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**DATA REQUEST RESPONSE**  
**LIBERTY UTILITIES (LIBERTY)**

Data Request No.: OEIS-P-WMP\_2025-Liberty-006

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Subject(s):

- Q01. Regarding Risk Reduction Modeling and Direxyon Outputs
- Q02. Regarding SRP Circuit Settings Risk Reduction
- Q03. Regarding Fire Risk Scores
- Q04. Regarding Liberty's Available Miles for Hardening
- Q05. Regarding Traditional Overhead Hardening
- Q06. Regarding Microgrids
- Q07. Regarding Open/Grey Wire Replacement
- Q08. Regarding Tree Attachment Removals
- Q09. Regarding the Direxyon Report's Associated Documents
- Q10. Regarding Liberty's Anticipated Risk Reduction

**Q01. Regarding Risk Reduction Modeling and Direxyon Outputs**

Liberty reports negative or statistically non-significant risk reduction values for most activities in Table 8-1. Liberty states that these values “[indicate] that the effect is not statistically distinguishable from zero.”<sup>1</sup> Furthermore, Liberty states that “when initiatives are evaluated individually, their isolated impact at the service territory level may be too small to register as statistically significant within the model’s variability. Increasing the number of simulation iterations could reduce this variability, as the average risk values tend to converge with more runs.”

- a. Provide a detailed explanation of why Liberty did not increase the number of simulation iterations in its model to address the non-significant risk reduction values.
- b. What quality assurance or validation steps did Liberty take to calibrate the Direxyon model outputs against the following:
  - i. historical wildfire ignitions
  - ii. wildfire mitigation effectiveness
  - iii. PSPS events
  - iv. operational performance data
  - v. peer utilities

**Response:**

- a. More stochastic modeling iterations would increase the processing time and expense while not changing the results of the model, only resulting in less variation between the minimum and maximum values without changing the mean.
- b. Liberty responds as follows:
  - i. Liberty utilizes Technosylva. Technosylva uses a wide range of data available to them and performs their own validation and quality assurance. This data is used widely in the industry.
  - ii. Direxyon performs industry research and gathers SME input when creating the models and associated outputs.
  - iii. Standard industry weather is used to model potential future PSPS events, and the results are checked against historic PSPS events.
  - iv. Liberty considers specific utility asset data as inputs to the model. In a combined effort, Liberty and Direxyon validate the input data and associate the decision trees to real life situations through SME validations. Liberty is currently working on a process to validate the outputs.

- v. Liberty participates in the risk modeling working group, the joint mitigation effectiveness working group, and attends electric utility weather and analytics summits each year.

**Q02. Regarding SRP Circuit Settings Risk Reduction:**

Liberty claims a 73.7% wildfire risk reduction from SRP implementation in Table 8-1 of its 2026-2028 WMP.

- a. Provide a detailed explanation of how this value was derived, including modeling assumptions, variables, and validation steps.
- b. Was this value validated with historical performance data or peer utility benchmarks?
- c. Wildfire risk reduction values depend on the effectiveness of the activity. What is the wildfire risk reduction effectiveness for SRP implementation?
  - i. Provide a detailed explanation of how the effectiveness of SRP implementation was derived, including modeling assumptions, variables, and validation steps.
  - ii. Was this value validated with historical performance data or peer utility benchmarks?

**Response:**

- a. **Modeling Assumptions:** Refer to sections 2.2.1 and 2.2.2 of Appendix B, Attachment 1 of Liberty's 2026-2028 WMP ("Direxyon report") for more details on calculation. The value of 73.7% represents reduction in utility risk, which is an average of 'PSPS Risk' and 'Fire Risk.'
  - SRP has a significant effect in reducing both PSPS and Outage risk (approximately 9% for outage program risk).
  - There is not normalization between PSPS Risk and Fire Risk in the Utility Risk calculation.
  - On average, PSPS risk is much higher than Fire Risk. In 2025, PSPS risk average is approximately 0.0055 while Fire risk is approximately 0.0000175806.
  - SRP risk is not included in Utility Risk, which would explain the outlier.

Liberty can include Outage Program Risk in the Utility Risk calculation, which would capture the risk from SRP outages in the Utility Risk calculation as well.

For derivation, validation, and variables, refer to part c. below.

- b. No, DRAT does not have access to that data.
- c. 3.14% from 2025 to 2028.
  - i. **Modeling Assumptions:** Refer to sections 2.2.1 and 2.2.2 of the Direxyon report for more details on calculation. DRAT assumes that when SRP is enabled, it will be triggered when a failure happens. If Liberty enables SRP for 14 days, during these 14 days, if an asset fails, SRP will trigger an outage for the whole circuit.

Additional assumptions:

- The complete circuit is affected, not just a section of it.
- All assets have a POI of 0. This value could be modified for future simulations based on feedback.

**How was this value derived:** To calculate the effectiveness of SRP, DRAT compares the average risk over the years of a simulation Baseline (assuming SRP is enabled) and another simulation (assuming SRP is disabled). See Direxyon report section 3.2.

**Validation Steps:** DRAT validates the calculation inside its application to confirm that the arithmetic is working correctly. Validation of business logic is based on Liberty's SME review.

**Variables:** Refer to sections 2.2.1 and 2.2.2 of the Direxyon report for details on calculation.

The main variables are:

- Probability of failure of all assets impact the probability of triggering SRP event
  - All Technosylva data will affect the consequences impact and the probability of ignition
  - The Direxyon report details the data and all assumptions taken into the consequence calculation
- ii. No, DRAT doesn't have access to those numbers.

### **Q03. Regarding Fire Risk Scores:**

In Section 8.2 of Liberty's 2026–2028 WMP, Liberty provides a series of tables reporting "Fire Risk Scores" for various grid hardening initiatives. However, the WMP does not clearly define how these "Fire Risk Scores" are derived, what they represent quantitatively, or how they relate to the utility's overall wildfire risk modeling framework described in Appendix B (Direxyon) and Section 5.

- a. Describe the methodology used to calculate these Fire Risk Scores.
- b. Are these Fire Risk Scores tied directly to the outputs of Liberty’s wildfire risk model (e.g., probability × consequence), or are they independently assigned for planning purposes?
  - i. If independent, explain how these scores are validated or calibrated against Liberty’s broader risk modeling framework.
- c. Provide any supporting documentation, internal guidance, or data dictionaries used to develop or interpret Fire Risk Scores.

**Response:**

- a. Fire Risk scores are derived from the Fire Risk calculations in Section 5 of Liberty’s 2026-2028 WMP. Fire Risk Score are calculated through the use of a stochastic model. This model runs simulations based on particular mitigation inputs.
- b. The outputs are tied to Liberty’s wildfire risk score model by calculating the benefit of a mitigation related to Liberty’s baseline risk score.
- c. Refer to Liberty’s response to question 9 Regarding the Direxyon report’s associated documents.

**Q04. Regarding Liberty’s Available Miles for Hardening:**

Provide the number of distribution and transmission miles broken down by HFTD Tier 2 and HFTD Tier 3, in the table below, that will remain unhardened by the end of 2026.

	<b>HFTD Tier 2</b>	<b>HFTD Tier 3</b>	<b>Total</b>
Unhardened overhead transmission lines (circuit miles) by the end of 2026.			
Unhardened overhead distribution lines (circuit miles) by the end of 2026.			

**Response:**

Refer to the table below.

*Liberty’s Service Territory – Available Miles for Hardening*

	<b>HFTD Tier 2</b>	<b>HFTD Tier 3</b>	<b>Total</b>
Unhardened overhead transmission lines	28.43	2.36	30.79

(circuit miles) by the end of 2026.			
Unhardened overhead distribution lines (circuit miles) by the end of 2026.	535.48	45.8	581.28

**Q05. Regarding Traditional Overhead Hardening:**

Liberty’s scope of work for traditional overhead hardening includes replacing the existing bare wire with a new bare conductor, and it states that “this approach offers similar risk reduction as covered conductor but is more efficient to install and more cost effective.”<sup>3</sup> However, in Section 8.2.5 of its WMP, Liberty states that it “did not simulate a scenario in its risk model for traditional overhead hardening”<sup>4</sup> even though Liberty states that its “risk model is now operational, [and] projects can be analyzed with multiple initiatives at the circuit/circuit segment level to calculate impact of traditional overhead hardening projects on wildfire risk.”

- a. Provide supporting documents and calculations that render similar risk reduction when hardening a circuit with new bare conductor compared to covered conductor.
- b. Explain why Liberty did not simulate a scenario in its risk model for traditional overhead hardening.
- c. How did Liberty determine its circuit miles target for this activity if it did not simulate a scenario in its risk model?
  - i. What method did Liberty use to determine its target?
  - ii. If it was determined through subject matter expert (SME) input, provide a list of supporting documents and assumptions.

**Response:**

- a. Refer to attachment: “Liberty Response\_DR-006-Q05.pdf.” This document provides comparisons of utility risk, fire risk, and outage program risk between two projects: covered conductor (Scenario 14919) and traditional overhead hardening (Scenario 14920). The Mean Difference percentage of each scenario render similar risk reduction results.
- b. Liberty did not simulate a scenario in its risk model for traditional overhead hardening because when Liberty began developing scenarios to simulate in its risk model, the target for traditional overhead hardening was zero. This target changed prior to finalizing the 2026-2028 WMP. Liberty did not have the opportunity to adequately model the scenario in the risk model prior to the submission of the WMP
- c. Liberty’s target represents an optimized plan given available resources and reflects the best

available information and resource allocation at the time of establishing the target.

- i. The target was developed using Subject Matter Expert input including practical field experience, engineering judgment, and budget and resource constraints
- ii. **Appendix D – LU-23B-06:** Discussion of traditional hardening effectiveness and comparison to other mitigations.

**Direxion Phase 3 Report:** Provides context for prioritization of initiatives, even though traditional hardening was not directly simulated.

**Asset Condition Assessments:** Field inspection data and maintenance records

**Engineering Standards and Design Criteria:** Used to identify segments suitable for overhead rebuild projects.

**Permitting and Shovel Readiness:** Projects are selected based on feasibility of implementation, including permitting timelines, environmental constraints, and construction readiness.

**Budget and Workforce Constraints:** Considered in setting achievable targets.

#### **Q06. Regarding Microgrids:**

On page 125 of Liberty 2026-2028 WMP, Liberty states that it “considers the use of microgrids as an alternative in all applicable projects and has experienced success with Liberty’s Sagehen microgrid.”

- a. Provide Liberty’s current findings on possible locations within its service territory that could benefit from line removal and microgrids.

#### **Response:**

Liberty does not have any planned microgrid projects for the 2026-2028 WMP cycle and therefore does not have findings on possible microgrid locations within its service territory.

#### **Q07. Regarding Open/Grey Wire Replacement:**

On page 131 of Liberty 2026-2028 WMP, Liberty states that “it is assumed that 25% of the network consists of grey wire.”

- a. Explain how this assumption was derived.
- b. Explain how Liberty conducted a system inventory or sampling effort to verify this assumption.
  - i. If Liberty has not conducted a system inventory or sampling effort to verify this, please

describe Liberty's plan to validate this assumption.

**Response:**

- a. Liberty's SMEs have an estimation of the amount of grey wire in the system.
- b. Liberty's efforts to conduct a system inventory to gather the amount data about the system was not specifically directed at acquiring information about secondary wire. Liberty captures the grey wire that is replaced in the system through the Fulcrum application. At this time, there is effort planned to perform a field survey to validate this assumption.

**Q08. Regarding Tree Attachment Removals:**

On page 38 of Attachment B1 in its 2026-2028 WMP, Liberty states that "the replacement cost for a tree attachment is set at \$18,000, based on the average cost outlined in the initiative document, which reports a total cost of \$1,100,000 for 60 replacements."

- a. Provide a detailed breakdown of this cost estimate, including but not limited to labor, equipment, materials, and overhead.
- b. How does Liberty ensure this unit cost is reasonable and in line with peer utilities?

**Response:**

- a. Refer to the table below for a breakdown of the cost estimate for basic tree attachment removal. There may be variation in cost components depending on the complexity of an individual project. The average cost reported in Liberty's 2026-2028 WMP was derived from averaging historical cost data, not from a project level estimate.

*Cost Estimate for a Tree Attachment Removal*

Cost Component	Estimated Cost
Material Cost	\$2,500
Internal Labor Cost	\$3,500
External Labor Cost	\$10,000
Total Estimated Cost	\$16,000

- b. The average cost reported in Liberty's 2026-2028 WMP was derived from averaging historical cost data, and not from a project level estimate. Liberty does not benchmark these specific costs against those of peer utilities.



**Q09. Regarding the Direxyon Report's Associated Documents:**

On page 1 of Attachment B1 in its 2026-2028 WMP, Direxyon lists associated documents to its report. Submit copies of:

- a. 2026-2028 WMP Targets and Budgets.xlsx (in Excel Format)
- b. comparisons\_fire\_score.pdf
- c. comparisons\_outage\_program\_risk.pdf
- d. comparisons\_utility\_risk.pdf

**Response:**

Refer to attachment: "Liberty Response\_DR-006-Q09.i.xlsx" for the excel file "2026-2028 WMP Targets and Budgets" referenced in Liberty's WMP.

Refer to attachment: "Liberty Response\_DR-006-Q09.ii.pdf" for the "comparisons fire score," "comparisons outage program risk," and "comparisons utility risk" files referenced in Liberty's WMP.

**Q10. Regarding Liberty's Anticipated Risk Reduction:**

In Liberty's 2026-2028 base WMP, Figure 6-2 shows the Projected Overall Service Territory Risk.

- a. Explain how Liberty calculated the risk shown in this figure, including why Liberty took that approach.
- b. Explain why the risk increases between some of the years within this figure.
- c. Describe how Liberty validated the risk model output when generating this figure.

**Response:**

- a. In conjunction with Direxyon, Liberty utilizes a stochastic modeling approach to calculate and attribute risk in the model. Liberty utilizes this approach so that a variety of causes and outcomes would be accounted for in its risk analysis.
- b. The variations in risk between some of the years is attributable to the stochastic approach as it captures different outcomes for each iteration of a simulation.
- c. Liberty used industry research and SME inputs to validate the model approach. Liberty is working towards being able to validate outputs more frequently to further the enhancement and development of its modeling capabilities.