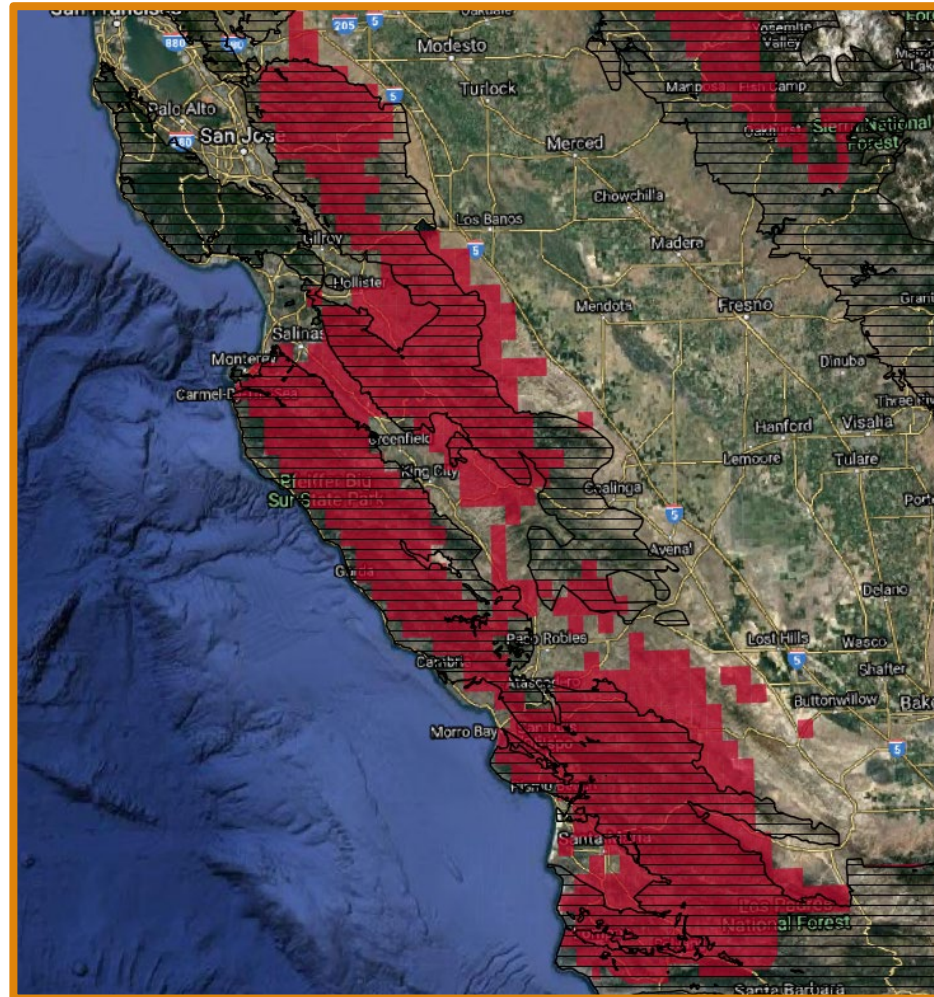
HFRA



2025 Projected Hectares Burned
(RCP 8.5): 75th – 100th percentile

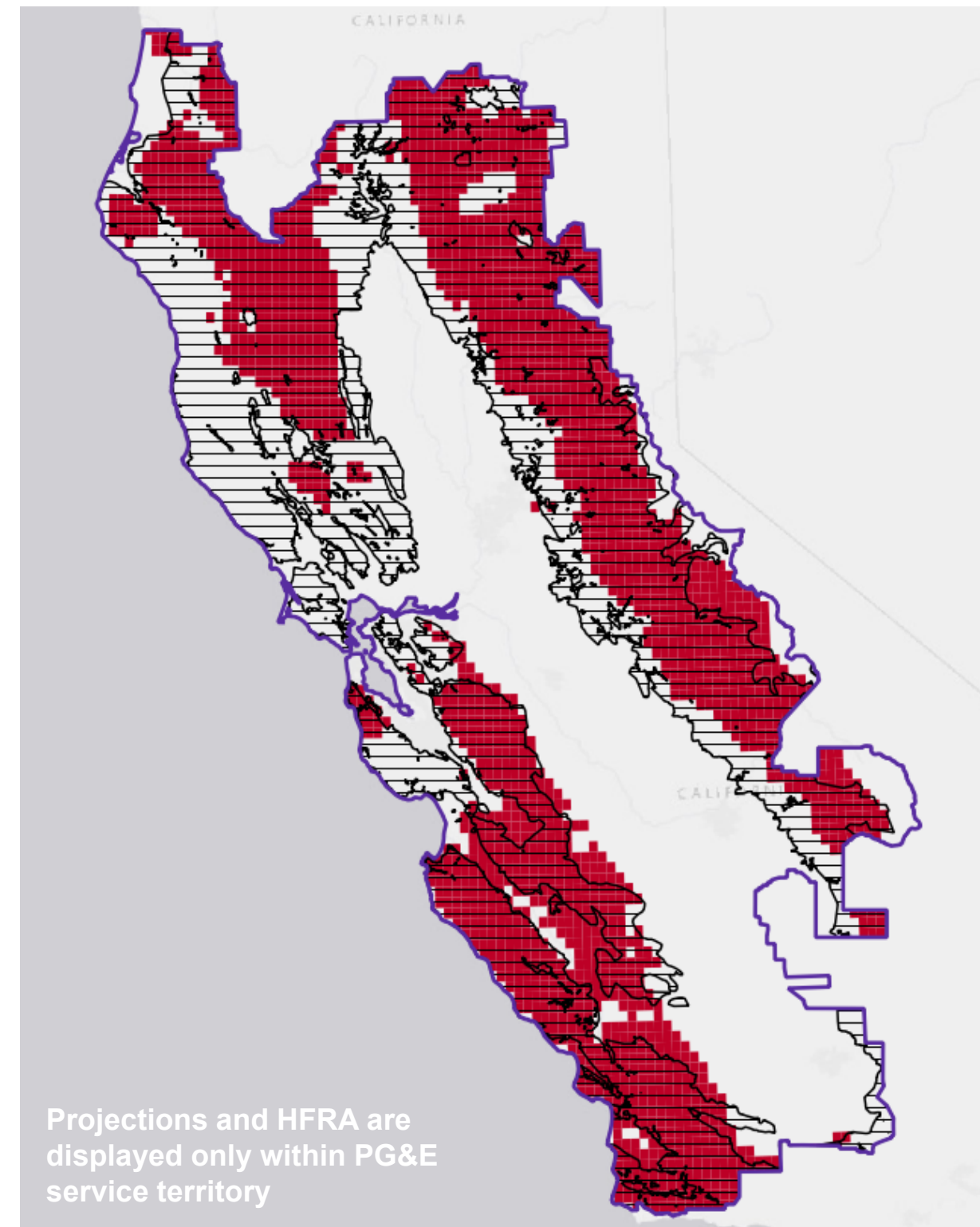
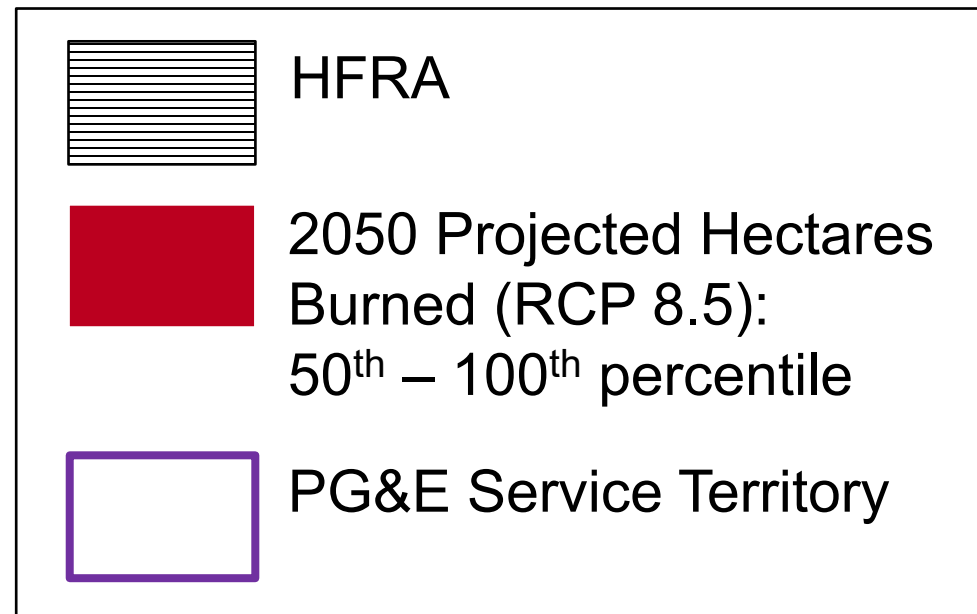


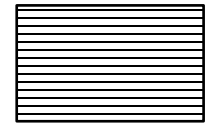
PG&E Service Territory



Comparison of HFRA With Projections

50th-100th percentile for 2050





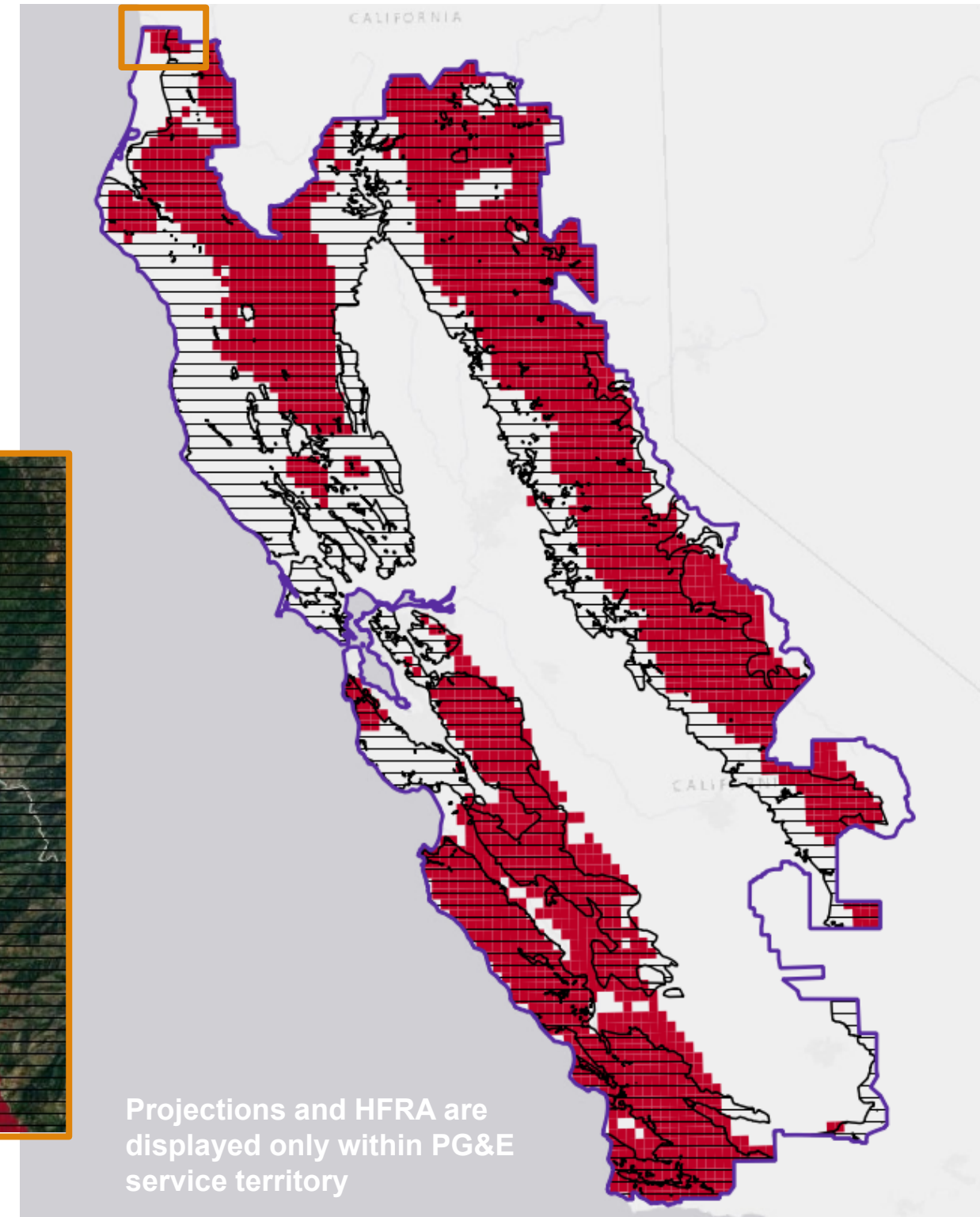
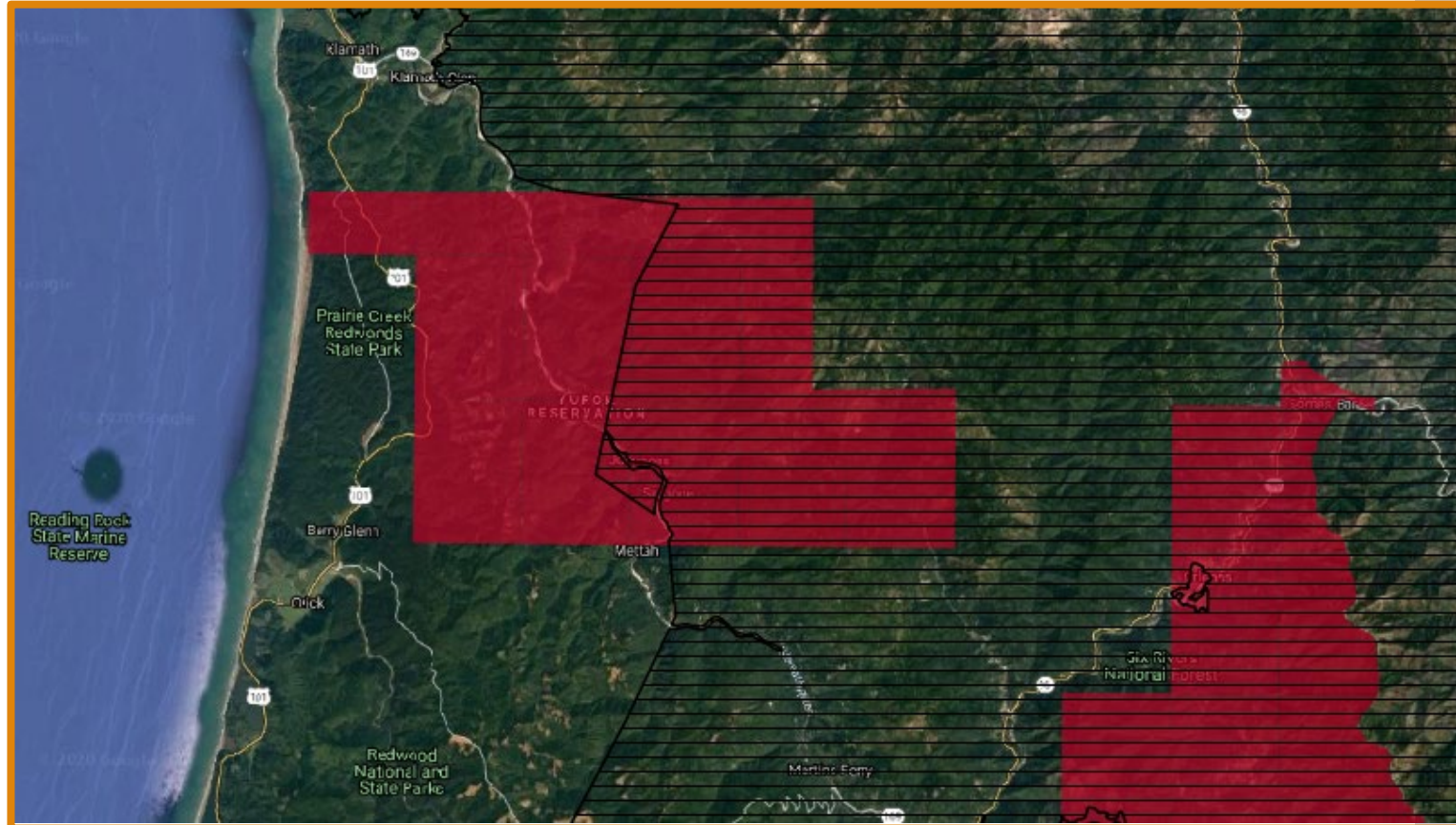
HFRA

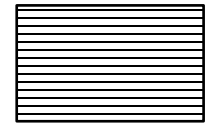


2050 Projected Hectares Burned
(RCP 8.5): 50th – 100th percentile



PG&E Service Territory





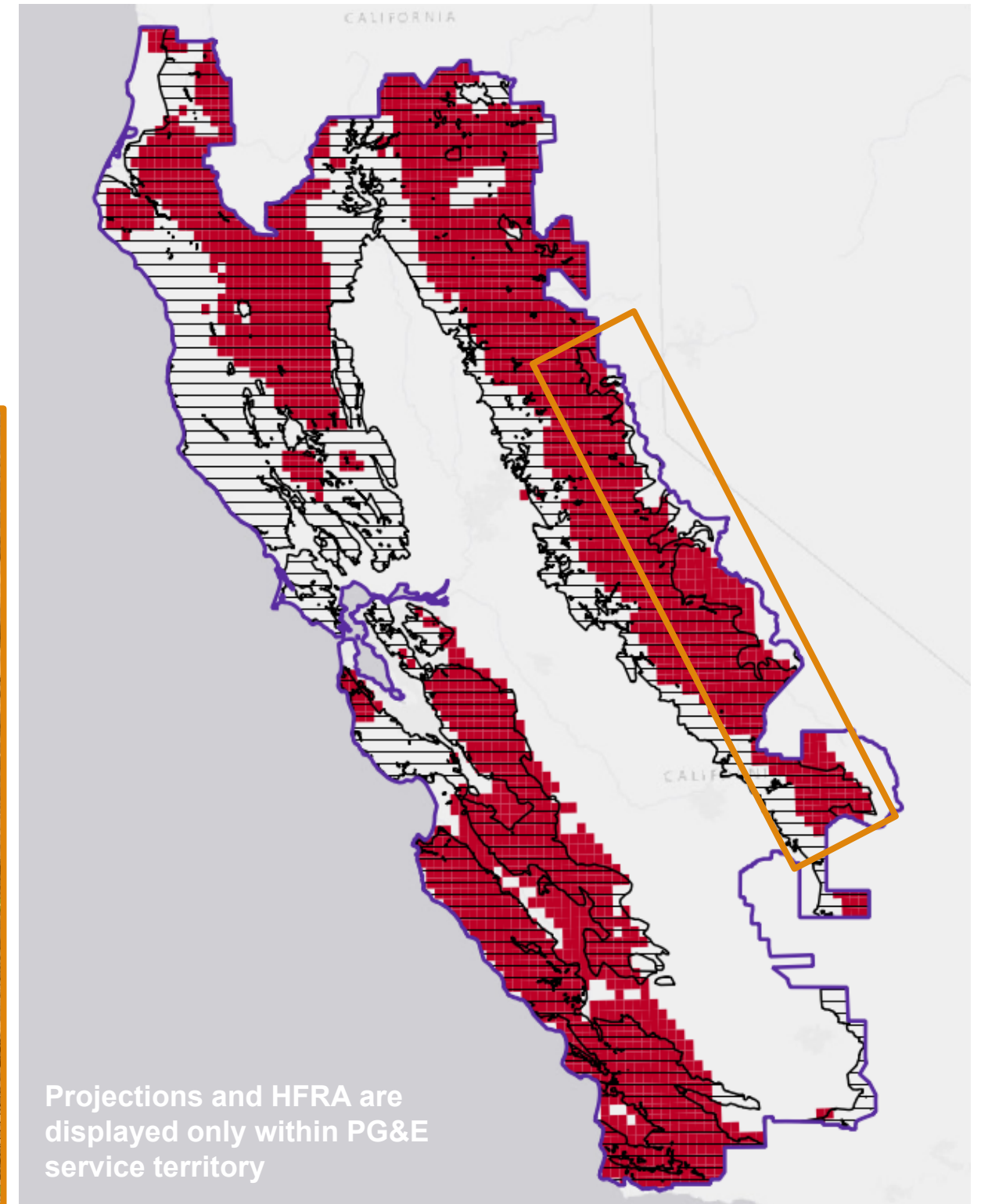
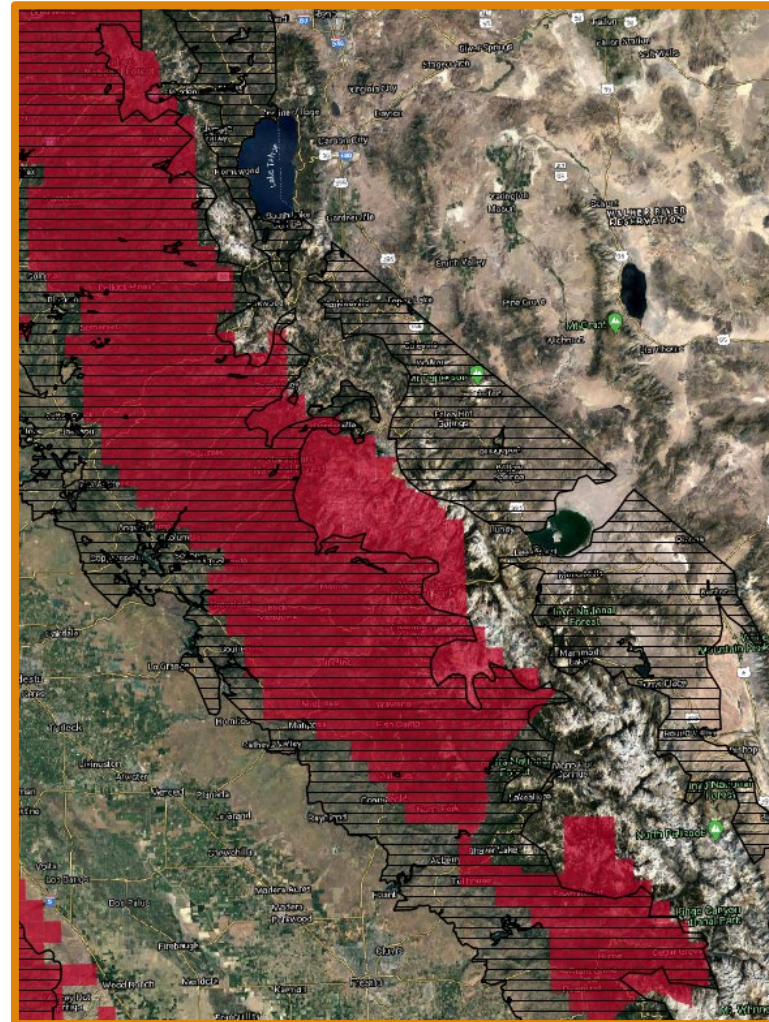
HFRA



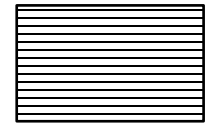
2050 Projected Hectares Burned
(RCP 8.5): 50th – 100th percentile



PG&E Service Territory



Projections and HFRA are
displayed only within PG&E
service territory



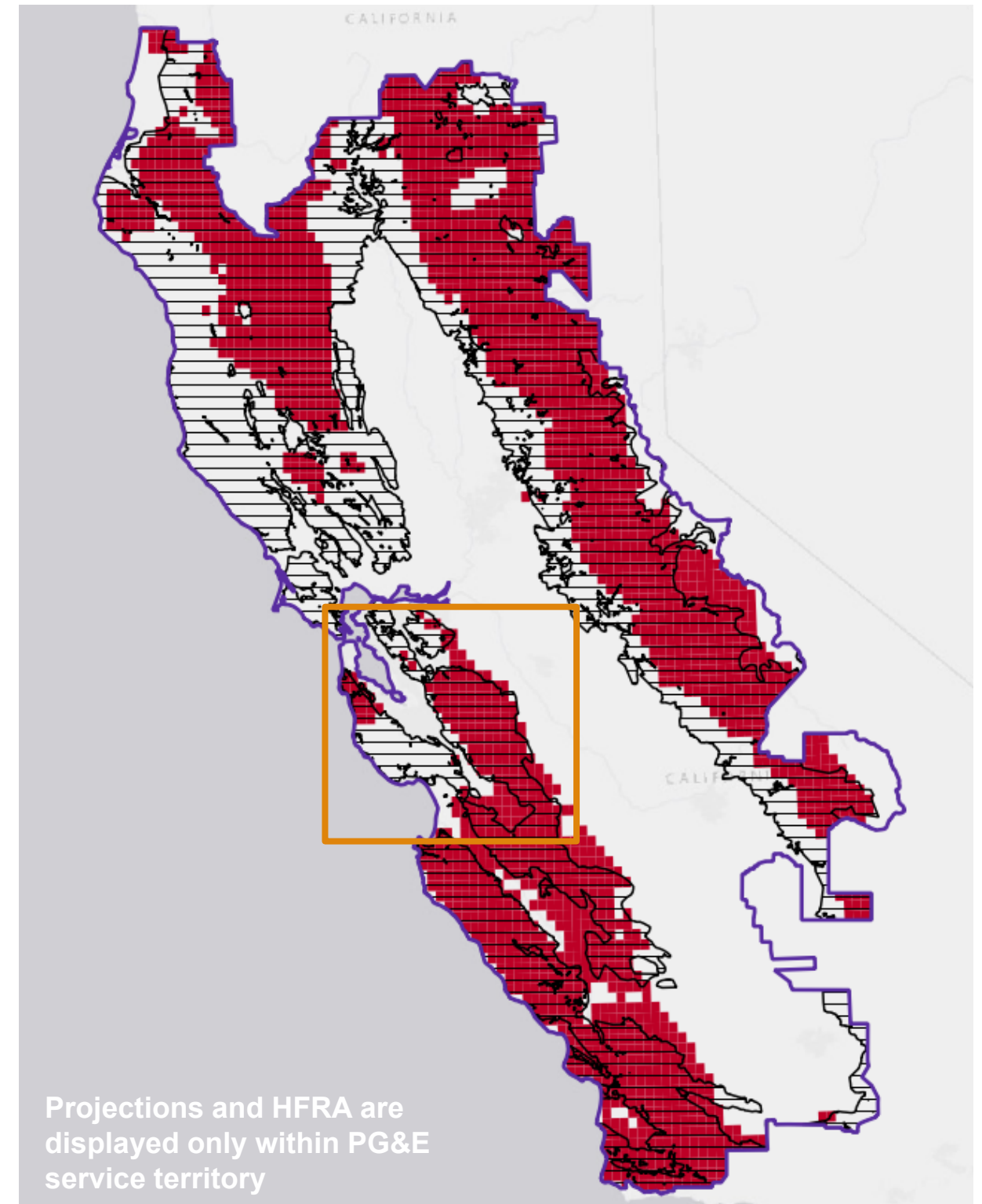
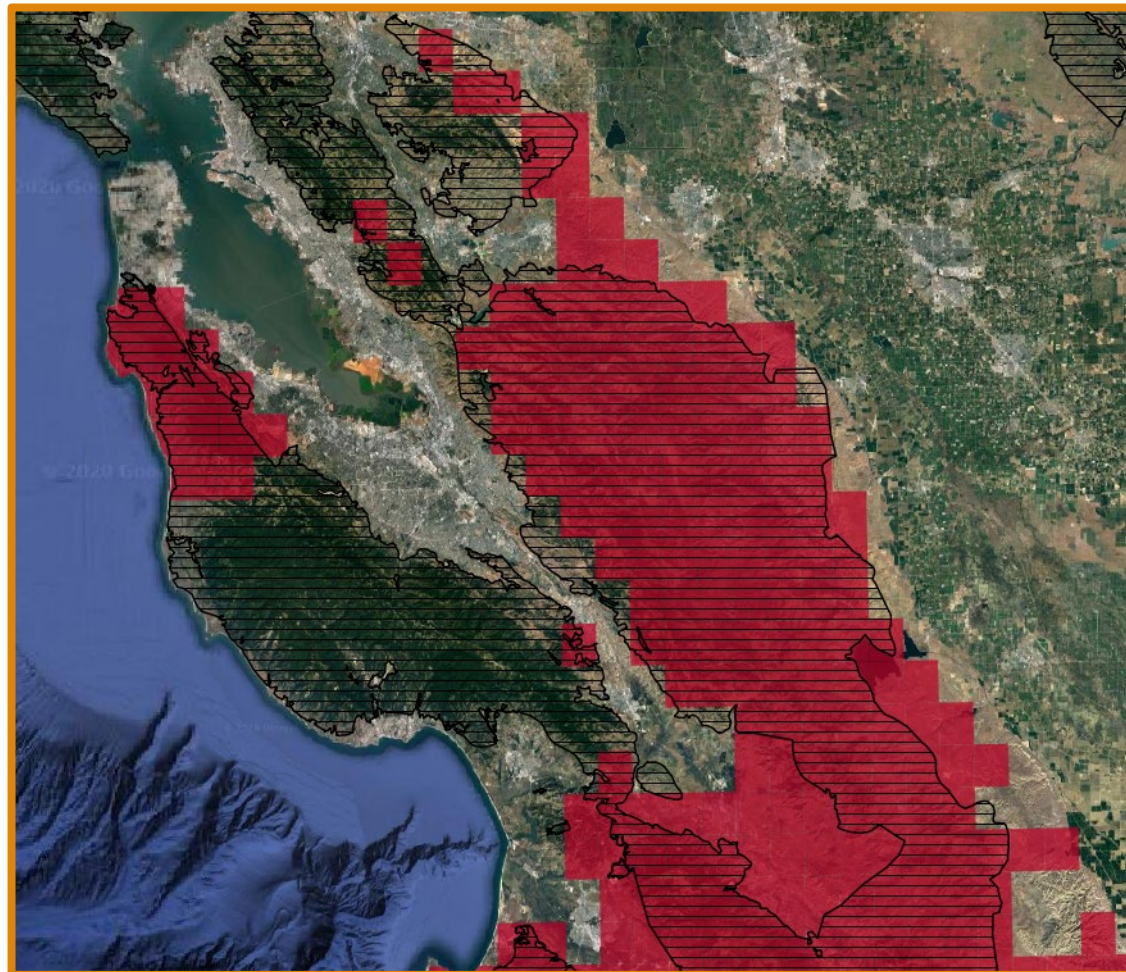
HFRA

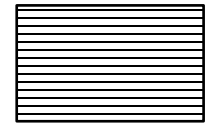


2050 Projected Hectares Burned
(RCP 8.5): 50th – 100th percentile



PG&E Service Territory





HFRA



2050 Projected Hectares Burned
(RCP 8.5): 50th – 100th percentile



PG&E Service Territory

