Wildfire Risk Modeling Working Group
Workplan Guidelines

Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), PacifiCorp, Liberty Utilities (Liberty), and Bear Valley Electric Service, Inc. (collectively "utilities") shall collaborate through an Office of Energy Infrastructure Safety (Energy Safety) led working group on risk modeling.

The purpose of this working group is to bring more consistency across utilities in terms of risk modeling, and determine the most effective and accurate methods, data sets, and analyses for the utilities to utilize in modeling, specifically in terms of:

- The likelihood of ignitions;
- The consequences of ignitions; and
- The extent to which varying mitigation alternatives impact the frequency and duration of public safety power shutoff (PSPS) events.

The utilities do not all utilize the same type of data to determine risk, nor do the utilities utilize their individual data sets in the same way. Energy Safety recognizes that the utilities are all at different stages in the advancements of their ignition models, and that the appropriate methods, data sets, and analyses in assessing risk may vary among utilities and/or throughout the service territories of one utility, due to differing data availability, or for other reasons. Therefore, each utility may have a different approach to their modeling efforts. However, the utilities face similar enough circumstances that collaboration should prove beneficial by maximizing available resources, increasing the likelihood of accurate model outputs, and expanding subject matter expertise.

As part of the collaboration, the working group may examine any or all the following inputs and outputs, including how the data is utilized in determining and modeling ignition, consequence, and PSPS risks.

At the October 5, 2021, Risk Modeling Workshop, the utilities must present a summary of their current efforts on each of the points below. Given the limited amount of time for presentations, utilities may not be able to present each of the points in detail. To augment the presentations, the utilities must submit a report that provides a detailed description of each of the points below by October 13, 2021. The purpose of the report is to provide Energy Safety and Stakeholders with detailed documentation of each utility's current modeling practices.

- Data used broken down by model, including:
  - Scale and geographical context
  - Topography
  - Quality of historical outage, fault, and ignition data
  - Usage of outage and fault events to augment ignition data
  - Integration of potential ignitions avoided due to PSPS events (to account for bias in ignition data post during PSPS events)
  - Asset data (including asset age, health, inspection results, type, etc.)
  - Impacts of system hardening and other initiative efforts
  - Climate conditions (including historical wind conditions, relative humidity, temperature, etc.)
  - Vegetation (including type, density, height, etc.)
  - Fuel characteristics (including load, size, continuity, vertical arrangement, moisture, etc.)
  - Impacts of Routine and Enhanced vegetation management activities (including tree-trimming, tree-removal, inspections, etc.)
  - Frequency of updates to datasets and inputs, including any associated triggers to determine the need for updates
  - Accuracy and quality checks for data and inputs
- Model descriptions for ignition, consequence, and PSPS models, including:
  - Algorithms used and machine learning capabilities
  - Impact of climate change
  - Ingress and egress
  - Modeling components, linkages, and interdependencies
  - Weight of each data components and inputs
  - Automatization implemented
  - Frequency of updates to modeling, including the basis for updates

- How model outputs are analyzed and utilized for each model, including:
    - Confidences for each modeling component, including how such confidences were determined
    - Range of uncertainty for model outputs, including how those ranges are determined and how uncertainty is minimized
    - Systems used to verify the model outputs, including verifier (subject matter experts, third-party) and description of implementing lessons learned
    - How uncertainty affects the interpretations of model outputs
    - Determination of highest risk areas based on model outputs
    - Use of subject matter expertise for inputs and further verification
- Description of any collaborations previously undertaken among the utilities, as well as details on consistency across utilities, including:
    - What modeling approaches are already consistent
    - Which modeling approaches have the potential for more consistency and how approaches would benefit from consistency
    - Where consistency is infeasible or not necessary.
- Description of any collaborations previously undertaken and/or ongoing with other entities
- Anticipated changes to any of the models between now and the 2022 WMP Update
- Attachments of any internal or third-party validations completed, and description of any peer review utilized

After the Risk Modeling Workshop, a bi-weekly working group will be established with Energy Safety, the utilities, and qualified, interested parties. Energy Safety will determine the focus points of the working group by taking into consideration the information presented by the utilities and the questions asked by stakeholders at the Risk Modeling Workshop. Additional focus points may be added to the above list based on the discussion at the Risk Modeling Workshop. Energy Safety anticipates that the working group may not be able to resolve all the points above before the utilities submit their 2022 WMP Updates. Therefore, the working group may continue after the 2022 WMP review is complete to resolve any remaining points, as well as address additional issues that may arise as part of the 2022 WMP review.