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Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(X-FACTOR) Exhibit CLP-PBR-2. 1988 was used as the benchmark year for initializing the capital stock. Although operations, maintenance, and administration (OM&A) is analyzed separate from capital, capital inputs still enters the TFP calculation underlying the X-factor. Explain whether the Company or LEI evaluated any alternative benchmark years (such as 1995, 2000, or 2005). Explain whether selecting a different benchmark year would change the capital input path in a way that would alter the TFP growth and X-factor derived for this study (e.g., the share weights between capital and OM&A).

Response:

LEI selected 1988 as the benchmark year for initializing the capital stock because it represents the earliest year for which the necessary historical data were available. LEI did not conduct the productivity analysis with alternative benchmark years. Under the perpetual inventory methodology, capital stock is estimated by accounting for capital additions and retirements over time. Using 1988 provides a 17-year accumulation period before the beginning of the TFP study in 2005, allowing the estimated capital stock to reflect a longer history of observed investment and retirement activity. Selecting a later benchmark year, such as 1995, 2000, or 2005, would unnecessarily exclude available historical data and potentially increase reliance on assumptions regarding the initial capital stock. LEI therefore considers 1988 the most appropriate benchmark year, as it maximizes the use of available historical information and supports a more robust estimation of capital stock entering the study period.

Selecting an alternative benchmark year could affect the estimated capital stock trajectory, capital input growth, and the relative expenditure shares of capital and OM&A, potentially influencing the resulting TFP growth and X-factor. However, it is impossible to assess the magnitude or direction of the impact, which would depend on changes to the underlying initial capital stock estimates or methodological assumptions. Simply changing the benchmark year while preserving the existing capital stock estimates and subsequent additions and retirements would not alter the results. Accordingly, selecting a later benchmark year would not inherently improve the accuracy of the TFP study and could instead introduce additional uncertainty by disregarding available historical information. The selection of 1988 therefore reflects a methodological decision to make the fullest use of the available data, rather than an assumption intended to influence the resulting TFP or X-factor.