memo

TO	MVE Committee	**DATE**	September 11, 2018
ATTN.	Eric Vander Mey, PE	**REGARDING**	E155-2018 – Minority Report
FROM	Michael Baranick, PE Hargis Engineers		

Proposal Status: Failed the WSEC TAG meeting on 8/3/18

Objection: This change proposal failed the TAG meeting primarily over concerns regarding the language. As stated within the proposal, the sub-metering language was copied directly from the 2015 Seattle Energy Code (SEC), which has remained unchanged since 2012. Therefore, the same language used within this change proposal has been enforced and implemented on projects within Seattle for two energy code cycles (~6 years). Hargis has designed many projects within Seattle since 2012 and hasn't experienced issues with the sub-metering section of the SEC.

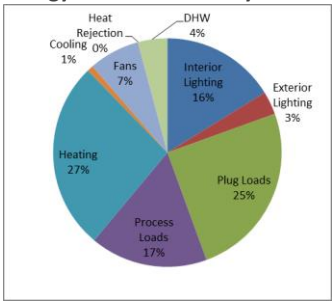
Recommendation:

1) Approve change proposal E155-2018 in its current form, or
2) Approve a revised version of change proposal E155-2018 to accommodate all language concerns, ensuring that all proposed end-uses (HVAC, service water heating, lighting, plug load, and process loads) remain included within the proposal

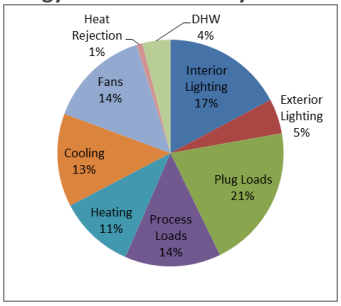
Reasoning:

1) End-use metering will reduce energy consumption. It is very difficult to reduce energy consumption within existing buildings without first understanding how the energy is being consumed. The current version of the WSEC only requires two end-uses to be metered: HVAC and service water heating. Energy consumption within these end-uses have reduced in recent code cycles (thanks to more stringent code requirements regarding system design and efficiency), resulting in a larger percentage of a building's energy consumption to fall within end-uses that are not currently metered. To substantiate this argument, energy end-use summaries for a typical school and office building (modeled based on the 2015 WSEC requirements) are provided below. This study shows that 61% and 57% of a school and office building's total energy consumption is currently NOT required to be metered, respectively. This proposal will require metering at all major end-uses, thus improving transparency of a building's energy consumption.

Energy end-use summary - school building



Energy end-use summary - office building



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2) End-use metering is not a new concept. As mentioned above, the end-use metering language included in this change proposal was copied directly from the SEC, which has remained unchanged since 2012. Even the 2009 SEC required sub-metering for all major end-uses, albeit the language and chapter layout was different. Therefore, the City of Seattle has required end-use metering on all major end-uses for nearly 10 years; it's time for the WSEC to do the same.
3) End-use metering is a relatively inexpensive energy conservation measure. As outlined in the change proposal, end-use metering can be relatively inexpensive to implement if the electrical infrastructure is designed efficiently (i.e. all end-uses are separated and isolated at the main electrical switchgear). The added cost to provide additional metering can be as low as $15,000 total, arguably significantly less expensive than other energy conservation measures.
4) End-use metering helps ensure sustainable design translates into sustainable operation. Many sections of the energy code help improve building efficiency at the design phase, but few sections help ensure that efficient designs translate into efficient operation. Improving end-use metering will do just that, and benefit many project stakeholders along the way. Examples include:
    - Allows building owners to identify and correct system inefficiencies, resulting in reduced operating costs
    - Assist Commissioning Agents during the Cx process
    - Assist with post-occupancy measurement & verification (M&V) efforts
    - Provides a direct feedback loop of building performance to the design team and energy modelers
    - Assists with data collection efforts for future state laws (such as City of Seattle Building Tune-Up requirement)