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Witness: David L. Gladey, Lavelle Freeman, John P. Dipaola-Tromba, Leanne M. Landry, Elli Ntakou and Jeffrey D. Turano
Request from: Office of Consumer Counsel

Question:

For each project or program classified as Reliability, Network Reliability or Expanded Reliability in Exhibit CLP-ADDITIONS-1 during 2017 through 2025, identify the circuit, substation or device affected and provide SAIDI, SAIFI and customer interruptions for that circuit for the three years before and the three years after the in-service date.

Response:

Please refer to OCC-803, Attachment 1, for the requested circuit-level SAIDI, SAIFI, customer interruption, and in-service date information.

The Company designs and manages distribution work through its Work Management System ("WMS"). The WMS contains a hierarchical structure in which programs contain projects, and projects contain work orders. Work orders include a free-form circuit field and may be associated with one or more circuits. Work orders also contain multiple point locations or station references, which generally correspond to physical structures such as poles, pads, manholes, vaults, or similar construction locations where equipment and construction units are installed. These structures are not maintained within the WMS in a manner that can be readily associated with a specific protective or isolating device for purposes of extracting historical reliability performance at the individual device level. As a result, the Company cannot reasonably identify and provide device-level SAIDI, SAIFI, and customer interruption metrics for all reliability-related work performed between 2017 and 2025.

The level of analysis required to associate individual reliability investments with specific devices and outage performance was previously performed as part of a reliability benefit-cost analysis conducted in 2023. That effort required approximately one year of detailed engineering review and manual analysis. Given the volume of work orders and projects included within the Reliability, Network Reliability, and Expanded Reliability investment categories over the 2017-2025 period, the Company cannot replicate that level of device-specific analysis in response to this interrogatory. A subset of reliability projects was analyzed as part of that study, and information regarding that analysis is available in response to EOE-364[i].

Notwithstanding these limitations, the Company was able to identify one or more associated circuits for approximately 95 percent of the work orders within the requested investment

categories. The associated circuit information and the requested circuit performance metrics are provided in OCC-803, Attachment 1.

The Company also notes that the requested comparison of pre- and post-construction SAIDI and SAIFI metrics should be interpreted with caution. Many reliability investments are intended to address risks that are not directly reflected in circuit reliability indices, or whose benefits may only materialize through the avoidance of infrequent but high-impact failures. As described in Exhibit CLP-ADDITIONS-1, several of the identified programs are primarily focused on asset condition, system resiliency, worker safety, public safety, operational flexibility, or risk mitigation rather than direct circuit reliability improvements. For example:

- The Underground Structure program rebuilds or replaces deteriorated manholes, vaults, service boxes, and duct structures to address structural deficiencies and public safety risks. The primary purpose of this program is to prevent catastrophic structural failures rather than drive measurable SAIDI or SAIFI reductions.

- The Underground Cable & Equipment Replacement and Direct Buried Replacement programs replace aging underground cable assets that have exceeded their expected service lives. These investments primarily reduce the risk of future failures and improve long-term system reliability, but year-over-year changes in circuit performance metrics may not fully capture the value of avoided outages.

- The Pole Integrity program replaces deteriorated poles that no longer meet structural requirements due to decay or insect infestation. The benefits of these investments are primarily related to safety, storm resiliency, and reducing the likelihood of future failures.

- The Right of Way program replaces aged conductors, poles, switches, and crossarms on critical overhead facilities using resiliency standards. These investments address aging infrastructure and public safety concerns and may not result in an immediate or directly observable change in annual SAIDI or SAIFI performance.

- The Smart Switch Program, Reliability Improvement Projects, and Reliability Improvement-DR Annual programs are more directly targeted toward reducing customer outage exposure through sectionalization, automation, and other targeted reliability improvements. However, the work performed under these programs frequently addresses a specific backbone segment or lateral section of a circuit, rather than the entire circuit, although some larger projects may have broader circuit-wide impacts. As a result, the benefits of these investments may be realized within a limited portion of the circuit and may not be readily discernible in circuit-level SAIDI, SAIFI, or customer interruption metrics. Furthermore, reliability outcomes remain influenced by weather, vegetation, third-

party damage, equipment failures outside the project area, and other factors that are independent of the project itself.

Accordingly, while OCC-803, Attachment 1, provides the requested circuit-level performance information where circuit associations could be identified, the Company does not believe that circuit-level SAIDI, SAIFI, or customer interruption trends alone are sufficient to evaluate the benefits of many of the reliability investments included in the requested categories. Numerous projects were undertaken to address asset health, safety, resiliency, operational flexibility, and risk reduction objectives that are not fully reflected in historical circuit reliability metrics. In addition, many circuits were subject to multiple reliability investments performed under different programs and in different years during the study period. As a result, circuit-level reliability performance reflects the cumulative effects of numerous projects, operating conditions, weather events, vegetation activity, equipment failures, and other factors, and should not be interpreted as being attributable to any single project, work order, or program investment. Consequently, changes in circuit-level SAIDI, SAIFI, or customer interruption metrics before and after a particular project may not fully capture the benefits associated with that investment and should not be viewed as a comprehensive measure of project effectiveness. Additionally, many projects included in the requested period were placed in service during 2023 through 2025. Because only a limited amount of post-construction outage history is available for these more recent investments, and because reliability benefits often emerge over multiple years of system operation, the available data may not yet provide a representative measure of their long-term effectiveness.

Prior Referenced Response:

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[i] EOE-364 Question:

(VEGETATION MANAGEMENT PROGRAM) Refer to Response to EOE-151. The interrogatory requested the Company to "provide the cost benefit analyses the Company performed for determining reliability projects for the 2025 Test Year"; however, no such BCA was provided.

a. Provide the 2024 Reliability Budget Optimization Tool (ReBOT) referenced in the response, along with the 2023 BCA.
b. Explain how the BCA was incorporated into the ReBOT and, if necessary, provide an exhibit demonstrating how the BCA inputs were used.

EOE-364 Response:

Please refer to EOE-364, Attachment 1, for details regarding the 2023 Benefit-Cost Analysis ("BCA") and an overview of the 2024 Reliability Budget Optimization Tool ("ReBOT") referenced in the Company's response to EOE-151[i].

The BCA was developed to evaluate the historical effectiveness of several reliability improvement strategies by analyzing the relationship between investment costs and observed reliability benefits. Specifically, the analysis

examined more than $250 million of reliability investments completed between 2010 and 2020 and measured the resulting reliability impacts, including reductions in Customer Minutes Interrupted ("CMI") and Customers Interrupted ("CI"), by work type. The study produced estimates of the average reliability improvement and cost-effectiveness associated with each mitigation strategy.

The results of the BCA were subsequently incorporated into the ReBOT investment optimization model. ReBOT evaluates active outage zones, determines which mitigation strategies are applicable based on system configuration and operating characteristics, and applies the BCA-derived reliability improvement factors and cost assumptions to estimate the expected reliability benefits and cost-effectiveness of potential investments. For each outage zone, ReBOT calculates the anticipated reliability benefit associated with each applicable mitigation strategy and identifies the most cost-effective alternative. Recommended investments are then ranked across all programs based on estimated reliability benefit relative to cost and may be selected subject to budgetary constraints and reliability performance objectives.

Slides 16 through 23 illustrate how the BCA outputs are incorporated into ReBOT. As shown, historical outage and work management data were used in the BCA to develop cost and performance relationships by work type. These relationships, including estimated percentage reliability improvements and unit cost assumptions, serve as inputs to ReBOT and are applied to current outage zone performance data to estimate expected CMI reductions, project costs, and cost-effectiveness metrics. ReBOT then uses these calculations to prioritize investments and develop an optimized portfolio of reliability projects.

ReBOT is not a standalone application but rather a collection of SQL Server database tables, business rules, analytical calculations, and ETL (Extract, Transform, and Load) processes used to integrate and analyze outage, asset, and work management data. As such, the tool itself cannot reasonably be produced in response to this interrogatory. EOE-364, Attachment 2, provides a representative example of the most recent ReBOT output generated using the latest available system data.

The history of the BCA/ReBOT development Process is as follows:

- **December 2023**: Completion of the Benefit-Cost Analysis evaluating the historical effectiveness and cost-effectiveness of various reliability mitigation strategies.
- **January 2024 - October 2024**: Development of the ReBOT framework, including creation of database structures, analytical methodologies, and ETL processes necessary to address data quality, integration, and modeling challenges.
- **October 2024**: Preliminary recommendations were provided to Engineering for review and feasibility assessment, including evaluation of the top twenty device-level recommendations. Engineering feedback was subsequently incorporated into the model and prioritization logic.
- **2025 - June 2026**: Calibration and refinement period. Engineering feedback was continually incorporated to improve recommendation quality, increase the percentage of actionable recommendations, and enhance model performance. Additional analysis of the original BCA results was performed to normalize observed reliability impacts relative to overall Company reliability performance. ReBOT recommendations generated for the 2025 TripSaver program were used to support investment prioritization decisions.
- **June 2026**: First production-ready ReBOT output was used to develop proposed 2027 reliability work plans, including reconductoring projects, TripSaver installations, backbone sectionalizing projects, and radial recloser installations.

The Company has not included ReBOT outputs generated during 2024 because those results were produced during the initial development and testing phase of the tool and do not reflect subsequent model enhancements, calibration efforts, data quality improvements, and engineering feedback that were incorporated between 2025 and June 2026.

During this period, the Company refined the underlying benefit assumptions, improved data integration processes, normalized historical reliability results relative to overall Company performance, and incorporated engineering review of recommended investments to improve the quality and applicability of model outputs. Accordingly, the Company believes that the most recent 2026 ReBOT output, provided as EOE-364, Attachment 2, is the most representative and informative example of the tool's current functionality and investment prioritization methodology. Providing earlier developmental outputs could be misleading because they do not reflect the current model logic and capabilities used to support reliability investment planning.

[i] EOE-151 Question:

(VEGETATION MANAGEMENT PROGRAM) Refer to Exhibit CLP-ELP-1, p. 67. Please provide the cost benefit analyses the Company performed for determining reliability projects for the 2025 Test Year.

EOE-151 Response:

As part of compliance with Docket No. 17-12-03RE08, the Company performed the referenced Benefit-Cost Analysis ("BCA") in 2023 using historical reliability projects, their associated costs, and their observed impact on SAIDI and SAIFI.

In 2024, the BCA results were incorporated into the Reliability Budget Optimization Tool ("ReBOT"). ReBOT uses the BCA results as a baseline to determine the cost-optimal reliability mitigation measure for each zone. It first creates a list of zones eligible for reliability mitigation by evaluating historical outage performance at the individual-zone level. The tool then estimates the potential reduction in customer interruptions and customer minutes of interruption associated with various eligible remediation alternatives. The estimated reliability benefit of each alternative is then evaluated relative to its estimated project cost using $/SAIDI or SAIFI per unit reduction as the metric to determine the most cost-effective mitigation measure. This process identifies and prioritizes potential device deployments and other remediation alternatives that are expected to provide the greatest reliability improvement in a cost-effective manner.

The initial ReBOT recommendations were produced in late 2024. Due to the timing of the Company's project-planning cycle, the recommendations were used to support project selection for the 2025 and 2026 TripSaver Program. ReBOT's use was subsequently expanded to support both the TripSaver, Smart Switch and reconductoring Programs in 2027.

ReBOT is an evolving analytical tool, and the Company continues to refine its methodology and expand its application as additional experience and data become available.

The BCA and ReBOT are used as project-screening and prioritization tools and are not intended to predict the precise impact of future projects or programs. Final project selection also considers engineering judgment, constructability, local system conditions, operational requirements, and other project-specific factors. As such, benefits and costs of each project may differ from the tool's results for a multitude of reasons.