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Request from: Public Utilities Regulatory Authority

Question:

Reference Application, Ex. CLP-IAP-1, pp. 27–28. Explain how the Authority should determine whether a proposed capital investment is efficient for affordability purposes. Also, provide the following:

a. Identify the specific cost, benefit, performance, or alternative-investment information Eversource recommends that the Authority considers in that evaluation; and
b. explain how that comparison distinguishes an efficient investment from one that is "prudent and effective but not highly efficient."

Response:

Exhibit CLP-IAP-1 uses three distinct terms (p. 28, ll. 9–18): prudent, effective and efficient. An investment is prudent if the decision was reasonable when made. It is effective if it delivers the reliability or service benefit it was meant to achieve. It is efficient if it delivers that benefit at an appropriate cost relative to the alternatives. The concept is that PURA should determine efficiency at three levels: (1) whether each project is the lower-cost way to meet its need; (2) whether the portfolio as a whole funds the highest-value work first within the approved budget; and (3) whether one investment can meet several needs.

A. <u>This approach asks that PURA consider the following in determining whether a proposed capital investment is efficient for affordability purposes</u>:

- **Cost**: Project cost estimates, unit costs compared with the Company's own history and a lifecycle cost, including the O&M the investment avoids or adds.

- **Benefit**: Expected reliability improvement (SAIDI, SAIFI, customer minutes of interruption avoided), monetized customer interruption costs, safety and risk reduction, and capacity needed to meet State policy such as electrification.

- **Performance**: Historical results after installation compared with the forecast benefit (p. 57, ll. 3–8). Those results also feed back into the Company's benefit-cost model, recalibrating its estimates of reliability benefit per dollar over time.

- **Alternatives**: Repair versus replacement, non-wires alternatives, deferral with a stated risk, different technology, and bundling of work to reduce mobilization and outage costs.

- **Prioritization**: The rationale for ranking work, such as customer benefit per dollar within the budget. The Company's benefit-cost model evaluates historic outages zone by zone rather than circuit by circuit, uses the Company's data on upgrades made over the past 20 years to estimate SAIDI and SAIFI benefits per dollar, and can be run against a stated reliability objective (Ex. CLP-TSP-1, p. 34, ll. 6–16). The Company's model compares work types at the device level, including reconductoring and backbone and lateral automation (TSP-1 p. 60, ll. 3–7). Resiliency work is ranked using an All-In SAIDI model that combines blue-sky and grey-sky SAIDI with a 1-in-10-year catastrophic storm (Ex. CLP-ELP-1, p. 62, ll. 16–22; p. 72, ll. 10–18).

- **Multi-Needs**: Efficiency also includes whether one investment can meet several needs. Replacing an aging asset with one sized for expected load, such as electrification, can avoid a second investment later, while like-for-like replacement can be the lower-cost choice where that need is not expected. The Company's plan targets locations with multiple needs, such as asset health, capacity, voltage and reliability, so that one investment resolves them together (Ex. CLP-TSP-3, slide 34).

- **Metrics:** The Company's plan also uses cost-efficiency metrics such as dollars per customer-minute of interruption saved, risk-based analytics that weigh the probability and consequence of failure, and planning at the protection-device (zone) level (Ex. CLP-TSP-3, slide 34). To track efficiency after investments are made, the Company has also proposed reporting metrics for capital expense per customer and per line mile, alongside its reliability performance incentive mechanisms, as sponsored by the Leadership Panel (Ex. CLP-ELP-1, p. 103, ll. 10–16; Ex. CLP-ELP-3).

The Company's planning applies this comparison. For each zone, the model identifies the most cost-effective upgrade, which could be anything from tree trimming to a full rebuild (Ex. CLP-TSP-1, p. 34, ll. 16–18). For capacity projects, planners use every available load transfer among stations before upgrading a substation transformer (TSP-1 p. 34, l. 21 – p. 35, l. 3). The Company's resiliency proposal illustrates the comparison. Spacer cable reconductoring delivers nearly two-thirds of the resiliency benefit of undergrounding for about one-third of the cost (Ex. CLP-ELP-1, p. 63, ll. 14–18). The hardening program is projected to avoid approximately 12.4 million customer-minutes of interruption per year, about $37.1 million per year at the Company's estimate of $3 per customer-minute (ELP-1 p. 64, ll. 8–11). B oth undergrounding and spacer cable would be effective; spacer cable is the more efficient choice for most zones.

B. Distinguishing "efficient" from "prudent."

The benefit of an investment is harder to measure than its cost. Refer to Ex. CLP-TSP-1, p. 86, ll. 4–7. The benefit-cost analysis reduces uncertainty; it does not eliminate it. Distribution assets serve customers for decades, and decisions about them are made with the information available today. Not every capital investment is made to improve measured reliability. Connecting new customers, adding capacity to serve load growth or to host distributed generation, and relocating facilities for public works projects are required to provide service, and their benefit does not appear in outage metrics.

Further the benefits of a reliability or resiliency investment depend on events whose location and timing cannot be known in advance, so a sound investment may show little measurable benefit over a narrow period. For that reason, effectiveness is better assessed over time and across the system than project by project. The reliability metrics the Company proposes measure performance at the system level (Ex. CLP-ELP-3). The Company refines its estimates as performance data accumulate.

The benefits of an asset that may be in service for decades are spread across the many outages it helps avoid. Efficiency asks the further question of whether the same benefit could have been obtained at lower cost, or whether a higher-value project was displaced. An investment can be prudent and effective but not highly efficient where, for example, an asset is replaced when a targeted repair would have maintained performance, or where a project with lower benefit per dollar is funded ahead of one with higher benefit per dollar. The comparison that distinguishes efficient from effective is therefore made when the work is planned: the ranking of projects by benefit per dollar and the consideration of lower-cost alternatives.

Cost-efficiency must also be looked at with a long-term lens. Without programmatic or technological changes, PURA should expect the marginal benefit per dollar to decline over time as the highest-value work is completed. A declining ratio across the plan is not by itself evidence of inefficiency; the relevant check is that the portfolio remains ordered by value and that funded projects continue to produce net benefits. Two factors offset that decline. As performance results feed back into the model, its estimates become more precise, allowing investment to be targeted more exactly. And the model becomes more important, not less, once the most obvious opportunities have been completed.

When reviewing this model, three features safeguard against a benefit-cost model being tilted toward more spending. First, the model's benefit estimates come from the Company's own data on upgrades made over the past 20 years (Ex. CLP-TSP-1, p. 34, ll. 10–12; Ex. CLP-ELP-1, p. 67, ll. 17–19). Second, customer outage costs are valued using Lawrence Berkeley National Laboratory's Interruption Cost Estimate calculator, an independent source (Ex. CLP-TSP-1, p. 39, ll. 9–13), and inputs such as the value per customer-minute are on the record for review. Third, results are checked after the fact: the amount of revenue support provided for ongoing capital

investments for the duration of the PBMRP capital is capped at the approved forecast, reliability is measured through the proposed SAIDI, SAIFI and customer reliability PIMs, and performance is reported annually (Ex. CLP-ELP-1, p. 50, ll. 1–9; pp. 101–102). The Company has also noted that AMI data would improve its ability to measure the benefit customers actually experience from automation investments (Ex. CLP-TSP-1, p. 86, ll. 4–11).