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DATA REQUEST RESPONSE

LIBERTY UTILITIES (LIBERTY)

Data Request No.: SPD-LIB-WMP2026-001

Requesting Party: Safety Policy Division

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Subject: Wildfire Mitigation Plan (“WMP”) Clarifications

Request No. 1:

In its GRC, Liberty proposed undergrounding 0.4 miles on the Stateline 2300 circuit in 2026.¹ This work is currently not reflected in Table 8-1 of the 2026-28 Base WMP. Is the undergrounding proposed in Liberty’s GRC on the Stateline 2300 circuit ongoing work from a previous WMP? Explain.

- a. Since Liberty does not intend to include undergrounding in the 2026-2028 Base WMP, how is it intending to shift budget resources to address Outage Program Risk?

¹ Liberty 2025 GRC, Capital, Exhibit No. Liberty-02 at 17. Proceeding number A.24-09-010.

Response:

The Stateline 2300 undergrounding project is a legacy project that originated during a prior WMP cycle. It is not part of the 2026–2028 WMP, as confirmed by Table 8-1. Liberty will be re-evaluating this project based on updated risk modeling results from the Direxion Risk Assessment Tool (“DRAT”) Phase 3 analysis, which indicate that other mitigation strategies may be more cost-effective than undergrounding that section of line.

- a. Liberty is reallocating resources toward mitigations that demonstrate higher risk spend efficiency, such as overhead facility hardening, covered conductor installation, expulsion fuse replacement, distribution pole replacements, and vegetation management activities.

Request No. 2:

Provide an explanation of how Liberty calculated the three Activity Effectiveness (i.e. Overall Risk, Wildfire Risk and Outage Program Risk) values in Table 6-4.

- a. Provide a detailed step-by-step explanation of how Liberty calculated these three values for:
 - i. Grid monitoring systems
 - ii. Equipment settings to reduce wildfire risk
 - iii. Expulsion fuse replacement
 - iv. Distribution pole replacements and reinforcements
 - v. Undergrounding of electric lines and/or equipment
 - vi. Covered conductor installation
- b. Provide all supporting workpapers that Liberty used to arrive at the 18 values calculated in response to Question 2a.
- c. Explain why undergrounding exhibits a positive activity effectiveness for wildfire risk.
- d. Explain why covered conductor exhibits a positive activity effectiveness for outage program risk.

Response:

- a. All the Activities are calculated the same. The differential average aggregated risk score of each scenario ran based on the budget amount.

$$((\text{Baseline Risk} - \text{Scenario Risk}) / \text{Baseline Risk}) = \text{Activity Effectiveness}$$

- b. Refer to attachment: “Liberty Response_DR-SPD-001-Q2.b.”
- c. A positive activity effectiveness of wildfire risk is shown due to the small amount of

work being conducted in terms of the entire network. Therefore, the risk reduction effects of undergrounding are not noticeable at the system level until a point in time where enough underground has been done to influence the overall wildfire risk of the system.

- d. A positive activity effectiveness of wildfire risk is shown due to the small amount of work being conducted in terms of the entire network. Therefore, the risk reduction effects of covered conductor are not noticeable at the system level until a point in time where enough covered conductor has been done to influence the overall wildfire risk of the system.

Request No. 3:

In its response to Area of Continued Improvement (ACI) LU-23B-06, Liberty argues that “Traditional overhead hardening in combination with SRP provides the best Risk Spend Efficiency when compared to covered conductor and undergrounding.”

- a. In Table 1-2 of ACI LU-23B-06, explain how the “Benefit” field was calculated.
- b. Explain why does Table 1-2 presents “Benefit”, but Table 1-3 in ACI LU-25U-04 presents “Benefit (%) / Cost (Million \$)”.
- c. Liberty indicates that traditional hardening in combination with System Relay Profile (SRP) provides the highest benefit of any mitigation. Table 8-1 states that Liberty will be doing 3.3 miles of traditional hardening. How many of these 3.3 miles will also be enabled with SRP?
 - i. This new 2026-2028 target of traditional hardening is nearly three times less than was targeted during the 2023-2025 WMP (9.5 miles).² Considering that traditional hardening in combination with SRP provides the highest benefit, why has Liberty reduced traditional hardening in its 2026-2028 Base WMP?

Response:

- a. Benefit is calculated as (Percent Difference in Fire Risk)/(Total Budget/1000000)
- b. Both tables show benefit as risk impact per million dollars spent.
- c. 3.3 miles
 - i. Liberty’s targets best represent an optimized plan given available resources. Doing more pole replacements and other targeted grid hardening initiatives, as opposed to full line rebuilds, addresses more risk across a broader portion of the system. This approach reflects the best available information and resource allocation at the time of establishing the target.

² Liberty 2023-2025 Base WMP Table 8-3.

Request No. 4:

Table 8-1 of the 2026-2028 Base WMP states that Liberty is targeting 1200 distribution pole replacements and reinforcements. This 2026-2028 target is approximately 200 more poles than was targeted in the 2023-2025 WMP.³ Why has Liberty increased distribution pole replacements and reinforcements in its 2026-2028 Base WMP?

Response:

Liberty has increased its target for distribution pole replacements and reinforcements in the 2026–2028 WMP based on updated risk modeling, asset condition data, and a strategy based on cost-effective, targeted hardening. The targets best represent an optimized plan given available resources.

Request No. 5:

Liberty estimates that the reliability impact of the PSPS risk is equivalent to 4.234 million Customer Minutes of Interruption (CMI). The two formulas used to arrive at this value $CMI = PSPS \text{ Consequence-Reliability and Customer Count-Importation} * \text{Average PSPS Duration (Minute)} = CMI$.

- a. In the first formula, explain what is meant by PSPS Consequence-Reliability.
- b. In the second formula, explain what is meant by Importation.
- c. In the second formula, explain how Liberty calculated Average PSPS Duration (Minute).
- d. Provide all datasets used to arrive at the calculation of 4.234 million CMI.

Response:

- a. Consequence-Reliability is the reliability impact of a PSPS event based on CMI during a PSPS event.
- b. Importation means the imported customer count to the model.
- c. The average PSPS duration minutes is based on historical PSPS event durations and SME input.
- d. The 4.234 million CMI is an example of the model producing a consequence score affecting 3,317 customers for 1,276 minutes. The data to provide this is created from the risk model and is not an input to the model. Due to the stochastic nature of the model, this is one of many possible outputs of iterations from a simulation. Since this metric is an output of the model, the input data does not directly correlate with input datasets.

³ Liberty 2023-2025 Base WMP Table 8-3.

Request No. 6:

On page 47 of the 2026-2028 Base WMP, Liberty estimates that the financial impact of each customer minute interrupted due to PSPS at \$0.17/CMI.

- a. Explain how does Liberty arrive at this value of \$0.17/CMI.
 - i. Provide all datasets and workpapers that support this valuation.

Response:

- a. Liberty's valuation of \$0.17 per Customer Minute Interrupted ("CMI") for PSPS events is based on its financial consequence modeling developed in collaboration with Arup. This figure reflects a blended Value of Lost Load ("VoLL") estimate for regular customers and aligns with assumptions used in Liberty's MAVF and financial models. It is consistent with industry benchmarks and is used to quantify the economic impact of PSPS events in Liberty's risk-spend efficiency and cost-benefit analyses.
 - i. Refer to attachment: "Liberty Response_Arup_DR-SPD-001-Q6."

Request No. 7:

On page 48, Liberty also estimates that the financial impact of each customer minute interrupted due to SRP at \$0.17/CMI.

- a. Does Liberty use the same method to estimate to estimate the financial impact of SRP as it does for PSPS (see Question 6a.)?
 - i. If so, explain why.
 - ii. If not, explain how the methods differ and provide all datasets and workpapers that were used to support the valuation of financial impact for SRP.

Response:

- a. Yes
 - i. Liberty uses the same valuation method for SRP as it does for PSPS, because the consequence is based on the customer impact of an outage, not the cause. Whether an outage is triggered by a PSPS event or by SRP, the economic effect on customers is the same; therefore, the financial impact per Customer Minute Interrupted ("CMI") remains consistent at \$0.17/CMI.
 - ii. N/A

Request No. 8:

Provide the datasets that were used to create Table 6-1. This must be presented at the circuit segment level for all four circuits found in Table 6-1. This should include the following variables

based on Figure 5-2:

- a. Overall Utility Risk
- b. Wildfire Risk
- c. Probability of Fire
 - i. Probability of Ignition
 - ii. Probability of Asset Failure
 - iii. Probability Outage
- d. Consequence of Fire
 - i. Population Impact
 - ii. Acres burned
 - iii. Buildings Destroyed
- e. PSPS Risk
- f. PSPS Likelihood
 - i. Probability of High Wind Gusts
 - ii. Probability of High FFWI
 - iii. SRP Availability
- g. PSPS Consequence
 - i. Safety
 - ii. Reliability
 - iii. Financial

Response:

Refer to attachment: "Liberty Response_DR-SPD-001-Q8.xlsx"

Request No. 9:

On page 86 of the 2026-2028 Base WMP, Liberty notes that Table 6-1 includes circuits contributing greater than or equal to 1% of Overall Utility Risk. According to Liberty's Quarterly Data Reports, the TAH7200 circuit is in HFTD Tier 2 and represents about 0.42% (~8.8 miles total) of Liberty's grid. SPD calculated that this circuit experienced 14 unplanned outages, representing over 3.1M in CMI in 2024 and the first 3 months of 2025 (15 months total).

- a. Explain how Liberty determined that TAH7200 exhibits no wildfire ignition risk or outage program risk.

Response:

- a. Liberty did not calculate zero wildfire ignition risk or outage program risk. The Utility Risk is less than 1% of the overall utility risk so Liberty did not exhibit the risk for TAH7200.

Request No. 10:

On page 49 of the 2026-2028 Base WMP, Liberty indicates that Utility Risk (“UR”) is calculated using the formula: $(\text{PSPS Risk} + \text{Fire Risk})/2 = \text{UR}$

- a. Explain why Liberty divides the sum of PSPS Risk and Fire Risk by two.
- b. Explain why Liberty only includes the PSPS Risk portion of Outage Program Risk when calculating Utility Risk.
- c. Explain why in the formula of Outage Program Risk Liberty divides the sum of SRP Outage Risk and PSPS Risk by two.
- d. Does Asset Failure Risk contribute to the calculation of Utility Risk?
 - i. If so, explain how.
 - ii. If not, explain why not.
 - iii. Explain why Figure 5-2 shows Asset Failure Risk contributing to Utility Risk, but the formula on page 49 does not include Asset Failure Risk.

Response:

- a. The average is taken to normalize to a common scale from 0 to 1 so that the metrics can be implemented into the total risk without any circuit disproportionately influencing the final score.
- b. Outage Program Risk is a separate module of risk that is brought into PSPS Risk as well.
- c. The average is taken to normalize to a common scale from 0 to 1 so that the metrics can be implemented into the total risk without any circuit disproportionately influencing the final score.
- d. Yes
 - i. The Probability of Asset Failure is brought into Wildfire Likelihood which falls under the Fire Risk Module.
 - ii. N/A
 - iii. Figure 5-2 presents a conceptual overview of the Risk-Based Decision-Making Framework, which includes Asset Failure Risk, Fire Risk, and PSPS Risk. Asset Failure Risk is not included in the utility risk formula, because its effects are already embedded in the components of Fire Risk. Asset Failure Risk is a supporting diagnostic tool, used to identify and prioritize mitigations that reduce Utility Risk. Figure 5-2 is a broader depiction of how Asset Failure Risk informs decision making. The formula for utility risk more accurately reflects the computational model used to generate risk scores.

Request No. 11:

In response to ACI LU-25U-06, Liberty states that it conducted 0.1 miles of fixed wing drone infrared inspections on its transmission assets.

- a. Provide data of exactly where these inspections happened, and include the following:
 - i. Circuit Segment ID
 - ii. Circuit ID
 - iii. Latitude
 - iv. Longitude
 - v. Date
 - vi. Cost
- b. Explain why Liberty does not plan to conduct additional infrared inspections during the 2026-2028 WMP cycle.

Response:

- a.
 - i. Circuit Segment ID (1) 228240, (2) 228241 & (3) 291034
 - ii. Circuit ID 640 & 187
 - iii. Latitude (1) 38.954584, (2) 38.954934, (3)39.281760,
 - iv. Longitude (1) -119.938700, (2) -119.938450, (3)-120.109919
 - v. Date –11/29/2023
 - vi. Cost -\$17,580
- b. Liberty did not include this task as a planned event in the 2026-2028 WMP due to the updated GO165 Detail and Patrol inspection procedures. Liberty purchased an IR camera in 2024 to update its internal drone program. In the event there are concerns of overheating, this technology will be included in the detailed inspection of the 120kv pot heads or a standalone maintenance activity for structures supporting 120kv pot heads.

Request No. 12:

Provide a copy of Liberty's procedures/checklist(s) for conducting detailed inspections of distribution electric lines and equipment (WMP-GDOM-AI-01) and patrol inspections of distribution electric lines and equipment (WMP-GDOM-AI-03).

Response:

Detailed Condition Code Checklist:

- Clearance
- Conductor Issue
- Crossarm Braces Falling Off
- Crossarm Needs Replacing
- Foreign Objects on Poles
- Ground Wire Damaged/Missing
- Ground Molding Damaged/Missing
- Guys/Guards Broken/Loose
- Hardware Issue
- High Voltage Sign Problem
- Idle hardware
- Lid/Door Inoperable
- Insulators Need Replacing
- Missing Bolt Covers
- Oil Leaks
- Tagging/Labels
- Underground Inaccessible
- Work Space/Climbing Space
- Equipment Arm

Patrol Condition Code Checklist:

- Conductor Issue, Crossarm Needs Replacing
- Guys/Guards Broken/Loose
- Insulators Need Replacing
- Oil Leaks
- Work Space/Climbing Space
- Equipment Arm

Request No. 13:

Provide a dataset of all detailed inspections of distribution electric lines and equipment (WMP-GDOM-AI-01) and patrol inspections of distribution electric lines and equipment (WMP-GDOM-AI-03) that were conducted from 2023-2025. The dataset at a minimum must include:

- a. Inspection ID
- b. Circuit Segment ID

- c. Circuit ID
- d. Voltage
- e. Start Point Latitude
- f. Start Point Longitude
- g. End Point Latitude
- h. End Point Longitude
- i. Date
- j. Cost
- k. Detailed Findings

Response:

Refer to attachment: "Liberty Response_DR-SPD-001-Q13."