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Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(OM&A PFP AND X-FACTOR) Exhibit CLP-PBR-2. LEI uses the Bureau of Labor Statistics (BLS) Employment Cost Index (ECI) data to construct the labor-price series. The ECI series used by LEI is not consistent over the full study period.

a. Identify the ECI series used, the years for which each series was used, and explain how the series were linked, including treatment of any overlapping years and the basis for the linking method.
b. Conduct a sensitivity analysis and provide the annual OM&A PFP growth rate and resulting X-factor using a reasonable alternative method of linking the ECI series. Compare the results with LEI's proposed –0.03 X-factor.

Response:

a. Two BLS Employment Cost Index ("ECI") series were used to construct the labor-price series in LEI's TFP Study:

    1. ECU12542I – ECI, total compensation, private industry workers, *Electric, gas, and sanitary services*, not seasonally adjusted; and

    2. CIU2014400000000I – ECI, total compensation, private industry workers, *Utilities,* not seasonally adjusted.

       LEI's preferred series is the *Utilities* series (CIU2014400000000I), but that series is available only from 2001 onward. To extend the labor-price series back to 1988, LEI also used the predecessor *Electric, gas, and sanitary services* series (ECU12542I), which is available through 2005. Accordingly, LEI used ECU12542I for 1988–2000, the simple arithmetic average of the two series during their common 2001–2005 period, and CIU2014400000000I from 2006 onward.

       The use of these two series together is supported directly by BLS's own treatment of the series as continuous and comparable. In the BLS Employment Cost Index Historical Listing – Volume V, Table 5, page 23, BLS reports "Utilities" as part of its "Continuous occupational and industry series" and attaches footnote 10 to the

Utilities series.[1] Footnote 10 on page 28 expressly states that "[t]he comparable series for the period prior to March 2006 is electric, gas, and sanitary services."[2] In addition, the BLS Technical Note on page 2 explains that the Historical Listing contains industry series that BLS determined to be continuous between the former classification system used through December 2005 and the current classification system used beginning in March 2006.[3] Thus, BLS itself identifies *Electric, gas, and sanitary services* as the pre-2006 comparable series for Utilities, rather than LEI independently assuming that the two unrelated series could be combined.

The two published series also track closely during their 2001–2005 overlap. LEI therefore treated the overlap as a transition period and gave the two series equal weight by taking their simple average for those years. For example, the respective index values are 82.4 versus 82.1 in 2001, 86.3 versus 85.8 in 2002, 90.1 versus 89.2 in 2003, and 94.9 versus 94.3 in 2004. By 2005, both series report exactly 99.2. Accordingly, there is no level discontinuity introduced by switching from the predecessor series to the *Utilities* series at the end of the overlap period: the two series converge to the same index value immediately before the transition. The close correspondence throughout the overlap also confirms that the two series exhibit substantially the same underlying movement.

The approach LEI employed to merge the two series has precedent. For example, the Federal Reserve Bank of St. Louis notes in its discussion of index-number splicing that overlapping annual index series may be linked either in a single year or "over an average of years in the overlap".[4] Similarly, the Australian Bureau of Statistics uses a "mean splice" for its CPI methodology specifically because using all periods common to the two series avoids making the result depend on the choice of a single splice period and has proved more robust empirically.[5] Although these approaches are not identical to LEI's simple arithmetic average, they provide a recognized statistical basis for using the overlapping observations collectively to produce a smooth transition between closely comparable index series, rather than arbitrarily selecting a single crossover point during the overlap.

b. As explained in response to subpart (a), no single BLS ECI series covering the relevant utility industry is available for the entire 1988–2024 period. The predecessor *Electric, gas, and sanitary services* series is needed for the earlier years, while the *Utilities* series is available only for the later years. Accordingly, a continuous labor-price series for the full period necessarily requires the two BLS series to be linked. LEI therefore cannot perform the requested sensitivity using an alternative, independently observed ECI series that is applicable to the EDC industry covering the full study period because such a series is not available.

[1] BLS. *Employment Cost Index Historical Listing – Volume V*. P. 23.
[2] BLS. *Employment Cost Index Historical Listing – Volume V*. P. 28.
[3] BLS. *Employment Cost Index Historical Listing – Volume V*. P. 2.
[4] Federal Reserve Bank of St. Louis. *Revisions to User Costs for the Federal Reserve Bank of St. Louis Monetary Services Indexes*. (2005). P. 5.
[5] Australian Bureau of Statistics. *Consumer Price Index: Concepts, Sources and Methods, 2017*.