Liberty
933 Eloise Avenue
South Lake Tahoe, CA 96150
Tel: 800-782-2506
Fax: 530-544-4811

December 17, 2025

DATA REQUEST RESPONSE
LIBERTY UTILITIES (LIBERTY)

Data Request No.:	OEIS-P-WMP_2025-Liberty-012
Requesting Party:	Office of Energy Infrastructure Safety
Originator:	Blythe Denton, Senior Wildfire Safety Analyst Jessica.McHale@energysafety.ca.gov Robert Warwick, Senior Wildfire Safety Analyst Blythe.Denton@energysafety.ca.gov)
cc:	Dakota Smith, Dakota.Smith@energysafety.ca.gov Steve Kerr, Steve.Kerr@energysafety.ca.gov Johan Im, Johan.Im@energysafety.ca.gov Surya Keshav, Surya.Keshav@energysafety.ca.gov Andie Biggs, Andie.Biggs@energysafety.ca.gov Francis Solis, Francis.Solis@energysafety.ca.gov Blythe.Denton, Blythe.Denton@energysafety.ca.gov
Date Received:	December 12, 2025
Due Date:	December 17, 2025

Subject:
Q01. Regarding Projected Overall Risk
Q02. Regarding Activity Effectiveness
Q03. Regarding Risk Model Improvements
Q04. Regarding LU-23B-06: Effectiveness of Sensitive Relay and Traditional Hardening
Q05. Regarding LU-25U-04: Cost-Benefit Analysis for the Stateline Resiliency Project

Q01. Regarding Projected Overall Risk:

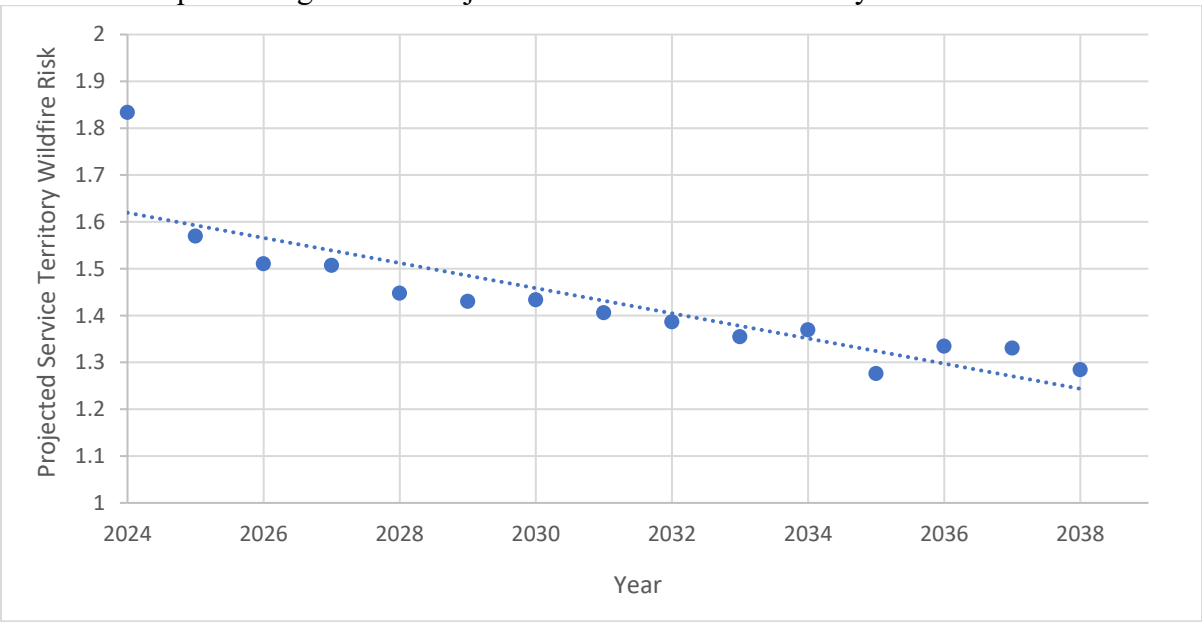
In Figure 6-2 (Liberty 2026-2028 WMP, Redline, page 118), Liberty still shows variance in the amount of risk year-per-year past 2030, with a particularly significant increase in 2034.

a. Explain how Liberty calculated these risks, including what factors led to risk increasing in future years.
b. Provide an updated version of the figure showing risk overtime using a baseline of initial risk from 2024 for all years

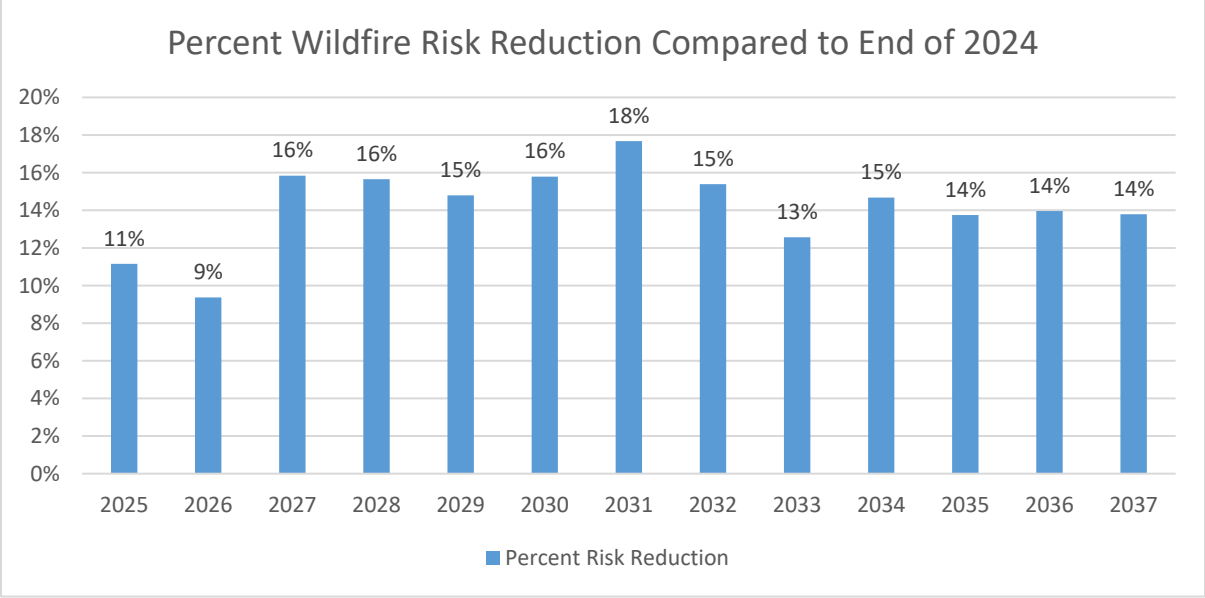
Q01 Response:

a. Liberty calculated long-term wildfire risk on an annual basis by applying the budgets and mitigation targets outlined in its Base 2026–2028 Wildfire Mitigation Plan (WMP) to its risk model and forecasting risk across the timeline. The forecasted budget used in this analysis is based on Liberty's most recent General Rate Case (GRC) application, which will establish funding levels for the current WMP cycle. The risk model projects an increase in risk in future years due to ongoing asset degradation and a built-in 4% annual inflation factor applied to the cost of mitigation activities and repairs; however, in the model the forecasted budget remains constant across all years. As a result, the model assumes fewer mitigation activities and repairs will be completed over time as costs rise. This demonstrates that, without increasing the budget to account for inflation, and/or identifying and applying efficiencies in execution, risk mitigation could slow or even rise over time. To address this disparity and to better align with the intent of the plan, Liberty re-ran the simulation while holding inflation at 0% under the assumption that either future GRC proceedings will establish funding levels commensurate with inflation, cost efficiencies commensurate with inflation will be achieved, or a combination of both. The updated Figure 6-2 is provided below and will be included in Liberty's errata filing of its Base 2026-2028 WMP R1.

Updated Figure 6-2: Projected Overall Service Territory Wildfire Risk



b. Based on Figure 6-2 provided in Liberty's 2026-2028 Base WMP_R1, the figure below shows the percentage of wildfire risk reduction each year using the wildfire risk score from the end of year 2024 as a baseline.



Q02. Regarding Activity Effectiveness:

a. In Table 6-3 (Liberty 2026-2028 WMP, Redline, pages 121-122), the following have 0% activity effectiveness for all activities:
   - Vegetation Management Inspection Program – Detailed
   - Detailed inspections of distribution electric lines and equipment
   - Vegetation Inspection – LiDAR and Patrol
   - Pole Clearing
   - Fire-Resilient Right-of-Ways
   - Intrusive pole inspections
   - Other discretionary asset inspections: Drone inspections

   i. Explain why the above activities have 0% for activity effectiveness across all risks.

   ii. In a call with Energy Safety on December 11, 2025, Liberty explained that many of the above have 0% activity effectiveness given that they are inspections, which do not lead to direct risk reduction but instead lead to activities that will reduce risk.

      1. Explain what activities in Table 6-3 are associated with each of the above activities that do lead to risk reduction when executed.

b. In a call with Energy Safety on December 11, 2025, Liberty explained that some of the above activity effectiveness calculations were incorrect. Provide an updated version of Table 6-3 showing the correct activity effectiveness values.

   i. Explain how Liberty calculated the activity effectiveness scores provided in Table 6-3 (Liberty 2026-2028 WMP, Redline, pages 121-122).

      1. Provide an example calculation showing the step-by-step process for covered conductor installation.

Q02 Response:

a.

   i. Liberty removed risk reduction scores for inspection efforts. The removal of risk scores from inspection activities is due to the fact that inspections alone do not impact risk directly. Inspections inform other mitigation activities that reduce risk. Therefore, the activity effectiveness is applied to the mitigation activity and not the inspection activity. This is why activity effectiveness is 0% across all risks for the following activities:
      - Vegetation Management Inspection Program – Detailed
      - Detailed inspections of distribution electric lines and equipment
      - Vegetation Inspection – LiDAR
      - Vegetation Inspection – Patrol
      - Intrusive pole inspections
      - Drone Inspections

There was an error in Table 6-3 of Liberty's 2026-2028 Base WMP_R1 for Pole Clearing. The activity effectiveness for wildfire risk should have been listed as 40.50% and activity effectiveness for overall risk and outage program risk should have been listed as "Not Calculated."

Fire-Resilient Rights of Way is listed as 0% across all risks, because there is no target for this activity in Liberty's 2026-2028 Base WMP.

ii. Please see table below for inspection programs and their associated mitigation activities.

Inspection Program	Mitigation Activities
Vegetation Inspection – Detailed	Clearance, Fall-In Mitigation, Wood and Slash Management
Vegetation Inspection – LiDAR	Clearance
Vegetation Inspection – Patrol	Fall-In Mitigation, Wood and Slash Management
Detailed inspections of distribution electric lines and equipment	Distribution pole replacements and reinforcements, general repairs
Intrusive Pole Inspections	Distribution pole replacements and reinforcements, general repairs
Drone Inspections	Distribution pole replacements and reinforcements, general repairs

b. See updated Table 6-3 below:

Activity[1]	Activity ID#	Activity Effectiveness – Overall Risk	Activity Effectiveness – Wildfire Risk	Activity Effectiveness – Outage Program Risk	Cost-Benefit Score – Overall Risk	Cost-Benefit Score – Wildfire Risk	Cost-Benefit Score – Outage Program Risk	% HFTD Covered	% HFTD/HFRA Covered	Expected % Risk Reduction	Model used to Calculate Risk Impact
Grid monitoring systems	WMP-SA-02	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated	100.0%	100.0%	Not Calculated	DRAT 3.1
Equipment settings to reduce wildfire risk	WMP-GDOM-GO-01	Not Calculated	50.00%	Not Calculated	Not Calculated	125000.00	Not Calculated	100.0%	100.0%	4.67%	DRAT 3.1
Expulsion fuse replacement	WMP-GDOM-GH-12b	Not Calculated	39.67%	Not Calculated	Not Calculated	10083.59	Not Calculated	47.6%	44.4%	8.11%	DRAT 3.1
Distribution pole replacements and reinforcements	WMP-GDOM-GH-03	Not Calculated	95.00%	Not Calculated	Not Calculated	13157.89474	Not Calculated	6.4%	6.0%	14.11%	DRAT 3.1
Open wire/grey wire	WMP-GDOM-GH-12e	Not Calculated	78.72%	Not Calculated	Not Calculated	732879.92	Not Calculated	100.0%	100.0%	0.89%	DRAT 3.1
Vegetation Management Inspection Program - Detailed	WMP-VM-INSP-01	0%	0%	0%	0%	0%	0%	100.0%	100.0%	0%	DRAT 3.1
Undergrounding of electric lines and/or equipment	WMP-GDOM-GH-02	Not Calculated	99.00%	Not Calculated	Not Calculated	Not Calculated	Not Calculated	0.0%	0.0%	0%	DRAT 3.1
Wood and Slash Management	WMP-VM-VFM-02	Not Calculated	50.00%	Not Calculated	48607.64	48607.64	Not Calculated	35.4%	32.9%	2.82%	DRAT 3.1
Quality Assurance and Quality Control	WMP-VM-QAQC-01	Not Calculated	30.59%	Not Calculated	Not Calculated	6902.62	Not Calculated	36.0%	36.0%	Non-significant	DRAT 3.1
Covered conductor installation	WMP-GDOM-GH-01	Not Calculated	50.00%	Not Calculated	Not Calculated	4139456.83	Not Calculated	1.7%	1.6%	2.00%	DRAT 3.1
Clearance	WMP-VM-VFM-05	Not Calculated	50.00%	Not Calculated	Not Calculated	14.92	Not Calculated	100.0%	100.0%	1.91%	DRAT 3.1
Fall-In Mitigation	WMP-VM-VFM-06	Not Calculated	50.00%	Not Calculated	Not Calculated	3505.35	Not Calculated	100.0%	100.0%	2.63%	DRAT 3.1
Detailed inspections of distribution electric lines and equipment	WMP-GDOM-AI-01	0%	0%	0%	0%	0%	0%	63.7%	60.5%	0%	DRAT 3.1
Tree attachment removals	WMP-GDOM-GH-12a	Not Calculated	78.72%	Not Calculated	Not Calculated	24303.82	Not Calculated	9.9%	9.4%	2.00%	DRAT 3.1
Vegetation Inspection - Patrol	WMP-VM-INSP-02	0%	0%	0%	0%	0%	0%	100.0%	100.0%	0%	DRAT 3.1
Vegetation Management - LiDAR	WMP-VM-INSP-03	0%	0%	0%	0%	0%	0%	100.0%	100.0%	0%	DRAT 3.1
Pole Clearing	WMP-VM-VFM-01	Not Calculated	40.50%	Not Calculated	Not Calculated	239.23	Not Calculated	100.0%	100.0%	Non-significant	DRAT 3.1
Patrol inspections of distribution electric lines and equipment	WMP-GDOM-AI-03	0%	0%	0%	0%	0%	0%	100.0%	100.0%	0%	DRAT 3.1
Fire-Resilient Right-of-Ways	WMP-VM-VFM-04	0%	0%	0%	0%	0%	0%	100.0%	100.0%	0%	DRAT 3.1
Intrusive pole inspections	WMP-GDOM-AI-02	0%	0%	0%	0%	0%	0%	37.5%	37.1%	0%	DRAT 3.1
Other discretionary asset inspections: Drone inspections	WMP-GDOM-AI-04	0%	0%	0%	0%	0%	0%	7.4%	6.9%	0%	DRAT 3.1

[1] Inspection activities have a 0% activity effectiveness for wildfire risk because those activities do not lead to direct risk reduction but instead lead to activities that will reduce risk. The Fire-Resilient Right-of-Ways activity has a 0% activity effectiveness for wildfire risk because Liberty's target is 0 for that activity in the 2026-2028 WMP cycle.

i. Liberty used a variety of methods to calculate activity effectiveness scores depending on the activity being evaluated. For grid hardening initiatives, a Weibull distribution is used to predict the failure rate of assets based on industry data. The model's predictions were then back tested by comparing them against the historical data to validate the model's accuracy. For vegetation management initiatives, the model uses vegetation density derived from LiDAR inspections of Liberty's service territory and vegetation growth rates based on the most common species in the service territory to create a degradation curve in which vegetation encroachments and failures increase over time. The model predictions of no intervention compared against completing vegetation management activities was used to calculate the mitigation effectiveness.

Where less internal data existed to calculate mitigation effectiveness based on the previous methods, Liberty also considered SME input, benchmarking with other utilities, and research of industry literature to establish the mitigation effectiveness. These activities included:

- Equipment settings to reduce wildfire risk
- Expulsion fuse replacement
- Undergrounding of electric lines and equipment
- Covered conductor installation
- Pole clearing.

1. The process for applying mitigation effectiveness and wildfire risk reduction for covered conductor is provided below.

$$Probability\ of\ Fire = Probability\ of\ Failure * Probability\ of\ Outage * Probability\ of\ Ignition$$

$$Probability\ of\ Ignition = Segment\ Probability\ of\ Ignition * (1 - Mitigation\ Effectiveness)$$

$$Probability\ of\ Fire\ (Covered\ Conductor) = 0.00001282 * 0.2574 * ((0.2 * (1 - 0.5)) = 0.00000033$$

Q03. Regarding Risk Model Improvements:

a. In Liberty's response to Critical Issue RN-LU-26-01, Liberty provides a list of expected improvements to make to its risk modeling and risk scoring methodology. Provide associated dates of expected completion for each of the improvements listed (Liberty Revision Notice Response, page 4). Dates should be as granular as possible (i.e. month or quarter and year).

b. In Liberty's response to Critical Issue RN-LU-26-01, Liberty states that it "will adjust

mitigation activities as needed in its 2027 and 2028 WMP Updates" (Liberty Revision Notice Response, page 5).

i. What changes does Liberty anticipate will be needed for its mitigation activities?
ii. When does Liberty anticipate finalizing these changes?
iii. Would these changes be based on the current wildfire risk scores, as supplied in the latest WMP submission, or future overall utility risk scores once the improvements have been made?

Q03 Response:

a. See table below for Liberty's list of planned risk modeling improvements and their associated dates of expected completion.

Improvement	Expected Completion
Calculate Wildfire Risk by utilizing a Summation of Probability of Ignition and Probability of Asset Failure rather than an average.	Completed November 2025
Calculate Outage Program Risk by utilizing a Summation of PSPS Risk and SRP Risk rather than an average.	July 2026
Calculate Overall Utility Risk by utilizing a Summation of Wildfire Risk and Outage Program Risk rather than an average	July 2026
Subject matter expert validation of model outputs for more accurate application of risk metrics	Ongoing
Incorporation of historical weather data to enhance modeling of asset failure risk	October 2026
Shifting calculation of risk scores based on the probability of one fire to the number of potential fires per circuit to align more closely with the methodology used by other utilities	Completed November 2025

b.

i. Liberty does not currently anticipate significant changes to its planned mitigation activities.
ii. As necessary, Liberty will adjust mitigation activities in advance of its 2027 and 2028 WMP Updates and will submit any changes in accordance with Energy Safety Guidelines.
iii. Based on current wildfire risk scores, Liberty is not making changes to its mitigation activities in its 2026-2028 Base WMP. Any future changes will be based on the best information available at the time of submission, including updated risk modeling results.

Q04. Regarding LU-23B-06: Effectiveness of Sensitive Relay and Traditional Hardening: The requirement for Liberty's LU-23B-06 Area of Continued Improvement (ACI) was to obtain an understanding and calculations of ignition-reduction effectiveness for covered conductor compared to Sensitive Relay Protection (SRP), traditional hardening, and SRP in combination with other mitigation activities for its overall program and/or service territory. Liberty provided an additional response to the ACI per Revision Notice critical issue RN-LU-26-04, and it calculated the ignition reduction effectiveness for two projects, rather than the entire service territory.

a. Provide an explanation for why only these two projects were considered in the analysis and explain if Liberty has plans to continue this analysis for more projects and more of its service territory.
b. In Table 1-3 on page 563 of Liberty's revised 2026-2028 Base WMP, Liberty lists the effectiveness of "normal replacement with SRP" as 19.81% effective at reducing ignitions, and "covered conductor with SRP" as 19.41% effective at reducing ignitions., Explain why normal replacement has a slightly higher ignition risk reduction than covered conductor.

Q04 Response:

a. Liberty ran a simulation comparing traditional overhead hardening, covered conductor, and underground conductor in combination with SRP to calculate the difference in risk reduction between those mitigation activities. Liberty had data to support the undergrounding for the Tahoe Vista Rule 20 and the Stateline Resiliency projects at the time of running the scenarios. Therefore, the analysis focused on those two projects. As new projects are identified, Liberty continues to use this analysis and incorporates improvements in how the scenarios are modeled. A current improvement underway includes evaluating the risk impact of mitigation activities over a longer time horizon, which will provide a more accurate representation of long-term benefits. This improvement is projected to be completed in January 2026.

   Liberty has also since updated the analysis to include the risk reduction of traditional overhead hardening and covered conductor in combination with SRP at the service territory per the intent of LU-23B-06 ACI. The calculations below are based on the targets set forth in Liberty's 2026-2028 Base WMP.

Mitigation Activity	Wildfire Risk Reduction
Sensitive Relay Profile	4.67%
Covered Conductor	2.00%
Covered Conductor + SRP	10.39%
Traditional Overhead Hardening	17.22%
Traditional Overhead Hardening + SRP	24.72%

b. When calculating the ignition reduction, the scenarios look at the wildfire risk before completing the mitigation activity compared to the first year after completing the activity. Two main factors contribute to the slightly higher ignition risk reduction for normal replacement.
    1) When comparing conductors alone, covered conductor reduces ignition risk by 50% compared to bare conductor. The scenario modeled however, considers all assets in the project including poles, fuses, primary conductor, and secondary conductor. Installing covered conductor requires installing additional poles to support the heavier conductor. Adding more poles increases the likelihood of pole failure, which raises wildfire risk for that segment in the model. When both conductors are new, the difference in fire risk is more influenced by the number of poles added than by conductor type.
    2) The analysis only considers the first year after project completion. Covered conductor projects involve more complex construction, which can result in a slightly higher failure rate during early years compared to traditional overhead hardening. The complexity of the construction impacts the likelihood of failure shortly after construction. This complexity of construction reduces the modeled effectiveness of covered conductor in the short term.

    Liberty is revising its methodology to evaluate the risk impact of mitigation activities over a longer time horizon, which will provide a more accurate representation of long-term benefits.

Q05. Regarding LU-25U-04: Cost-Benefit Analysis for the Stateline Resiliency Project: As required by the Revision Notice critical issue RN-LU-26-05, Liberty provided an additional response to its LU-25U-04: Cost-Benefit Analysis for the Stateline Resiliency Project Area of Continued Improvement (ACI). Part of the additional response was Table 1-6: Cost Benefit Analysis of Stateline Resiliency Project, on page 568 of the revised 2026-2028 Base WMP.

a. Discuss if and how the values in Table 6-3: Risk Impact Activities, in Section 6 of the WMP are incorporated into Table 1-6 in the ACI.
    i. For example, for covered conductor, the effectiveness for wildfire risk is 50% in Table 6-3. In Table 1-6, the risk effectiveness is 14% to 19%. Explain these

differences and how the two values were calculated.

b. In a call with Energy Safety on December 11, 2025, Liberty explained that Table 1-6 contained errors in the 'Estimated Cost' column. Correct, and provide a revised Table.

Q05 Response:

a. Please refer to Response to Q02. Subpart b.
   i. Please refer to Response to Q.02. Subpart b. and Response to Q04. Subpart b. for information regarding calculation of risk effectiveness and factors that influence risk reduction of the Stateline Resiliency Project. Additionally, the covered conductor risk reduction is less than 50%, because the analysis is performed at the circuit level. The Stateline Resiliency Project addresses approximately 36% of the overhead conductor included in the total circuit mileage used for risk scoring. As a result, assuming a 50% risk reduction for covered conductor alone, the circuit level wildfire risk reduction would be 18% (0.5*0.36=0.18), which aligns with the modeled results of 14-19%.

b. See updated Table 1-6 below:

Scenario	Risk Effectiveness	Estimated Cost	Benefit Per $1,000,000
No Replacement Without SRP (baseline)	0.00000	$0	N/A
Normal Replacement With SRP	0.19813	$926,564.26	0.21383
Normal Replacement Without SRP	0.14886	$926,564.26	0.16066
Covered Conductor With SRP	0.19413	$2,454,342.00	0.07910
No replacement with SRP	0.02132	$300,000.00	0.07106
Underground Conductor With SRP	0.29077	$4,500,000.00	0.06462
Covered Conductor Without SRP	0.14306	$2,454,342.00	0.05829
Underground Conductor Without SRP	0.21939	$4,500,000.00	0.04875