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Re: CA 2023-WMPs
OEIS-P-WMP_2023-PC-010

Please find enclosed PacifiCorp's responses to OEIS data requests 10.1-10.4.

If you have any questions, please call me at (503) 813-7314.

Sincerely,

___/s/___
Pooja Kishore
Manager, Regulation

OEIS Data Request 10.1

Regarding lessons learned from past wildfires:

(a) In Appendix D of its WMP, in response to a 2022 area for continued improvement regarding lessons learned from past wildfires (identified by Energy Safety in its Decision on PacifiCorp's 2022 WMP Update), PacifiCorp states that it is planning to implement fire incident tracking in Q2 2024. PacifiCorp further explains that after the implementation of fire incident tracking, it expects to design and integrate new processes to perform trend and root cause analysis for ignitions by the end of 2024.

i. Is the fire incident tracking database the method PacifiCorp plans to use to investigate the cause(s) of PacifiCorp-ignited catastrophic wildfires and to identify associated lessons learned?

(1) If not, does PacifiCorp currently use or plan to use any other methods for investigating the cause(s) of PacifiCorp-ignited catastrophic wildfires and identifying associated lessons learned?

a) If so, please describe these other methods, including a timeline for implementation.

(b) In Section 10 of its WMP, PacifiCorp does not provide a narrative detailing lessons learned from PacifiCorp-ignited catastrophic wildfires (as listed in Section 5.3.2). In addition, PacifiCorp does not detail specific mitigation measures implemented as a result of these lessons learned nor demonstrate how the mitigation measures are being integrated into PacifiCorp's wildfire mitigation strategy.

i. Please confirm if this information was left out given PacifiCorp's response to PC-22-06 (as described above and in Appendix D) and given that PacifiCorp has not yet implemented fire incident tracking or integrated processes to perform trend and root cause analysis for ignitions.

(1) If this is incorrect, please explain why this information was left out of Section 10 of PacifiCorp's WMP.

Response to OEIS Data Request 10.1

(a) PacifiCorp objects to the extent the request calls for information protected by the attorney-client privilege and the attorney work-product doctrine, including without limitation in respect to ongoing cause and origin investigations being conducted by PacifiCorp's legal counsel in conjunction with pending litigation. Subject to these objections, PacifiCorp responds as follows: PacifiCorp denies that there are any "PacifiCorp-ignited catastrophic wildfires." If there is an allegation made that

PacifiCorp ignited a catastrophic fire, PacifiCorp's legal counsel initiates and conduct a full and thorough cause and origin investigation with the assistance of external consulting experts.

(b) PacifiCorp objects to the extent the request calls for information protected by the attorney-client privilege and the attorney work-product doctrine. Subject to these objections, PacifiCorp responds as follows: As stated in Section 5.3.2, Table 5-4 "Catastrophic Wildfires with Pacific Power's Service Territory in California" identifies catastrophic fire incidents reported under certain regulatory requirements. PacifiCorp denies that listing an incident in this table means that there are any "PacifiCorp-ignited catastrophic wildfires." The two incidents listed in Table-5-4 are the subject of pending litigation, and PacifiCorp's legal counsel is conducting an ongoing cause and origin investigation with respect to each incident.

OEIS Data Request 10.2

Regarding PacifiCorp's current process for ranking and selecting mitigations: Energy Safety understands that PacifiCorp divides its territory into risk tranches (i.e., "buckets" or risk categories) according to wildfire risk.

i. Please list and describe each of the risk tranches or "buckets" PacifiCorp has identified.

ii. Please describe the criteria used to determine these risk tranches.

(1) If PacifiCorp uses a qualitative checklist or some other tool, please provide this checklist or tool, as well as an explanation of the checklist or tool.

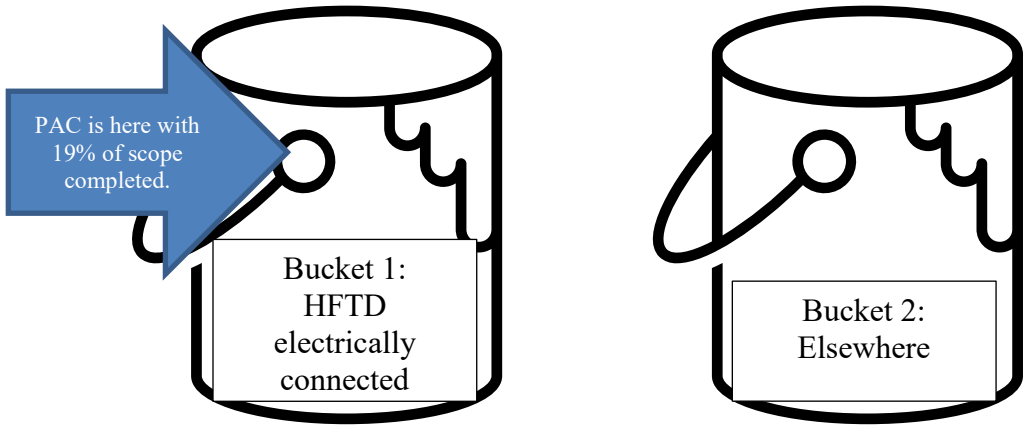
iii. What is PacifiCorp's current process for prioritizing and selecting mitigations within a given risk tranche?

(1) If all the mitigations are selected for a risk tranche, does PacifiCorp move on to the next tranche?

(a) If so, what is the process to prioritize and select mitigations.

Response to OEIS Data Request 10.2

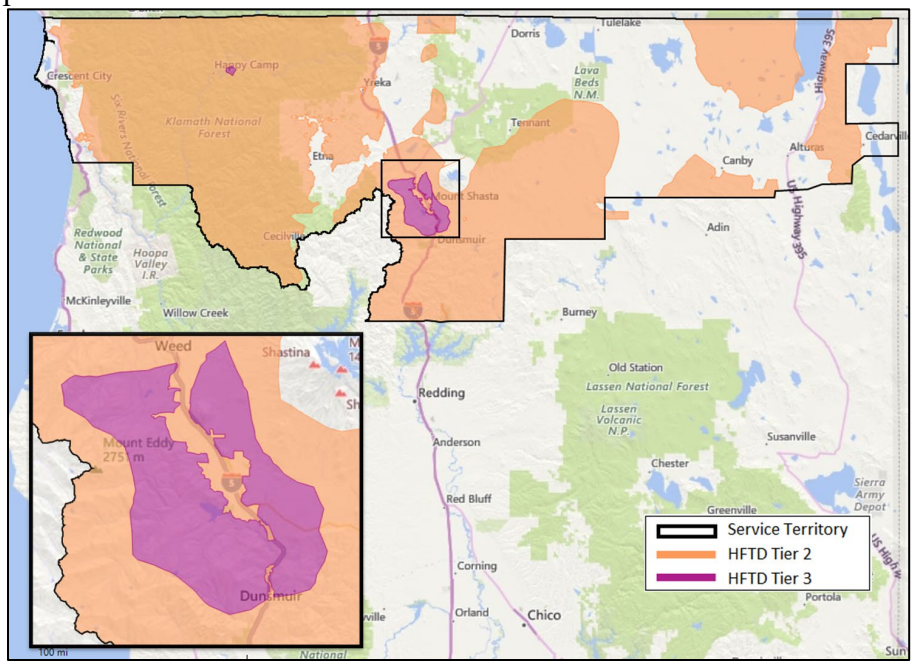
As discussed in Section 7.1.4.2 of PacifiCorp's 2023 Wildfire Mitigation Plan (WMP), work has been prioritized in locations with high fire risk, which generally occur within the high fire threat district (HFTD) and align with the California Department of Forestry and Fire Protection's (CAL Fire) specified tier system. Additionally, projects are prioritized on their potential to reduce the impact of public safety power shutoffs (PSPS).



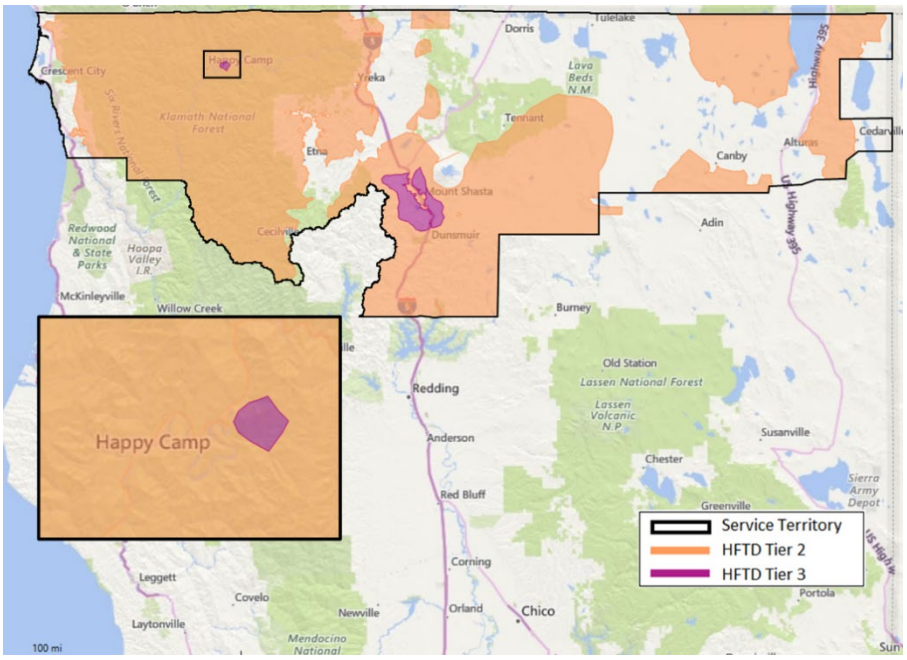
Many of PacifiCorp's mitigations have been applied to all HFTD areas concurrently or near concurrently. These include enhanced vegetation management, pole clearing, enhanced inspections, and enhanced infrared (IR) inspections.

(i) Gird Hardening activities specifically: Line Rebuild – Covered Conductor HG-01, Distribution Pole Replacement GH-02, Transmission Pole Replacement GH-03, Installation of System Automation Equipment GH-04, and Expulsion Fuse Replacement GH-05 have generally been grouped as follows:

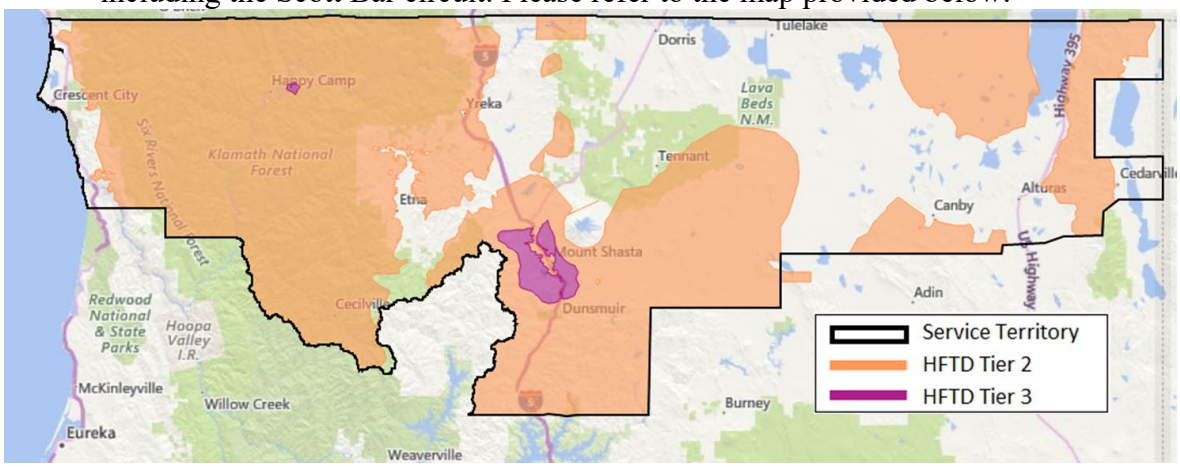
1. The first tranche focused on equipment located within the HFTD Tier 3 in the area of Dunsmuir, Mount Shasta and Weed, including facilities located within Tier 2 when work correlated with the work in Tier 3. Please refer to the map provided below:



2. The second tranche focused on equipment located in the HFTD Tier 3 in the area of Happy Camp, Seiad and Nutglade. Please refer to the map provided below:



3. The third tranche focused on the remaining equipment on the circuits in tranches 1 and 2 as well as other Tier 2 areas understood to have higher risks including the Scott Bar circuit. Please refer to the map provided below:



4. The fourth tranche is all remaining HFTD tier 2 areas. Please refer to the map provided with the Company's response to subpart (i) 3. above.

5. The fifth tranche is all remaining California service territory. Please refer to the map provided with the Company's response to subpart (i) 3. above

(ii) At times, projects in lower prioritized tranches have been able to reach construction and completion sooner than the higher prioritized tranches due to conditions such as: permitting, rights-of-way (ROW), engineering, specialized

material delays, or other system conditions which delay construction such as transmission line clearance scheduling. In these instances, PacifiCorp has continued to progress the higher prioritized project while constructing other projects not facing these impediments.

(iii) The System Automation and Expulsion Fuse Replacement initiates have been faster to execute and have therefore been applied in more of the risk tranches than the Line Rebuild – Covered Conductor and associated Distribution and Transmission Pole Replacement initiatives.

OEIS Data Request 10.3

Regarding wildfire consequence and risk calculations: In response to an Energy Safety data request (OEIS-P-WMP_2023-PC-007), PacifiCorp provided an explanation of how it uses percentiles within its wildfire consequence calculation. PacifiCorp stated that the 95th percentile was used to determine the severity of weather days for its wildfire simulation (higher percentile = worse weather). PacifiCorp also stated that out of 5,400 possible weather days, 300 were selected for the risk model calculation.

i. Does PacifiCorp currently use the process described above and in PacifiCorp's data request response in its methodology for calculating wildfire consequence and/or risk scores?

   (1) If so, when (what date) was this process implemented?

ii. How is the 95th percentile used to select the 300 days?

   (1) Provided a numerical example which includes the order of operations.

iii. How are the 300 days used to calculate risk scores? Please provide a numerical example.

   (1) Are 95th percentiles applied in any other parts of the formula to calculate risk scores? If so, provide a numerical example which includes the order of operations.

iv. How are the risk scores aggregated.

Response to OEIS Data Request 10.3

The Company assumes that the reference to "response to an Energy Safety data request (OEIS-P-WMP_2023-PC-007)" is intended to be a reference to OEIS Data Request 7.1. Based on the foregoing assumption, the Company responds as follows:

i. PacifiCorp implemented the methodology described in its revised 2023 Wildfire Mitigation Plan (WMP) and its response to OEIS Data Request 7.1 in August 2023.

ii. The 95th percentile is not applied directly to the selection of weather days for use in wildfire risk models. Weather days are separated into geographic regions to account for weather patterns associated with elevated fire risk differing across PacifiCorp's service territory. For example, hot and dry winds from the west may be a risk factor in one area, but winds from the east may be a factor in a different location.

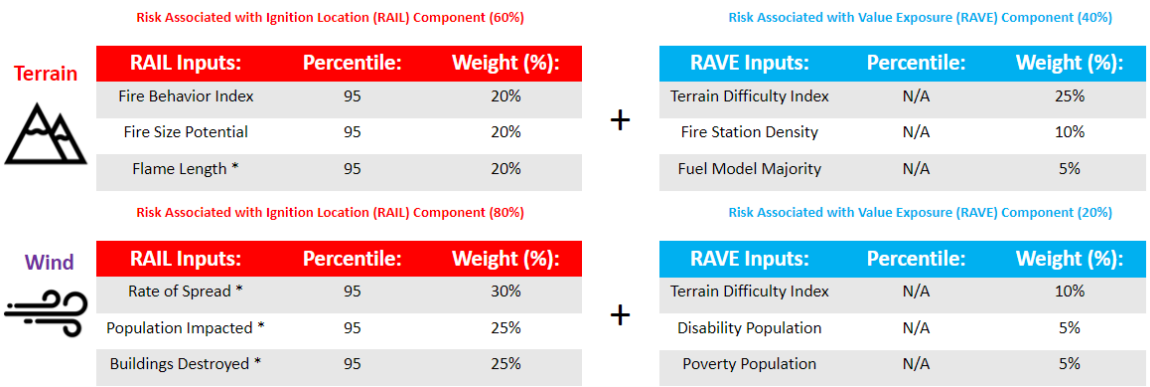
   For each area, the worst weather days are selected based on the following data:

- The Hot Dry Windy (HDW) Index.
- Energy Release Component (ERC) for fuel conditions.
- Wind Gusts Percentile (Gust).

The weather days are aggregated for each area using the exposure metrics ERC, HDW and Gust. Days below 70th percentile ERC are removed as large fire activity is not typically observed below that value. Days that have both HDW and Gust below 50th percentile are also removed as those days have lower outage potential and fire weather risk. Weather days are then clustered to identify days with similar weather exposures to elevated fire conditions. Finally, stratified sampling from each cluster (taking the worst ones first) produces the final weather day selection for an area. This process is repeated in each area. PacifiCorp selects days that meet all three criteria and days that meet only two dimensions of risk. The reduces the possibility of missing a day that is not at the highest risk based on all three dimensions but still presents a high potential for wildfire.

iii. The 300 weather days define the meteorological and fuel parameters used as inputs to wildfire simulations that calculate ignition risk probability and consequence. Consequently, PacifiCorp cannot provide a numerical example illustrating the use of weather days to calculate wildfire risk since the weather days are a set of inputs into the overall wildfire risk model.

(1) The 95th percentile is applied to the selection of FireSight (formerly Wildfire Risk Reduction Model (WRRM)) output values used as inputs in the ignition risk score as shown in the figure below.



These model outputs are used to calculate the ignition risk score as shown in the illustrative example below for one segment (Figure 1a through Figure 1c):

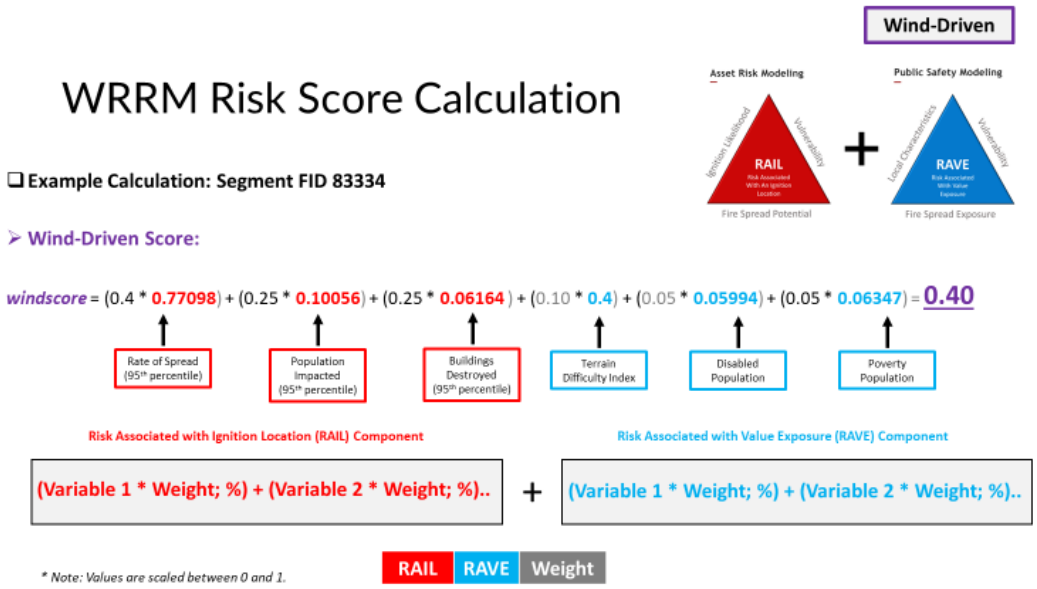


Figure 1a:
Overview using real data to calculate the wind-driven score (variables are noted with weights).

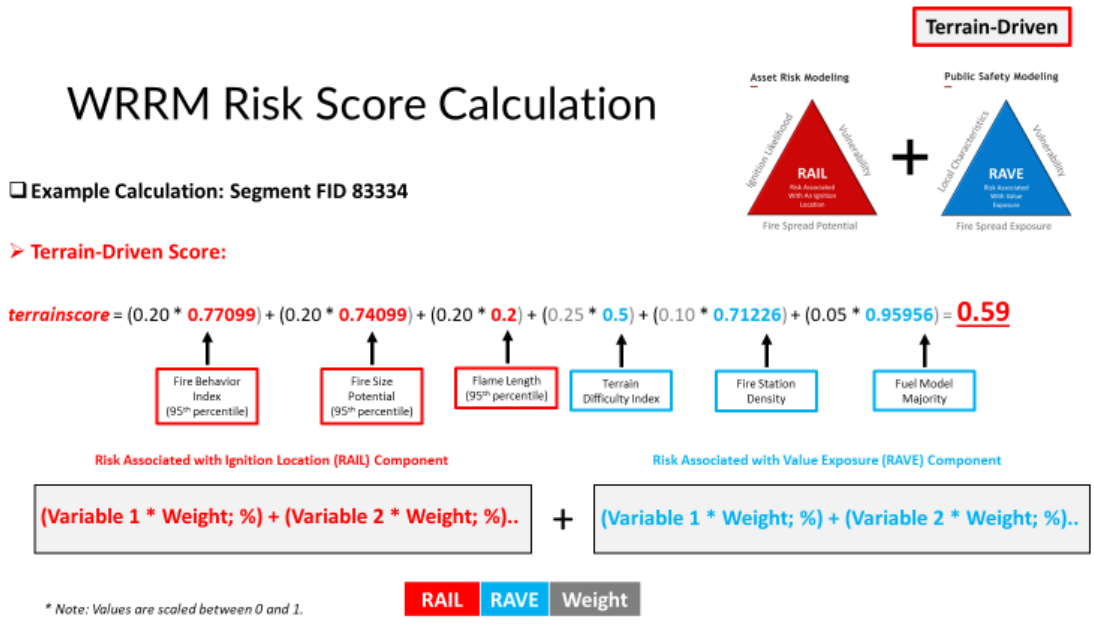


Figure 1b:
Overview using real data to calculate the terrain-driven score (variables are noted with weights).

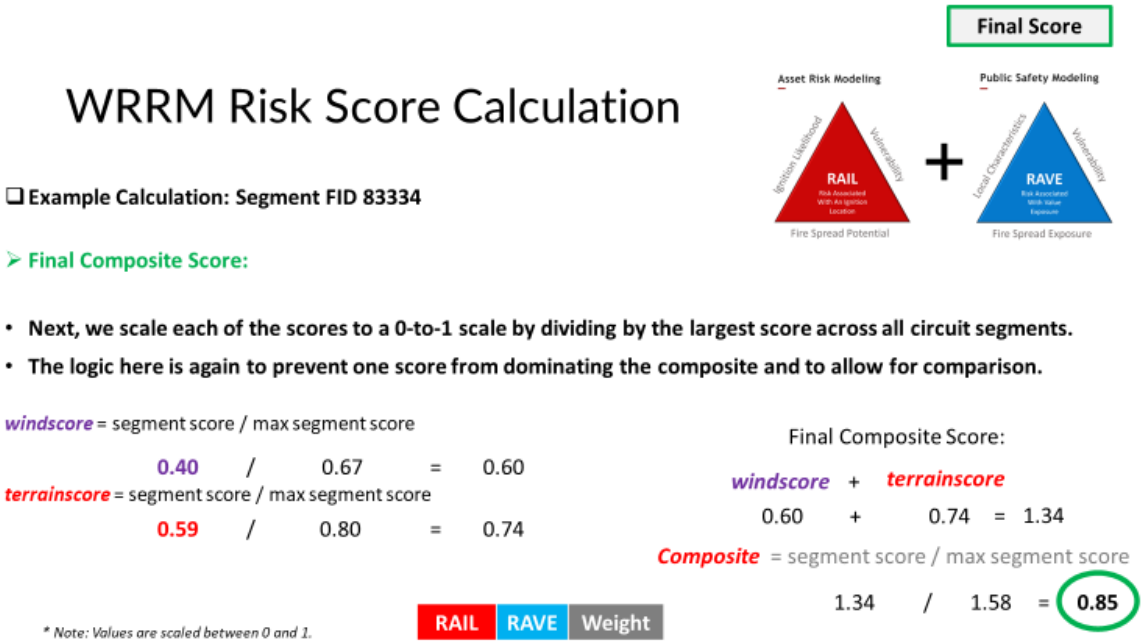


Figure 1c:
Overview using real data to calculate the final composite score (combining wind-driven and terrain-driven scores to get a final composite).

iv. Risk scores are currently applied at the circuit level to identify and prioritize locations for wildfire hardening projects. PacifiCorp uses circuit level risk scores as part of an overall mitigation selection and prioritization decision process, which includes cost and technical assessments and input from additional internal subject matter experts. The circuit level risk scores are aggregated from the underlying subsegment level data by averaging all segments on a particular circuit. These averages are reviewed in conjunction with maximum terrain- and wind-driven risk scores as part of the mitigation selection and prioritization decision-making process.

OEIS Data Request 10.4

Regarding PacifiCorp's planned process for ranking and selecting mitigations:

(a) Are the models and methodologies described in question "Q03" above used to calculate the risk impact of mitigations?

i. If yes, please describe PacifiCorp's risk impact calculations for mitigations (e.g., calculations following the steps listed on page 117 of PacifiCorp's WMP) and include a numerical example.

ii. If not, describe the quantitative and/or qualitative process used to calculate the risk impact of mitigations.

(b) How is a post-mitigation risk score calculated?

(c) Once the risk impact of mitigations are calculated, how are mitigations then prioritized and selected?

Response to OEIS Data Request 10.4

The Company assumes that the reference to "in question "Q03" above" is intended to be a reference to OEIS Data Request 10.3. Based on the foregoing assumption, the Company responds as follows:

(a) PacifiCorp is currently developing ignition risk mitigation effectiveness values for use in its risk-spend efficiency (RSE) calculations as shown in Figure 7-7 of its 2023 Wildfire Mitigation Plan (WMP), copied below for reference. These values will be applied to the risk models referenced in the Company's response to OEIS Data Request 10.3 to calculate estimated "before and after" risk scores accounting for the effectiveness of mitigations selected for a particular wildfire hardening project. PacifiCorp intends to provide ignition risk reduction in its Q4 2023 Quarterly Data Report (QDR) and to include additional detail on its ignition risk mitigation effectiveness calculations and values in its 2024 WMP including the risk impact calculations for mitigations with numerical examples.

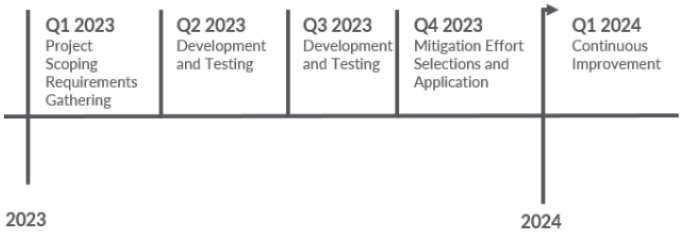


Figure 7-7 Timeline for RSE Implementation

(b) PacifiCorp is currently developing calculations for post-mitigation ignition risk scores. PacifiCorp intends to include additional detail on the calculation of post-mitigation risk scores in its Q4 2023 QDR and 2024 WMP, as discussed in the Company's response to subpart (a) above.

(c) As shown in Figure 7-8 of the 2023 WMP, copied below for reference, the risk impact of mitigations (shown as "RSE metrics") is an input into the overall mitigation prioritization decision process, which includes cost and technical assessments and input from additional internal subject matter experts while factoring the timeline for other mitigation projects on the circuit.

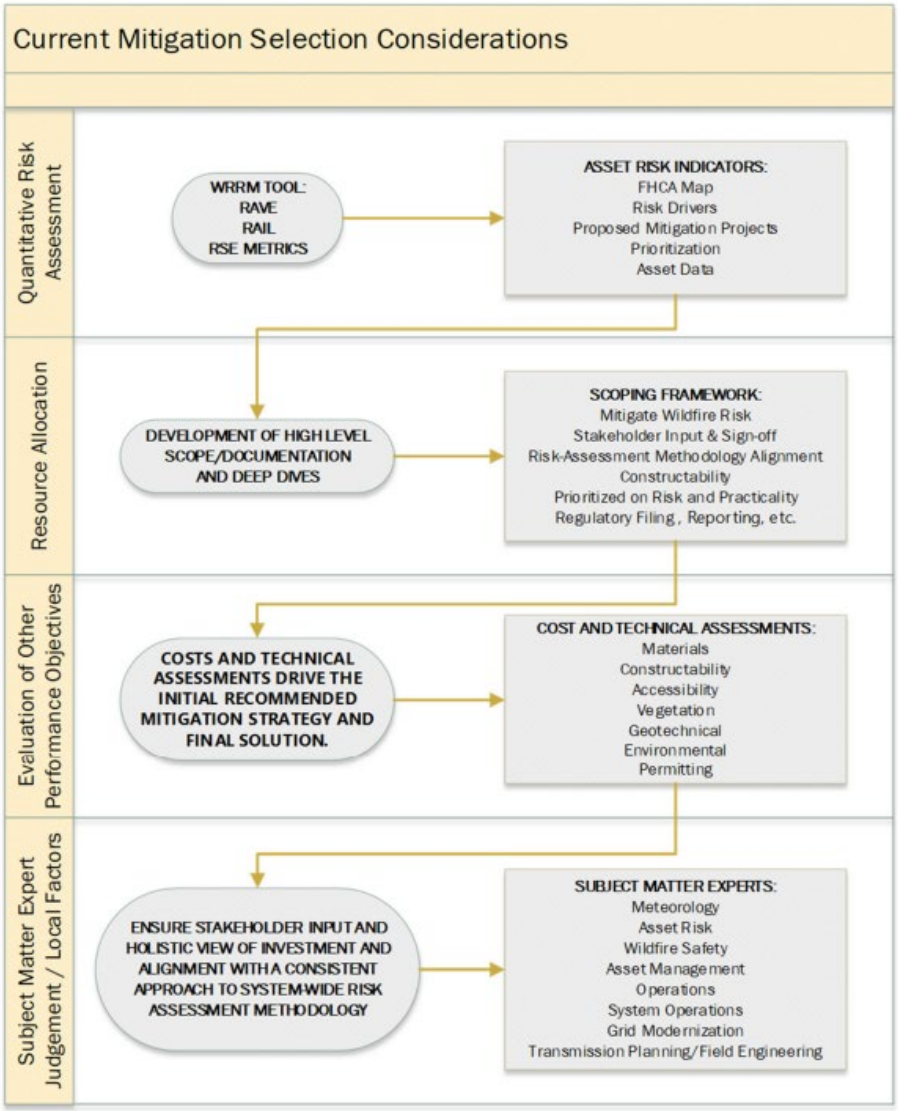


Figure 7-8 Current Mitigation Selection Considerations