

Integrated Energy Resources

To:	Jim Cunningham, NHPUC, EERS LBR Working Group lead
From:	Jeff Loiter, Phil Mosenthal
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Subject:	Comments on the Calculation of Lost Base Revenue

SUMMARY

This memorandum summarizes our views on the calculation of lost base revenues (LBR) as presented in both the New Hampshire Statewide Energy Efficiency Plan filed by the Joint Utilities in Docket DE 17-136 and in testimony filed by Mr. James Cunningham from the NHPUC Electric Division.

We conclude that Mr. Cunningham's proposed method for determining lost revenue for an electric utility using separate average distribution rates for energy and demand comes much closer to estimating the true lost revenue and is much closer to the typical way a lost revenue adjustment mechanism (LRAM) is usually calculated. And while it reduces the estimate of lost revenue from that put forth by the utilities, Mr. Cunningham's method may still over-estimate LBR.

THE UTILITIES' PROPOSED LRAM CALCULATION

The LRAM calculation presented by the utilities in their filing is a gross simplification. To develop an estimate of the revenue lost for every unit of energy saved (i.e., for which the utility will not received revenue), they have simply divided the total revenue recovered from volumetric energy and demand charges by the total energy delivered. They performed this calculation separately for different rates classes. For example, Eversource considered four groups: residential customers and three tiers of commercial and industrial customers (Rates G, GV, and LG), although the C&I results were combined for purposes of calculating the lost revenue from C&I programs.

This overestimates the actual loss in revenue, because it overestimates the actual cost per unit of energy delivered for any rate that has a demand component. For these customers, the utility is only recovering a portion of their revenue requirement from energy billing, yet they are assuming that they lose both energy and demand revenue when a unit of energy is saved. Effectively, the utilities have just taken their entire distribution system revenue requirement and divided by total kwh throughput. This would not be an acceptable way to set rates for commercial customers with a demand charge, and is therefore not appropriate for determining lost revenue the utilities can recover.

We do note that within the efficiency industry a simplified calculation like this is sometimes considered to assess lost revenues for planning or policy decision purposes; most RIM tests are calculated this way. The simplification is appealing because more detailed actual billing data are needed for a more accurate assessment. In this case, where the results will be used by the utilities to actually recover real dollars from their customers, a higher standard applies. They have the necessary data to meet this standard, because they have sophisticated billing systems and can readily determine what any particular customer's bill would be both with and without efficiency. The difference between these two is the actual lost revenue.

STAFF'S PROPOSED CORRECTION

Mr. Cunningham's method of assessing the revenue lost from energy and demand reductions separately corrects for the problem described above. In our view, it will still almost certainly result in an overestimate of lost revenue, for the following reasons.

Monthly billed demand may not equal coincident peak savings

Staff's proposed methodology assumes that each customer's actual monthly billed demand, which is based on the greatest demand over a 15 minute period at any time in a month, will be reduced by the entire estimated coincident peak (CP) kW savings of the efficiency programs EVERY month. In fact, most peak demand savings from efficiency measures are not likely to be saved every month. For instance, the CP demand savings from an air conditioning measure is likely very close to the actual customer load impact in the summer months, but clearly will not reduce their February billing demand at all. The proposed method gives each customer a full 12 months of assumed demand revenue savings (and therefore revenue loss for utility), which clearly overestimates the lost revenue for seasonal measures.

Rates may have a demand "ratchet"

Many utility rates include a provision know as a demand ratchet. Because utilities most invest in capacity required to meet the highest system peak at any time of year, they often charge customers for their highest demand for an entire year. For example, under Liberty Utilities' G-1 rate for small commercial customers, the demand component is based on either their actual 15-minute peak demand in that month or 80 percent of their highest 15-minute peak demand over the previous 11, whichever is higher. So if a customer has a peak load of 100 kW in August because of cooling and then only 50 kW in January, she will still be charged for 80 kW of demand in January. Even if an efficiency measure does reduce load by its entire CP every month, the customer still may not lower her bill in all but the highest month if there is a significant ratchet adjustment.

Rates may not be the same for every unit of energy sold

The energy component of rates is sometimes divided into two or more blocks that are charged at different rates. For example, Eversource's C&I rates have a declining block structure, where energy consumption above a certain threshold is billed at a lower rates, sometimes substantially so. Because energy efficiency reduces the customer's load on the margin, the revenue lost will be at this lower rate, not the overall average for all energy sold.

PROPOSED FURTHER REFINEMENTS TO LOST REVENUE CALCULATIONS

The most accurate way to address the issues noted above would be to assess the effect of reduced consumption on each customer's individual bill from marginal changes in energy and

demand, but this is clearly far too onerous even if it may be technically possible. Instead, we advocate for a couple of adjustments to the methodology.

First, calculate monthly lost revenue based on estimated energy and demand impacts in each month. This can be accomplished by applying an annual load shape per month to the savings from each measure or category of measures. This would essentially be a lookup table with the fraction of total annual savings and peak demand reduction occurring in each month. EPRI maintains a database of load shapes by end use that could be used to inform these values.¹ This monthly approach would address the first criticism above and could potentially be designed to address the second. For example, ratchets are typically structured such that the off-peak (winter) monthly billed demand is either the actual monthly demand or a percentage of the highest on-peak (summer) billed demand in the past year, whichever is greater. If load shapes by end use can be used to produce monthly demand reduction values, the effect on demand ratchets should be relatively easy to determine.

Second, when declining block rates are in effect, assume revenues are lost based on the last, highest use block. While this may underestimate the loss from customers whose usage does not reach that block, it should be closer to the truth than assuming all customers' usage is at the average rate.

¹ EPRI Load Shape Library 5.0, Available at: <u>http://loadshape.epri.com/enduse</u>