CPUC Comments on SWWH028-01 Large Heat Pump Water Heater, Multifamily & Commercial

Lead PA: SCE

Workpaper Submittal Date: 10/4/2021

CPUC Review Date: 10/28/2021

Please note responses to comments in the table below, revise workpaper, and upload the entire package to the WPA. If needed, please reach out to Workpaper Review Team to set up a call to discuss.

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| CPUC Comment | PA Response |
| In the measure case description section, the workpaper states: “Efficiency requirements for water heaters less than 100 gallons use the uniform energy factor (UEF) metric, as required by federal regulations”.  This wording misrepresents the federal regulation. In this context, federal regulation doesn’t require performance metrics based on tank volume.  Seems like the workpaper is intending to mention that measure technologies < 100 gal use UEF and measure technologies >= 100 gal use COP. | Agreed. We have removed reference to federal code in this sentence. |
| In the Base Case Description section there is a base case description table which includes draw pattern as a field. Draw patterns are used to bin recovery/GPM rates across technologies to have a more comparable efficiency metric (UEF). The draw patterns are not applicable for the base case water heaters, so the table column can be removed. The workpaper can include a column to describe the input capacity of the water heaters. | We have removed the column from the base case table. |
| Minor grammar edits are recommended. | AF/recommended grammar edits not included in disposition. |
| How is the industrial sector being defined by PAs? What is the point of having an industrial sector? The Manufacturing Light Industrial (MLI) and Manufacturing BioTech (MBT) building types exist as commercial building types for the application of commercial end use measures e.g., hot water heaters that serve domestic/service hot water loads in a MBT bio-tech building. The DWHC and its measures should not be applicable for industrial process loads. What benefit is the workpaper giving for measure savings by separating commercial and industrial sectors?  What I am trying to get at is whether the breakout of MBT and MLI building types from the “commercial” building types was necessary. And whether the industrial sector is necessary. Other recently reviewed SWWH workpapers do not have an industrial sector.  The MFM central hot water load “scaling” is already going beyond the intention of customizing entries in the DWHC (custom entries were intended to be for new technologies and measures). Breaking out the MLI and MBT building types and changing “Com” weights to have a separate industrial sector seems unnecessary and can introduce some discrepancy across measures and the DEER/eTRM database in what the “Com” building type represents. | AF/measure applicability includes Industrial buildings with “commercial” type of applications, e.g., service hot water servicing office spaces, etc. Measure does not apply to Industrial (hot water process) type of applications. This is consistent with other workpapers including Non-Residential service hot water measures.  The reweighting of the Com and Ind building types was done in response to the previous CPUC comments from March 1, 2021.  We have adjusted the measure offerings, savings, and costs to not split out the Ind building types. Com weighted savings have been reverted to the original weights for the DEER calculator. This aligns with what was done in the SWWH027-02 in response to a similar comment from Commission. The language in the workpaper document has also been updated to mirror what was included in SWWH027-02.  ***“Updated the electric savings (kWh) section in the workpaper to “ The DEER Water Heater Calculator tool version 4.2 Com building type list includes two building types which are classified as Industrial (MBT and MLI). The Com Measure IDs were duplicated for Industrial sector referencing the Com Energy Impact IDs from the DEER Water Heater Calculator tool version 4.2 which include results for MBT and MLI building types.”*** |
| In Program Exclusions, the workpaper should include the following text:  This measure does not include water heaters used for space conditioning, industrial (process) end-use applications, pools, or spas. | We have added this text to the program exclusions. |
| Need to discuss changes made to DEER Water Heater Calculator (DWHC)\_MFM. While the noted issues below don’t affect UEC/UES by large degree, the modeled conditions should be representative of expected conditions.   * Ambient temperature profile for MFM was changed from the Asm-assumed “CondInt” to “MFm” which is an interior conditioned space (e.g., closet or cubby space in dwelling unit).   + Recommend this be changed to “Storage” – unconditioned space | We have updated the MFm calculation to use the UnCond ambient temperature profile associated with the Storage – Unconditioned space value in the DEER calculator (tab “lookup”, cell C6). The workpaper document has been updated to match. Savings values have been updated in the Measure Data Spec, EAD, and fuel sub calculators. |
| Why does the FuelSub calc only include a subset of CZs and not all 16 CZs if the workpaper measures are applicable for all climate zones? | Two versions of the fuel sub calculator have been made to accommodate all CZs for each measure. |
| In the Eligible Products section, the workpaper states:  “Split-system heat pump unit assemblies are eligible. However, they shall be treated as one system package of one or more heat pumps serving one or more storage tanks. Efficiency and performance ratings for the entire system package shall be provided by the manufacturer. The COP and output capacity of an individual heat pump within the system package is not acceptable.”  How does the PA intend to collect efficiency and performance ratings of (custom) system packages from manufacturers? Aren’t most built-up central HPWH systems custom by nature? Or do manufacturers have built-up packages available with documented efficiency and performance ratings?  The HPWH measures in the DWHC represent the integrated heat pump + tank configuration. These are not commonly used for central HPWH design. | We have revised the workpaper eligibility requirements to be based on the individual heat pump equipment COP and capacity and that testing should be done in accordance with the **DOE Appendix E to Subpart G of Part 431 - Uniform Test Method for the Measurement of Energy Efficiency of Commercial Heat Pump Water Heaters**. Additionally, added data collection requirements for system configuration, capacity, and SysCOP. And added a restriction on systems with greater than 1000 kBtuh total heat pump output capacity to limit large commercial and complex systems that should be incentivized under custom.  NEEA has created a specification for advanced central HPWH systems called Advanced Water Heating Specification Version 8.0. They have testing and specifications that relate to the full central DHW systems, for various configurations and regions, and provide a systemwide COP value (SysCOP). NEEA’s Advanced Water Heating Specification Version 8.0 is set to be formally adopted at the start of 2022. At that time NEEA will also include a QPL with several efficiency tiers.  We added to the paper that future updates could leverage the NEEA QPL and tiers, along with the system configuration data that should be collected from this program year’s projects. |