Clarification of Comments Regarding Quantifying the Value of End-Use Load Shapes

Tom Eckman's presentation illustrating the valuation of load shapes during the September Contemporary Issues Technical Conference elicited a rejoinder from Bill Kallock, Chief Operating Officer of DSMore saying Slide 23 incorrectly attributed the residential load shape to DSMore (see the response below) when, in fact, the savings load shapes are developed by the users of DSMore. The Commission staff appreciates Bill's comments and Tom's response (as well as the technical citations).

From the perspective of the Commission staff, this clarification is very helpful – even fortuitous - because it highlights the difficult analytics of improving the integration of energy efficiency and other Distributed Energy Resources. This respectful dialogue accentuates the importance of this topic for future Contemporary Issues Technical Conferences. The Commission staff has been very supportive of advancing the state-of-the-art in resource modeling and the need to develop increasingly discrete load data and supporting information that is required by sophisticated planning tools.

Bill Killock's Comments

"I am writing to you because it has come my attention that one of the presentations during the September 24th IURC Conference incorrectly referred to the calculations performed by our DSMore Benefit Cost analysis software. I would like to formally request a correction be sent out to the conference email list revising a statement made by Tom Eckman during his presentation.

"In slide 23 of Mr. Eckman's presentation, he incorrectly attributed the residential lighting load shape to DSMore. Our DSMore software does not dictate the savings load shapes; the user inputs the savings shape. In fact this residential lighting load shape referenced by Mr. Eckman actually is based upon and consistent with information from the Indiana Technical Reference Manual. I also believe he is comparing the lighting load shape to the whole house load shape, which is also misleading.

"We are requesting the correction, because Mr. Eckman's presentation gives the false impression that the DSMore software is a flawed tool. DSMore is robust benefit cost analysis tool that has been vetted by regulators throughout the U.S. and is used by utilities in 30 states. The DSMore calculations are quite solid. It is up to the users to put in savings load shapes that meet state mandated TRM or have been collected through the M&V process.

"Thank you for following through on this request for correction."

Tom Eckman's Reply Comments

"There are two parts to my response to Bill's comments and request. First, I agree with him that DSMore does not dictate the load shapes. Load shape inputs for DSMore are selected by the user. The graph I used in slide 23 of my presentation was taken from a report that Natalie and I prepared for the state of Michigan PSC that compared the end use load shapes being used in DSMore by Consumer's Energy and DTE (CE/DTE) back in 2017 with load shapes derived from sub-metered data and capacity impacts data from Michigan's Energy Measures Database (MEMD). (https://www.michigan.gov/documents/mpsc/LBNL_TA_MI_TVE_041018_webinar_620659_7.pdf). We

were not given the source of the residential lighting load shape, other than it was being used in DSMore – so that's what it was labeled. I may have not made that sufficiently clear in my presentation.

"Second, the graph on slide 23 does in fact compare a residential annual hourly lighting load shape derived from sub-metered data with the one assumed by CE/DTE in DSMore. That is, the area indicated as "metered residential lighting load shape" represents the load profile for only lighting, and not as Bill suggest, "the whole house" load shape. As I said during my presentation, it appears that the other shape represented on the graph (assumed by CE/DTE in DSMore) implies that all residential lighting occurs within a single three hour period during every day of the year. I speculated that this is "consistent" with the assumptions that "average" daily lighting use across all lights in a home is three hours per day. Since I do not have a copy of the Indiana Technical Reference Manual, I cannot address the issue of whether load shape is used in that document matches the metered data. However, I will say that if the IN TRM's lighting load shape is based on usage of "3 hours/day", it does not match actual metered data derived in RBSA (or other studies). In addition, the "3 hours/day" assumption is also not accurate. Average use across all lighting in homes is slightly less than 2 hours per day. See Table 4.7 in US DOE's *2015 U.S. Lighting Market Characterization* available at: https://www.energy.gov/sites/prod/files/2017/12/f46/lmc2015_nov17.pdf.

"I've attached a copy of the final report on the metering research project that is the source of the residential lighting load shape and hours of use. This reports is available from the Northwest Energy Efficiency Alliance (https://neea.org/resources/2011-rbsa-metering-study). The actual hourly end use data can be accessed from EPRI (https://loadshape.epri.com/rbsa).

"Hope this addresses Bill's concerns. My intention was not to critique DSMore, but simply to indicate that problematic end use load shapes can lead to DER valuations that are inaccurate."