

Utilities (Eversource, Liberty and Unitil) responses to questions from the 2-28-2018 Working Group Meeting

1. Derivation of kW Demand Savings – “Maximum Demand Factors” (MDF):

- Uniformity: Whether Eversource can develop a uniform methodology for determination of kW demand savings based on the formula used by Liberty and Unitil – i.e., annual kWh savings x MDF = annual kW demand savings

Joint Response: The screening model allows for two methods for calculating *planned kW* savings. The utilities could all use the same method, but it would likely result in a less accurate planning forecast.

Specifically, Eversource uses a different method—the “entered” kW values—because Eversource does a relatively large number of projects each year, and therefore has a relatively stable basis for planning the kW savings for specific measure types based on prior years’ projects (see response to next question for Eversource’s supporting documentation for its “entered” kW values, calculated based on 2016 projects). In contrast, Unitil and Liberty have fewer projects in a given year, so there is a greater chance that kW savings for their prior year’s projects will be skewed by a small number of particularly large or small projects, or projects with unusual consumption patterns. Therefore, Unitil and Liberty elected to use the MDF values, which are in turn based on a larger set of underlying project data originally developed by Eversource’s load forecasting department.

Moreover, the MDF and “entered” kW values are used for planning purposes, and as such do not affect actual reconciled LBR amounts. The kW savings for calculating LBR would be based on the actual kW saved from the projects installed during the program year, not on forecasts and planning assumptions.

- Supporting Documentation: Whether Eversource, Liberty and Unitil can distill the extensive measure-level data in the Utility Model into a summary level document for planning purposes.

Joint Response: Yes, in fact that is what our screening model and our previously submitted LBR “homework” spreadsheets are—a distillation of measure-level data, used as a summary level document for planning purposes. For a walkthrough of how these values are distilled from measure-level data, we have attached a spreadsheet below showing how Eversource derived the “entered” kW values used for planning, based on Eversource’s 2016 large C&I installed projects. The spreadsheet contains 4 tabs/worksheets that were used to develop these planning estimates, beginning with our tracking system extract of actual 2016 large C&I projects (“1. LG C&I” tab of spreadsheet; these data are based on project level supporting documentation akin to the lighting project documentation Mary Downes previously provided) to the “entered” kW values (“4. Eversource 2-28 homework”; these are the same values in our screening model and in the homework we provided for the 2-28-18 working group meeting).



NH 2016 C&I
projects_for plannin

Again, these are planning assumptions and as such do not affect the actual reconciled LBR amounts.

- Illustration: Supporting documentation is illustrated by the Lighting Project provided by Mary Downes (see LBR website). Although there are almost a hundred measures in this project, the invoice for the project shows the components of an overall MDF – i.e., kWh savings and kW savings. Further, if many other such projects exist, as Mary indicates, a summary of all such projects could be compiled and an overall MDF calculated. Could Mary’s illustration be used to provide summary-level supporting documentation by end-use – i.e., for Lighting...Cooling...Heating...and Process?

Joint Response: In the absence of actual kW savings amounts, an MDF is used to estimate kW based on the planned kWh target, using assumed hours of use, as shown in the following formula:

MDF = 1/assumed annual hours of use;

kWh x MDF = kW

(Note: this is mathematically equivalent to *kWh / assumed annual hours of use = kW*)

With actual project data such as the lighting project worksheet provided by Mary Downes, there is no need to develop an MDF, since both kW and kWh are already known. This actual project data—not an MDF—is what would be used to calculate actual reported LBR amounts.

Note: MDF values have been used in planning models for many years, dating back to the early 2000’s. The MDF assumptions were provided by Eversource’s load forecasting department and the original source files are no longer available. However, (1) the MDF assumptions are intended to be generalized and not precise given that they are typically utilized for planning only; the actual measures installed will be more diverse and savings and LBR claims more precise, and (2) the focus of the energy efficiency planning has been on reaching specific kWh targets, not kW. As a result, kW has been a function of kWh, and for planning purposes has not received the same amount of analytical effort and attention as kWh.

- Additional Question - Confidence Limits – i.e., given that EM&V does not achieve 100% confidence, usually only 90% confidence, should the Utilities incorporate a 10% degradation factor to its kW demand savings estimates?

Joint Response: No. This would be a misinterpretation of what a confidence interval represents. A confidence interval is a range of values used to estimate an unknown population parameter (in this case the value of kW), based on a representative sample. The point estimate (i.e., kW) is the mid-point of that range—akin to the mid-point on a bell curve—and the true kW value for the full population may be higher or lower than the estimate. For example, if an evaluation measures savings at sample of projects drawn to achieve 90%/10% confidence/precision, and the average kW savings for those projects is found to be 10 kW, that means the true savings across the full population of projects is 90% likely to be within plus or minus 10% of that average. That is, we can be 90% confident that the true savings for the population is between 9 kW and 11 kW, with the most likely population value being 10 kW.

Incorporating a 10% degradation factor to demand savings estimates (or any other estimate), would be inappropriate, as the point estimate is just as likely to under-estimate the true savings as it is to over-estimate the true savings.

- Average Distribution Rates (ADR):
 - Each Utility provides a “separate” kWh and kW ADR calculation, based on “separate” methodology.

Eversource Response: Please refer to the Excel file titled “Separate ADR 3-15-18 Homework” for what “separate” LBR rates would be using 2015 Billing Determinants and July 1, 2017 Distribution Rates, excluding customer, meter and per luminaire charges.



Separate ADR
3-15-18 Homework.xls

Liberty Response: Please refer to the Excel file titled “3.15.18 LU Attachment F3” for what “separate” LBR rates would be using 2015 Billing Determinants and July 1, 2017 Distribution Rates, excluding customer, meter and per luminaire charges.



3.15.18 LU
Attachment F3 with de

Unitil Response: Unitil prepared an example of ADR, separate for demand (\$/kW) savings and energy (\$/kWh) savings based on Attachment H3, Page 8 of 11, as filed on September 1, 2017 in DE 17-136. No changes were made to use (kWh, kW, KVA) or rates for this illustration. For purposes of determining the demand ADR, Unitil assumed a power factor of 1 for converting kVA to kW.



3.15.18_AttH3
UES_with demand.xls

- Billing Determinants: Whether “final” 2017 ADR will be calculated based on 2017 billing determinants and Tariffs effective in 2017.

Eversource & Liberty Response: In order to calculate the LBR in accordance with the Settlement Agreement reached in DE 14-216 for the 2017 EE Plan, the utilities will use 2017 billing determinants and rates for calculating 2017 LBR. For further explanation, the lost revenue calculation for 2017 will use 2017 EE savings (the first year lost revenue is assessed) and 2017 rates and tariffs. The 2018 lost revenue calculation will use 2017+2018 EE savings and 2018 rates and tariffs, if different, as all of these savings would have been billed under 2018 rates and tariffs. Future years will continue to be calculated in a similar manner, less any retired measures.

Unitil Response: Yes. In accordance with the Settlement in DE 14-216 dated December 12, 2016 (Section II, B. 2., on pages 3 and 4):

The “Average Distribution Rate for Lost Revenue” calculations to be submitted in June, 2018 relating to LBR collection and reconciliation for 2017 shall follow the format used by UES in the 2017 Plan filing at Bates page 182. Such calculations will also include all supporting workpapers and a detailed description of how the “Average Distribution Rate for Lost Revenue” was calculated, including information on the inclusion or exclusion of relevant inputs such as customer charges, meter charges, or outdoor lighting services, as applicable. The billing determinants in such calculation shall be based on 2017 data and the applicable rates will reflect the rates in effect throughout 2017.

Understanding C&I Tariffs:

Utilities discuss their respective Tariffs, with particular emphasis on how “ratchet” adjustments impact the calculation and timing of kW demand savings for purposes of calculating LBR:

- Discussion of Tariffs is by Utility, by Class

Eversource Response: For Eversource, only LG customers are potentially impacted by a ratchet. Please refer to page 67 of Eversource’s Tariff No. 9 for how demand is billed for these customers.

Liberty Response: For Liberty, customers taking service under rates G-1 and G-2 may be subject to a ratchet. Please see pages 97 through 102 of Liberty’s Tariff No. 20 for how demand is billed for these customers.

Unitil Response: For Unitil, only its G1 class (customers with average use equal or in excess of 200 kVA and generally greater than or equal to 100,000 kWh each month) includes a ratchet provision. G1 customers are billed the highest of a) current month's peak 15 min. kVA or b) 80% of previous 11 month's peak 15 min. kVA.

- How will the Utilities calculate the impact of “ratchets”?

Joint Response: The distribution utilities propose to use no ratchet adjustment or an adjustment of 0% to correctly incorporate the impact of ratchets on their billing.

- What percentage of calculated kW demand savings will actually result in lost revenue?

Eversource Response: Preliminary analysis indicates that there would be 0% impact due to the ratchet.

Liberty Response: For Liberty, this is difficult to calculate because we don’t know what customers have installed energy efficiency that are currently or will be billed on a ratchet in the future.

Unitil Response: Preliminary analysis indicates that there would be 0% impact due to the ratchet.

- Will Ratchets be analyzed by Measure, by month?

Joint Response: No. In order to analyze ratchets by measure the utilities would need to need to perform a customer by customer analysis. Pursuant to the settlement agreement, the parties shall consider the general impact of customer peak, and the general impact of demand charge ratchets. The parties agreed that LBR calculations are based upon averages and that it is not

feasible to identify the impacts stated above with precision, and further agree that it is not feasible to track demand charge impacts on a customer-by-customer basis.

- What adjustments will be made for purposes of calculating lost revenue?

Joint Response: The distribution utilities have not identified any adjustments for purposes of calculating lost revenue. See answer above.