



August 26, 2016

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RE: Northwest Residential Electric Bills Study

Dear Mr. Jourabchi:

Overview

Thank you for the opportunity to comment on the Northwest Power and Conservation Council's (NWPCC's) Residential Electric Billing Study ("Study"). Our comments below highlight some points of the study we believe merit constructive feedback and consideration.

Energy efficiency is an important resource for utilities. While it is difficult to draw overarching conclusions across the region given the degree of variation across individual utilities and the diversity of challenges utilities face in the Northwest, the study generally does a good job of acknowledging the large degree of variability even within groups of "similar" utilities. However, grouping utilities in this manner fails to capture substantial nuances across utilities with regards to load profile, resource portfolio, and funding mechanisms.

Like any other resource, energy efficiency's place in utility resource portfolios will depend heavily on individual circumstances. The wide variance of outcomes demonstrated in the study shows that there is no simple formula in terms of causation between energy efficiency investments and general net reductions in consumers' electric bills.

Energy Efficiency Acquisition, Electricity Use, and Bills

Our comments on the study largely focus on the relationship explored between energy efficiency acquisition and residential electricity use and bills. The draft study summarizes its conclusions on this issue as:

There appears to be a strong correlation between the trends in energy efficiency achievements, annual average use per residential customer, and average annual bills. As a group, those utilities whose share of regional residential conservation achievements aligned closely with their share of regional residential retail sales (or customers) experience slower growth in both average annual electricity use per customer and smaller increases in average annual bills per customer. (Pg. 2)

PPC staff is concerned that the analysis presented in the study does not support this conclusion explicitly. Additionally, the text does not make clear that correlation does not necessarily imply a causal link between greater residential energy efficiency (“EE”) investment and lower end-use bills. For example, the study states that:

The relationship between conservation acquisitions from 2005 to 2014 appears to have a significant impact on the direction and magnitude of the change in average annual customer bills. (Pg. 23)

In the absence of a methodological approach that estimates a causal link between residential EE investment and residential bill growth, it is not correct to claim a statistically significant effect. The study also does not investigate whether differences in averages across groups are statistically significant. We are concerned that as worded the study appears to present causality where there are actually just correlative statistical relationships.

The relationship between growth in electricity use and EE investment does appear to be correlated. Figure 13 shows that the amount of variance in electricity use growth rates explained by relative EE investment approaches 40%. The study does not present a similar figure, however, for the relationship between relative EE investment and bill growth. While, in general, greater EE investment appears to have some statistical relationship with smaller increases (or decreases in real terms) in bills over time, that is not the case for multiple groups within the study. Table 14 shows that rural municipals actually had the lowest amount of bill growth among the rural utility groups despite having positive growth in electricity use, and the third lowest bill growth amongst the seven groups (including IOUs) overall. Furthermore, their share of EE acquisitions was significantly below their share of residential customers and sales. This suggests that the

relationship between EE investment and bills is not as straightforward as the relationship between EE investment and growth rates of use.

Table 14 shows that IOUs had the highest bill growth over the time period coupled with the slowest growth in use, while having the greatest share of EE investment relative to sales and customers. In nominal terms, IOUs as a group had 74% greater bill growth than public utilities as a group over the time period. In fact, public utilities' bills over this time period decreased in real terms, while IOU bills grew in real terms at nearly double the regional average. While this supports EE investment as effective at curbing growth rates in electricity use, regardless of rates, it does not support the notions that EE investment necessarily lowers bills or that EE investment will generally lead to lower overall costs of service for the region's utilities.

There are also a number of structural differences between IOU and public utility customers in the region that are potentially explanatory of differences in "rates" for residential electricity, both the absolute level and rate of change. Public power utilities in the Northwest are almost exclusively served by hydro resources and tend to rely on the sales of secondary energy to offset fixed costs. IOUs in the region are much more dependent on thermal generation, in particular natural gas. In addition to systematic differences in generating resources, IOU and public customers rely on fundamentally different financial structures that affect costs.

Data and Methodology

Some of the data underlying the study is concerning. The EE acquisition data appears to be somewhat incomplete, especially in the early part of the timeframe. Also, only residential EE acquisitions are an input to the dataset. While the study is specifically about residential bills, a utility's EE investment in all sectors affects its bottom line, and therefore its bills.

While residential EE measures have a direct impact on residential use, all EE measures have an effect on residential bills. Further, restricting the scope of EE investment to only residential measures obfuscates the true level of EE investment being done by both private and public utilities. Utilities ideally invest EE dollars in the measures that have the highest marginal benefit per dollar spent. In many cases, those investments may be outside the residential sector.

The levels of EE investment reported in the study may not give the full picture of utility investments in EE. That, coupled with the incompleteness of the data makes it hard to

accept the characterization of the relationship between EE and bills as it is presented here.

Estimating the effect of residential EE on residential use is a valid approach, but not including the effects of all EE on overall bills leaves out a key input to what determines the revenues a utility must collect to stay in business.

The study only investigates the correlation between EE and use, rather than the causality of the two. Increased EE investment appears to be correlated with lower growth in use. It may be the case that greater EE investment relative to size leads to lower growth rates in electricity use. However, it may also be the case that utilities' with little or no base load growth do not invest in as much EE due to the lack of need for it. When faced with stagnant demand for electricity, the marginal cost of any incremental supply may often be lower than the cost of increased EE investment. Furthermore, it should be noted that in the case of rural cooperatives and rural PUDs, both groups still had negative growth rates in electricity use, even though they had "significantly" less EE investment relative to their shares of sales and customers than other groups.

Sample size within one of the groups is a concern. Urban cooperatives are only three in number. As a group these three likely do not represent enough data to make substantial claims about "urban cooperatives", especially since they are in completely different geographic locations. The study's narrative highlights this group as indicative of the effects of lower EE investment, as it had the largest real bill growth amongst public utilities.

However as Table 13 shows, this group acquired EE at a one to one ratio with its sales and customers, which places it at the regional average for that metric. Table 13 gives a figure of 2% for this group's share of regional conservation, which is exactly in line with its share of sales and customers.

PPC appreciates the chance to offer feedback and comment