Homework Assignment (due 6/6/2018, a week before 6/13/2018 Working Group Meeting):

 Accumulated kWh savings are adjusted to reflect measures expected to be "in-use", based on the data provided in the 2015 DNV-GL study (Table 19, page 30): There was a question as to how this data should be interpreted and Unitil (Deb Jarvis) offered to review this "in-use" adjustment to ensure that the accurate interpretation is reflected.

The Utilities have added worksheets to the LBR template with monthly savings forecasts for four end uses: LED lighting, cooling, heating, and process measures. This template is embedded in appendix B of the LBR draft document.

In summary, using the monthly in-use data in our planning template results in significantly higher kW savings in 2019 for cooling (e.g., 24.2 kW vs. 10.03 kW for Eversource), higher kW savings for heating (e.g., 27.12 kW vs. 22.44 kW for Eversource), and slightly lower kW savings for LED lighting (e.g., 1213.53 kW vs. 1252.13 kW for Eversource) and process measures (e.g., 590.61 kW vs. 613.36 kW for Eversource).

2. Customer Peak Load Adjustment: kW savings are adjusted to reflect "customer peak" hours based on customer load shapes and EPRI end-use load shapes: For example, for Eversource, the average peak hour for Eversource Rate GV customers is the hour ending at 11:00 a.m., during which commercial facilities in the Northeast region are typically operating at less than 1% of maximum cooling load. OCA (Brian Buckley) asked whether the underlying 8760 load reduction data from the 2015 Large C&I Impact Evaluation, performed by DNV-GL, is available in sufficient detail so as to provide a possible check of the EPRI-based model proposed for use by the utilities. The Utilities offered to review this point and will furnish any refinements to the EPRI data, as appropriate.

DNV-GL provided these data upon request (see embedded spreadsheet below). Based on our analysis (see top portion of the spreadsheet), the data are generally consistent with EPRI end use load shapes. For example, the average annual customer peak CF is .26 for cooling using the EPRI data and .31 using the DNV-GL data, .47 for heating based on both sources of data, .98 for LED lighting using the EPRI data and .87 using the DNV-GL data. Some end uses such as occupancy sensors show a significant difference, with an average annual customer peak CF of .66 using the DNV-GL data, and an assumed customer peak CF of .05 using the EPRI load shape data for exterior lighting.



3. "Ratchet" adjustment (awaiting Liberty ratchet analysis). Also, for each Utility, it would be helpful if these analyses could be included in the 6-13-2018 Draft LBR Report, along with a paragraph explaining these analyses.

The ratchet analyses performed and explanations regarding the impact of ratchets on LBR have already been incorporated into the LBR Report prior to May's meeting.

4. "Retirement" adjustment: Staff suggests a placeholder for the next triennium to consider the adjustment for average service life such that any changed from EM&V studies pertaining to average service life be incorporated into the expiration date of measures for purposes of calculating retirement dates. Are the Utilities agreeable to such a placeholder for the next Triennium? Please explain.

The purpose of the LBR working group is to determine kW values to be used in the calculation, and the impact of customer peak load and demand charge ratchets on those kW values. This question is out of the scope of this working group.

5. Average Distribution Rate (ADR): Staff Suggest a placeholder for the next triennium to consider the calculation of average distribution rates based on discrete ADRs – i.e., for instance Eversource would calculate ADR for its Rate G, Rate GV and Rate LG customer classes, rather than an overall rate for the combined classed. Are the Utilities agreeable to such a placeholder for the next Triennium? Please explain.

The purpose of the LBR working group is to determine kW values to be used in the calculation, and the impact of customer peak load and demand charge ratchets on those kW values. This question is out of the scope of this working group.

- 6. OCA (Brian Buckley) Questions:
 - a. Please indicate whether Eversource plans on filing for decoupling in their next rate case.

The purpose of the LBR working group is to determine kW values to be used in the calculation, and the impact of customer peak load and demand charge ratchets on those kW values. This question is out of the scope of this working group.

- b. If Eversource is not filing for decoupling in their next rate case, or is unable to indicate whether they are doing so:
 - i. Please look into whether the underlying 8760 load reduction data from the 2015 Large C&I Impact Evaluation is available as a check of the EPRI-based model proposed for use by the utilities.

See the answer to question #2 above.

ii. If available, please furnish the customer specific and project specific data in live excel format.

See the answer to question #7 below.

iii. If possible, please perform that comparative analysis for LED lighting and at least one seasonal measure. (This is something the OCA offered to have our consultant do, but if the utilities could perform this analysis, that would be extremely helpful).

See the answer to question #1 above.

7. Eversource has cited this source containing the average C&I load shape profile (Rate GV and Rate LG?) as the other input for their LRAM analysis. Please provide the data by customer used to produce this average load profile.

See the attached spreadsheet for anonymized load factor data for all Rate GV customers in 2017. This is the customer group used to create the average C&I load shape profile we cited. Our analysis of the load factor data shows that most customers peak between 10 AM and 3 PM, and between the months of June and September. More granular data (e.g., monthly load shapes for every customer) is likely available, but would require significant time to collect and analyze, and would result in extremely large files that would be difficult to transfer. Moreover, the data provided below show a relatively normal distribution of peak hours among customers, so more granular data is unlikely to provide any added useful insight. Finally, per the Settlement DE 17-136, it was agreed that LBR calculations are based upon averages and that it is not feasible to identify and track demand charge impacts on a customer-by-customer basis.



8. Question on Glossary: There appears to be an inconsistency in the definition of MDF – i.e., page 6 (top) vs. page 10. Page 10 looks correct. Please clarify.

The definition of MDF in the glossary has been updated for accuracy and consistency with how the term is used on page 10.

 Utilities Updated LBR Template (Monthly format):

 Utilities provide updated LBR Template, incorporating a monthly format, a week before the 6/13/2018 LBR Working Group meeting (i.e., 6/6/2018)

This template is embedded in appendix B of the LBR draft document.

10. Staff's Updated LBR Template:
¬ Staff provides its updated LBR template (attached) reflecting discussions at the 5/16/2018 Working Group Meeting, still a work-in-progress.
¬ Staff update includes a refinement for the "in-use" adjustment to reflect 100% of the 8760 annual hours reflected in the DNV-GL Evaluation (ref. Staff Template, Sch. 1, line 3). The Utilities (Deb Jarvis) offered to take an independent look at this "in-use" adjustment as well to ensure that we have the correct interpretation of the DNV-GL Evaluation.

See the answer to question #1 above.

11. Other - Supporting documentation - Maximum Demand Factor (MDF): Staff indicated that the data is detailed and provides adequate supporting documentation; and, suggested it might be helpful if the Utilities could create a one-page summary of the highlights of these details. Please provide a schedule that shows this one-page summary. Also, please include it in the 6/13/2018 Draft LBR Report, perhaps in the Appendix.

The utilities have provided supporting documentation for Maximum Demand Factors, at https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018_worksheet_in_utilities_lbr_homework.x https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018_worksheet_in_utilities_lbr_homework.x https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018_worksheet_in_utilities_lbr_homework.x https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018_worksheet_in_utilities_lbr_homework.x https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018 https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018 https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018 https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018 https://www.puc.nh.gov/EESE%20Board/EERS_WG/3_15_2018 https://www.puc.nh.gov/EESE%208 <a href="https

pivot_large", cells C29 through C49, and worksheet "3. C&I 2018", column I. The following summary has been added to footnote 5 of the LBR draft document for clarification:

MDF values are derived for each measure type within each program, by dividing the sum of the maximum demand (kW) savings for the prior year's installations of the given measure type and program, by the sum of the annual kWh savings for those installations. For instance, 2016 Large C&I New Construction cooling measures had total annual kWh savings of 443,563 kWh, and total maximum demand savings of 270.1 kW. The MDF used for planning for 2017 Large C&I New Construction cooling measures is 270.1 / 443,563 = .000608933. This ratio is used for planning purposes to determine the expected total maximum demand savings for a given measure type and program, based on the planned annual kWh savings for that measure type and program.

12. 6/13/2018 Draft LBR Report: The Utilities prepare an updated LBR Report incorporating the changes discussed above and any other changes it suggests. Utilities circulate a copy of the updated report a week before the 6/13/2018 LBR meeting (i.e., on 6/6/2018).

See attached.



13. ADDITIONAL RESPONSE FROM UTILITIES: In the key takeaways document from the May LBR Working Group meeting, the description in the first bullet in the methodology section is incorrect. We would like to note the following correction:

"Planned annual kWh savings are adjusted to reflect "installed measures": first-year kWh reflect the half-year convention – i.e., approximately 50% of the annual kWh are achieved in the first year, as measures are assumed to be installed over the course of the year and are not all in place for the entire year. The full amount of annual kWh are achieved in subsequent years, as all planned measures installed in the first year are assumed to be in place and operating throughout the subsequent years, until their retirement.