California Wildfire Safety Advisory Board

DRAFT POLICY PAPER ON UPDATING VEGETATION MANAGEMENT REGULATIONS AND INDUSTRY PRACTICES

Executive Summary

Increased catastrophic wildfires of the past two decades in California have increased the level of attention and expenditures to reducing vegetation and powerline conflicts. Since 2007, the industry has introduced many exemplary practices including the utilization of new technologies, enhanced inspection protocols, data collection and tree inventory management, and collaboration with federal and private landowners. While great progress has been made, the Wildfire Safety Advisory Board (Board) finds that there is potential to reduce the risks further beyond the existing utility vegetation management practices (UVM).

To support further risk reduction from vegetation-related utility ignitions, the Board recommends that the current the regulations be expanded beyond simply aerial and ground clearances within the utility right of way (ROW) to also focus on enhancing inspections, limiting the use of environmentally damaging mitigation measures such as herbicides, and mitigating potentially hazardous trees outside of the utility ROW (referred to as hazard trees).

The Board recommends that the Office of Energy Infrastructure Safety along with other stakeholders develop a process to review and adopt the industry practices that are appropriate for widespread use as well as reexamine thinning practices, the use of fuel breaks and bare/mineral earth clearances, UVM workforce training, vegetation planting efforts and the siting of new infrastructure.

In this Policy Paper, the Board identifies process suggestions for considering these updates.

Background

In 2019, the State Legislature passed Assembly Bill (AB) 111 that added Section 326(a)7 to the Public Utilities Code (P.U.C.), which requires the Office of Energy Infrastructure Safety (Energy Safety) to review, as necessary, electrical infrastructure safety requirements in coordination with the Board and provide recommendations to

the CPUC to address the dynamic risk of climate change and mitigate wildfire risk.[i] In early 2023, Energy Safety began a UVM scoping process to identify best practices for UVM. Furthermore, Energy Safety in June 2023 formally requested advice from the Board on UVM best practices and regulations to inform the scoping process. As part of its effort to coordinate with Energy Safety and inform the review of the CPUC's utility safety regulations and to recommend improvements to UVM practices and regulations, the Board offers this policy paper.

Discussion

Powerlines coming into contact with vegetation is responsible for nearly 40 percent of all utility ignitions in California's highest risk areas and has been behind many of the State's most catastrophic wildfires.[ii,iii] Additionally, approximately 23 percent of power outages nationwide are the result of vegetation contact.[iv] To reduce the risk of ignitions and outages, California electrical corporations focus their efforts on conducting inspections and patrols in and around the utility ROW, monitoring trees with remote sensing technologies like satellites and LiDAR, maintaining aerial clearances from overhead wires, and maintaining bare/mineral earth clearances at the base of poles with potentially hazardous equipment.

Limitations of the current UVM regulations

While the current regulated vegetation management practices reduce many potential vegetation-powerline conflicts, these practices cannot eliminate all risk of ignitions and outages, although some practices are more effective than others, and their effectiveness depends upon several factors that vary geographically. For instance, the regulations California Public Resources Code (PRC) Section 4293, the North American Electric Reliability Corporation's (NERC) FAC 003 and the California Public Utilities Commission (CPUC) General Order (GO) 95 Rule 35 require the electrical corporations to maintain vegetation clearances of a minimum of four feet for aerial distribution lines to 30 feet for aerial transmission lines[v,vi,vii]. However, these regulations do not effectively mitigate against airborne hazards such as palm fronds nor do they mitigate against falling trunks or limbs from hazard trees. Similarly, GO 165, which concerns the inspection of distribution and transmission facilities, does not address inspections details specific to vegetation. The details about how and when to conduct vegetation inspections are left to the electrical corporations' discretion.[viii] Additionally, PRC 4291 and 4292 – which respectively require defensible space clearances around structures of up to 100 feet and 10 feet radial bare/mineral earth clearances around the base of poles with equipment that are subject to clearance requirements (non-exempt equipment) due to potential ignition risks that they pose – are also potentially problematic for creating environments that can facilitate the spread of flammable invasive species.[ix,x,xi] This will be described further in the following section. Furthermore, none of the regulations specify the use of remote sensing technologies to

monitor vegetation growth and health or to warn electrical corporations of developing hazards.

Information from recent studies on vegetation management

The land use and vegetation management practices of today implemented by the electrical corporations and land management agencies, while effective in many contexts, may not always be the best suited for the various wildland areas in California. Recent studies have called into question the effectiveness of wildfire risk mitigation techniques such as thinning (pruning/removing) vegetation and shown drawbacks of fuel breaks. Banerjee (2020) found that thinning treatments can either reduce fire intensity or exacerbate it depending on how they are carried out. For instance, low levels of thinning may in some cases increase fire intensity and severity relative to untreated forest due to increased wind speeds, heat convection and decreased canopy fuel moisture.[xii] This is the case particularly in severe fire weather conditions with strong winds, where embers can fly kilometers ahead of the fire front. Fuel breaks can also be problematic as they often fail to prevent the spread of fires across the landscape and can invite flammable, invasive grasses. Gannon et al. (2023) found that fuel breaks are only able to contain fires successfully less than 30% of the time and they are far less effective in the absence of fire suppression resources.[xiii,xiv] Furthermore, Merriam et al. (2006) found that flammable, invasive, non-native plants were over 200% more prevalent in fuel breaks than in surrounding wildland as they are able to thrive in areas with reduced/limited canopy cover, frequently disturbed soils and limited duff/litter.[xv] The study also found that fuel breaks act as seed sources for non-natives to colonize adjacent areas.[xvi]

Recent studies have also demonstrated the benefits of greenbelts, or irrigated buffer zones with either native or non-native plants, around buildings and infrastructure to slow the spread of wildfires. Gibbons et al. (2018) found that structure loss was lower with areas that had surrounding green vegetation.[xvii] Additionally, Keeley et al. (2020) found that lightly irrigated native shrubs planted saw the lowest rate of fire spread relative to thinned or no treatment.[xviii] The studies suggest that greenbelts maintain higher vegetation moisture content than the surrounding wildlands and slow the spread of fires. Plants in greenbelts can furthermore catch or block embers that may otherwise land on and ignite dry vegetation or vulnerable structures.[xix]

UVM Management practices that may be appropriate for widespread use

There are several UVM management practices that are already in use by some of the electrical corporations in California that may be appropriate for more widespread use, including:

- **Fire Climate Zones** – SCE subdivides their service territory into 11 distinct regions with relatively homogenous topography, vegetation, weather/climate, and fire history for studying fire wildfire risk in its service territory and informing some of its operations to reduce wildfire risk.[xx]
- **Right Tree, Right Place** – SDG&E and Liberty Utilities offer customers incentives to remove trees near powerlines that are incompatible (i.e., may grow into the powerlines or otherwise pose a fire hazard) and provide suitable replacements.[xxi]
- **Collaboration with adjacent land managers** – Since the electrical corporations are only responsible for managing vegetation within their ROW, many risks may remain in the adjacent lands such as hazard trees or dense fuel build up. Collaborative initiatives with federal and private land managers, such as the US Forest Service and Liberty Utilities Resilience Corridors in Lake Tahoe may be an effective means to lower fire ignition and consequence risk outside of the utility ROW.[xxii]
- **Tree Inventory Databases** – Some electrical corporations such as SCE and SDG&E maintain robust tree inventory databases where they can keep track of millions of trees near their lines and inform their vegetation management priorities.[xxiii]

The Board emphasizes that responsible, science-based vegetation management should be customized for each ecosystem, to account for the physiological adaptations and fire response strategies of the dominant species, the extent to which forest conditions have been altered, fire history), and the likelihood of fire occurring under different scenarios. Treatment type, configuration, and placement can significantly influence the effect on ignitions and fire behavior. Thus, a "one-size fits all" approach is inappropriate in many vegetation management contexts.

Recommendations

Utilizing their expertise and experience, the Board recognizes that the electric corporations have made great strides forward in their existing utility vegetation management programs. Looking toward the future, the Board finds that greater vegetation-related ignition risk can be achieved through updating the regulations and industry practices based on the gaps the Board has identified. The Board offers these recommendations to Energy Safety for its consideration and welcomes further discussion to determine applicability and phasing of implementation.

Recommendations on Management Practices:

- The electrical corporations should consider using the "mid-cycle" approach to conduct vegetation patrol inspections within the HFTD. This would occur mid-way through their vegetation management cycles, to ensure compliance and eliminate encroachments into the minimum vegetation radial clearance distances.
- Electrical corporations should utilize daily fuel moisture data within various geographic regions in their service territories. The electrical corporations should maintain their own fuel moisture sampling programs for areas where they are not currently conducted by third parties.
- Electrical corporations should develop programs for monitoring and managing the spread of flammable invasive species in and adjacent to their ROWs and on their property in the HFTD.
- Electrical corporations should maintain fuel breaks on their property in the HFTD in line with guidelines from USDA Natural Resources Conservation Service Code Section 383 and consider factors based on the species, geographic area, and access for fire suppression resources.
- Electrical corporations should maintain shaded fuel breaks or greenbelts of irrigated, native vegetation, depending on the local conditions, in the HFTD within 100 feet around all generation, substations, switchyards, offices and certain distribution and transmission poles, towers and ROWs.
- "Right Tree Right Place" (RTRP) programs need to be better defined and promoted to encourage strategic tree planting near powerlines by electrical corporations and property owners alike. These programs minimize costs, maintenance needs, hazards, and increase grid reliability. For instance, certain tree species may never reach a height where they would need to be pruned if they are planted underneath or adjacent to powerlines.[xxiv]
- Comprehensive UVM programs should incorporate "Trees for Energy Conservation" programs to help reduce energy demand and improve carbon sequestration which can help mitigate localized impacts from climate change risks such as increased heat waves on populations and potentially lower costs to ratepayers. Such programs align UVM work with energy efficiency and California's broader sustainability goals.[xxv]
- Electrical corporations should pursue alternative circuit configurations or construction methods that account for existing/changing vegetation in each area. This will help minimize vegetation impact and lower future UVM and maintenance costs while maintaining safety and reliability.[xxvi]

- The electrical corporations should establish comprehensive tracking mechanisms to monitor the environmental impacts of UVM programs. These mechanisms should not only assess the benefits of tree planting initiatives but also the environmental consequences of pruning, canopy reduction, tree removal and replacement. A comprehensive tracking approach can help align vegetation management efforts with broader sustainability goals while providing Energy Safety with measurable performance indicators and an ability to monitor progress.[xxvii]

Regulatory Recommendations:

- A separate vegetation inspection process should be included in an updated version of GO 95 Rule 35 or GO 165. Consideration should be given to the frequency and timing of such inspections and UVM work in the HFTD and if they are to be harmonized with patrol, detailed and intrusive inspection schedules for distribution facilities under GO 165. Consideration should be given to harmonizing these rules with NERC FAC-003.
- Consideration for any new vegetation inspections should include documentation of vegetation clearances around utility structures with defensible space clearances per PRC 4291.
- GO 95 Rule 35 should include guidance on the frequency of visual and intrusive inspections in the HFTD of trees within strike distance of the powerlines. This guidance should address 360-degree ground and aerial inspections, and intrusive core and root sampling as part of an assessment by a certified arborist. Such revisions should also address the inspections of trees within strike distance following heavy winter storms and drought years.
- GO 95 Rule 35 minimum clearance distances should be updated to at least align with the US Federal Government's Occupational Safety and Health Administration (OSHA) minimum approach distances (MAD) for energized lines for each voltage level.[xxviii,xxix]
- GO 95 Rule 35 language for minimum clearance distances should be updated to reflect the minimum four feet requirement that applies statewide in the HFTD in alignment with CPUC Decision 17-12-024.[xxx]
- GO 95 Rule 35 should explicitly require the electrical corporations to either send electrical workers who are designated as qualified employees as defined by OSHA Standard 1910.269 to manage vegetation that is within the MAD for each voltage level or de-energize the lines prior to contractors beginning vegetation work.[xxxi]

- GO 95 Rule 35 should include pole brushing requirements for all responsibility areas in the state aligned with PRC 4292 requirements for the state and local responsibility areas within the HFTD. Currently, the federal responsibility areas are left out of the pole brushing regulations and it is up to the electrical corporations to voluntarily adopt them.
- The electrical corporations should each be required to maintain a database of trees and other tall plant species (including century plants, bamboo, etc.) at least within their HFTD, including those within strike distance of overhead facilities. They should also collect aggregate data on highly flammable plant species on and adjacent to their ROW and property to include in their databases. Consideration should be given to the sharing of data or granting state, local and/or federal government agencies access to the databases, which can help inform their land use planning and emergency response operations.
- Minimum training/qualifications for vegetation management workforce need to be developed for the electrical corporations' employees and contractors.
- GO 95 Rule 35 should provide guidance on the use of pesticides and herbicides for utility vegetation management, how pesticide and herbicide use is to be reported, and if the electrical corporations should be limited to only certain pesticides and herbicides that meet internationally recognized specifications such as those under the World Health Organization (WHO) and/or United Nations Food and Agricultural Organization (UN FAO) standards.
- GO 95 Rule 35 should provide guidance to the electrical corporations on the appropriate maximum limit for pruning of healthy branches for trees and when it is prudent instead to remove the tree regardless of its health. Such guidance should consider different species and regional factors such as soil, climate, and topography.
- GO 95 Rule 35 should be updated to clarify that pruning and removal work should be conducted in accordance with American National Standards Institute (ANSI) Z133, ANSI A300 Part 1 and Part 7.
- GO 95 Rule 35 should clarify the electrical corporations' role in the removal, chipping, recycling and/or burning of the biomass resulting from UVM activities.
- An update of GO 95 Rule 48.1 may be warranted to clarify the appropriate repurposing of removed trees to be processed, treated, and used for utility pole applications.
- Consideration should be given to mechanisms for prioritizing UVM work, such as requirements or incentives, to help better prioritize programs such as RTRP programs which can prevent vegetation and powerline conflicts over the short and long term.[xxxii]

- GO 95 Rule 35 should clearly delineate the responsibilities for the electrical corporations for on-ROW and off-ROW vegetation management work and clarify the areas that other entities are responsible for instead. This clarification could enhance cost appropriation and sharing where appropriate, avoid demarcation issues and reduce the ambiguity of responsibility for UVM work.[xxxiii]
- GO 95 should use industry-accepted terminology for UVM work consistent with ANSI A300 to ensure all involved parties interpret and execute practices consistently. For instance, this includes replacing non-standard terms like "trim" and "trimming" with precise alternatives such as "clearing" or "pruning".[xxxiv]
- GO 95 Rule 35 should be revised to harmonize elements of PRC 4292 and 4293 to create uniform, comprehensive standards that apply statewide (including for federal, state, and local responsibility areas) and to reduce regulatory complexity.[xxxv]
- GO 95 Rule 35 needs to include regulations related to hazard trees to make them specific, enforceable, and aligned with prudent industry practices and recent scientific understanding. This includes clearly defining terms such as "hazard tree", "strike tree", and "removal candidate".[xxxvi]
- GO 95 Rule 35 needs to establish clear roles and requirements for service drop vegetation management. There is currently a lack of consistent interpretation as to which party is responsible for the work to remove or prevent vegetation interferences with service drops. Clear guidelines will enhance accountability and enable electrical corporations to carry out UVM work by service drops with improved efficiency and reduced potential for disputes.[xxxvii]
- GO 95 Rule 35 should include a statement of purpose, which is to prevent outages, fires, and to ensure the safety of workers and the public. Including a statement of purpose can help ensure that interpretations and policies that are derived from the regulation remain aligned with the regulatory intent.[xxxviii]
- GO 95 Rule 35 should require electrical corporations to adhere to established UVM-related best management practices, such as ANSI A300.[xxxix]
- GO 95 Rule 35 language concerning customer refusals for UVM work on their property should be strengthened and clarified. This includes updating refusal practices and including defined protocols for implementing power shut offs to non-compliant customers.[xl]
- Regulatory guidance should be developed for the electrical corporations to monitor and mitigate the environmental impact of tree removal and replacement. Such guidelines would promote environmental responsibility and accountability within UVM practices, ensuring that efforts to enhance grid reliability do not come at the expense of environmental sustainability and potentially worsen overall wildfire and climate change risk due to increased heat, aridity, and wind exposure associated with thinning and pruning.[xli]

Procedural Recommendations:

- The Board recommends that the Office of Energy Infrastructure Safety (Energy Safety) host a follow-up scoping meeting within the next six months to discuss these recommendations, and industry best practices. The meeting should include written opening and/or post workshop comment opportunities.
- Energy Safety should take any additional stakeholder input on their proposed process for alignment of best practices that was introduced in the February 2023 scoping meeting and develop a timeline for the implementation of the best practices to incorporate them into the next wildfire mitigation plan submissions.
- Energy Safety should commission a study to measure and quantify the benefits of UVM work in both ROW and off-ROW contexts. Such a study should include collecting data from shaded fuel break and thinning projects like that of the Liberty Utilities and USFS Resilience Corridors to better understand if such projects would be appropriate for broader adoption.
- The electrical corporations should test or pilot the use of native, woody herbaceous shrubs and other less-flammable native plant species at the base of poles that would otherwise require 10-foot pole brushing clearances under PRC 4292.[xlii] The tests/pilots, which would be allowed under current regulations in the Federal Responsibility Area, should assess how well native plant species can reduce the risk of fire spread from equipment-related ignitions relative to bare/mineral earth clearances. This may require irrigating planted shrubs in the wildland-urban interface areas in the HFTD during fire season to maintain high live fuel moisture levels.
- The electrical corporations should also test or pilot the use of irrigated greenbelts around their facilities in the HFTD, excluding transmission and distribution lines, to further assess how well native plant species can slow or reduce the spread of fires near utility facilities.
- In the instance where pesticides or herbicides are used to maintain regulatory compliance with UVM regulations such as PRC 4292, the electrical corporations should work with local and regional environmental experts to identify alternative measures for managing unwanted animal and plant species so they can reduce their pesticide or herbicide use.
- The electrical corporations should train their field employees, such as UVM and other operations and maintenance crews, to recognize violations of the defensible space requirements in PRC 4291 when they are out in the field or near homes and report this information to CAL FIRE to further reduce wildfire consequence risk.
- The electrical corporations should partner with relevant landowners and stakeholders to test bark beetle mitigation measures to reduce tree mortality and prevent healthy trees from becoming hazard trees. These measures could include the introduction of predatorial species, forest thinning, traps, genetic

modification to reduce their ability to harm trees or reproduce, and targeted pesticides.

- The electrical corporations should work with industrial partners such as with biomass generation facilities, wood pellet producers, composting facilities, and mills to explore opportunities for transporting removed logs and biomass for economic purposes such as making lumber, agricultural compost, generating electricity or hydrogen, or wood pellets for heating.
- The electrical corporations should also partner with landowners and research organizations to test the selective breeding of plant species near powerlines to inhibit the growth, or to reduce the flammability of the plants.
- The electrical corporations should work with the city and county government partners and representative organizations such as the League of California Cities, the Rural County Representatives of California, and the California State Association of Counties to amend local tree ordinances to prevent the planting of incompatible trees and other plants such as bamboo and century plants near powerlines.
- The electrical corporations should collaborate with stakeholders to determine the appropriate protocols to mitigate customers refusals when vegetation work is needed to comply with UVM regulations. This could include updating customer communication practices, power-shutoffs protocols, and the appropriate use of legal recourse.
- The electrical corporations should engage more closely with Native American tribes to incorporate traditional ecological knowledge into their landscape and forestry management efforts.

References

[i] P.U.C. § 326(a)7 requires energy Safety to "Review, as necessary, in coordination with the California Wildfire Safety Advisory Board and necessary commission staff, safety requirements for electrical transmission and distribution infrastructure and infrastructure and equipment attached to that electrical infrastructure, and provide recommendations to the commission to address the dynamic risk of climate change and to mitigate wildfire risk." https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=326&lawCode=PUC.

[ii] Based on 2015-2022 ignition data aggregated from PG&E, SCE and SDG&E's Q3 and Q4 2022 Quarterly Data Reports that were submitted to the Office of Energy Infrastructure Safety's Docket #2022-QDR. See https://efiling.energysafety.ca.gov/Search.aspx?docket=2022-QDR .

[iii] CAL FIRE, "Top 20 Most Destructive California Wildfires," updated October 24, 2022, https://www.fire.ca.gov/our-impact/statistics.

[iv] R.J. Hauer and R.H. Miller (2021), "Utilities & Vegetation Management in North America: Results from a 2019 Utility Forestry Census of Tree Activities & Operations," Special Publication 21-1, College of Natural Resources University of Wisconsin – Stevens Point, p.vi., https://www.researchgate.net/publication/350291004_Utility_Vegetation_Management_in_North_America_Results_from_a_2019_Utility_Forestry_Census_of_Tree_Activities_and_Operations.

[v] California Legislative Information, "California Code, Public Resources Code - PRC § 4293," accessed August 22, 2023, Public Resources Code 4293, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4293.&nodeTreePath=7.2.4&lawCode=PRC.

[vi] The NERC FAC 003 is a standard adopted and enforced on electric transmission entities by the Federal Energy Regulatory Commission, or FERC. North American Electric Reliability Corporation, "Reliability Standard FAC-003-4," accessed August 22, 2023, https://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-003-4.pdf.

[vii] California Public Utilities Commission. "CPUC GO 95 Rule 35." Accessed August 22, 2023. https://ia.cpuc.ca.gov/gos/go95/go_95_rule_35.html.

[viii] The GO 165 "Standards for Inspection" for distribution require the electrical corporations simply to "conduct inspections of [their] distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation" within specified timeframes of 1-2 years for patrol inspections and 5 years for detailed inspections of overhead facilities. Additionally, it requires the electrical corporations to conduct intrusive inspections within 10 years for new wooden poles and no more than every 20 years thereafter for poles that pass intrusive inspection. Similarly, the section "Transmission Facilities" only specifies that the electrical corporations "prepare and follow procedures for conducting inspections and maintenance activities for transmission lines." GO 165 does not make any mention of vegetation inspections. See California Public Utilities Commission, "General Order Number 165," June 2013, pg. 2, 4, 5, https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M078/K606/78606034.PDF.

[ix] California Legislative Information, "California Code, Public Resources Code - PRC § 4291," accessed August 22, 2023, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4291.&lawCode=PRC.

[x] California Legislative Information, "California Code, Public Resources Code - PRC § 4293," accessed August 22, 2023, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4293.&nodeTreePath=7.2.4&lawCode=PRC.

[xi] This is especially the case in areas where the utility only maintains the clearances just before and during fire season as invasive, annual grass seeds can end up in the soil and/or germinate and grow in advance of fire season.

[xii] Tirtha Banerjee (2020), "Impacts of Forest Thinning on Wildland Fire Behavior," *Forests,* August 22, 11(9), 918, p.10, **https://doi.org/10.3390/f11090918**.

[xiii] Without fireline and aerial drops fuel break success rate was only 12.7% compared to 68.1% for the fuel breaks observed that had both fireline and aerial drops. Benjamin Gannon et al. (2023) "A Quantitative Analysis of Fuel Break Effectiveness Drivers in Southern California National Forests," *Fire,* March 7, 6(3), 104, p.15 **https://doi.org/10.3390/fire6030104**.

[xiv] Fuel breaks are less effective particularly during severe fire weather conditions with strong winds, where embers can fly kilometers ahead of the fire front.

[xv] Kyle Merriam et al. (2006), "Fuel Breaks Affect Nonnative Species Abundance in Californian Plant Communities," *Ecological Applications*, 16(2), p.515, https://doi.org/10.1890/1051-0761(2006)016[0515:fbansa]2.0.co;2.
[xvi] Ibid., p.526.
[xvii] Philip Gibbons, et al. (2018), "Options for reducing house-losses during wildfires without clearing trees and shrubs," *Landscape and Urban Planning* 174, March 3, p.10, https://doi.org/10.1016/j.landurbplan.2018.02.010.
[xviii] Jon Keeley et al. (2020), "Protecting the Wildland-Urban Interface in California: Greenbelts vs Thinning for Wildfire Threats to Homes," *Southern California Academy of Sciences,* May 25, 119(1), p.9, https://doi.org/10.3160/0038-3872-119.1.35.
[xix] Ibid., p.10.
[xx] Tom Rolinski, "Fire Climate Zone Overview," presentation to the Wildfire Safety Advisory Board June 13, 2023, meeting, https://www.youtube.com/watch?v=qoZUwZGyFzM.
[xxi] SDG&E Wildfire Mitigation Plan 2023-2025, original version filed March 27, 2023,p.276, https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMPs.
[xxii] The Resilience Corridors project involves various levels of vegetation treatments up to 1000 feet adjacent to 54 miles of Liberty's powerlines. US Forest Service, "Liberty Utilities Resilience Corridors Proposed Action," p.1, https://usfs-public.app.box.com/v/PinyonPublic/file/935071268584.
[xxiii] SDG&E 2023-2025 Wildfire Mitigation Plan original version filed March 27, 2023, p.2, SCE 2023-2025 Wildfire Mitigation Plan original version filed March 27, 2023, p.394, https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMPs.
[xxiv] Ibid.
[xxv] Ibid.
[xxvi] Ibid.
[xxvii] Ibid.
[xxviii] See Table R-6 in OSHA standard no. 1910.269(l)(2) for the detailed minimum approach distances.
[xxix] This should also align with the California Code of Regulations, Title 8, Section 2940.2 Minimum Approach Distances that were established by the California Organizational Safety and Health Administration (Cal/OSHA, also known as CalDOSH). See https://www.dir.ca.gov/title8/2940_2.html for more information.
[xxx] California Public Utilities Commission (2017), Decision Adopting Regulations to Enhance Fire Safety in the High Fire-Threat District, December 21, p.154-155, https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M200/K976/200976667.PDF.
[xxxi] OSHA defines a "qualified employee" as "one [who is] knowledgeable in the construction and operation of the electric power generation, transmission, and distribution equipment involved, along with the associated hazards… An employee must have the training required by 1910.269 in order to be considered a qualified employee… Except as provided in 1910.260, an employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties." See Occupational Safety and Health Administration, "Electric Power Generation, Transmission, and Distribution » Glossary of Terms," accessed November 29, 2023, https://www.osha.gov/etools/electric-power/glossary-terms#term-q.
[xxxii] Lawrence Kahn and Stephen Cieslewicz, meeting with Wildfire Safety Advisory Board Staff, November 16, 2023.
[xxxiii] Ibid.
[xxxiv] Ibid.
[xxxv] Ibid.
[xxxvi] Ibid.
[xxxvii] Ibid.
[xxxviii] Ibid.
[xxxix] Ibid.
[xl] Ibid.
[xli] Ibid.
[xlii] California Legislative Information, "California Code, Public Resources Code - PRC § 4292," accessed August 22, 2023, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4292.&lawCode=PRC