SCG Response to CPUC Comments on SWWH018-02 Hot Water Tank Insulation, Non-Residential and Multifamily

Lead PA: SCG

Workpaper Submittal Date: 12/21/2020

CPUC Review Date: 01/21/2021

SCG Response Date: 02/05/2021

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| CPUC Comment | PA Response |
| The data in the Cost EAD table is not organized in the standard order. Please rearrange the Cost EAD table to match the standard order. | The formatting has been fixed using the recent EAD format and column order. |
| The boiler efficiency cited of 82.5%, from the WPSDGENRW0014 R0 workpaper. However, the average boiler efficiency, weighted or a straight average, does not appear to have been estimated from the Distribution of Thermal Efficiencies of Hot Water Boiler graph shown in this workpaper. The average boiler efficiency would be greater the 82.5% listed.  Additionally, the hot water boiler efficiency listed does not match the efficiency from similar workpapers, such as SWWH017-02 Hot Water Pipe Insulation, Non-Res. & MF. The hot water boiler efficiencies were derived from the 2015 ESPI evaluation results. A commercial, agriculture, multifamily, or industrial building would have the same hot water boiler supplying hot water to pipes as they would to hot water storage tanks.  Please make sure that boiler efficiencies are consistent across workpapers for similar technologies. | The efficiency is updated to 83.5% to be in line with other workpapers (SWWH017)  Savings are re-calculated with the updated efficiency, resulting in slight reduction in savings. |
| The “Ag-Default>2yrs” NTG\_ID is no longer found in PEAR. The updated NTG\_ID for default agriculture sector technologies that have been on the market for longer than 2 years is “Agric-Default>2yrs”. | This has been corrected. |
| The savings is based on the heat loss for the tank shell or the side surface of a tank using the NAIMA 3E Plus v4.1 tool. This excludes the top or bottom surfaces of a hot water tank, which would have different heat loss results per square foot. This could result in an overestimation of savings, when incentivizing the square feet of insulation for all surfaces of a tank.  Please include this assumption in the workpaper text. | Using NAIMA 3E Plus tool, the energy savings for flat surface and curved side surface are almost identical for both indoor and outdoor applications. We believe the savings adopted in the workpaper are applicable to ends of a tank (top or bottom flat surface) with negligible difference (or conservative estimation). See summary table below and screenshots in the embedded word file.  The text in the workpaper has been edited to reflect this, including insulations for the top or bottom with the same savings. |
| “Any” building location is used for indoor tank insulation. Primarily this is due to the inputs for ambient temperature surrounding the hot water tank, and wind speed which vary by climate zone for outdoor tanks, but not for indoor tanks. Note that this is not a valid entry and will not be accepted in claims. | “Any” is an allowed building location in READI. When used in claims, we will identify building location based on zip code on the record and use that CZ with the claim. This is how claims are reported for measures that are submitted with “Any” building type on the workpaper, for example food service workpapers where savings don’t vary on climate zone. |

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.

(Below is the comparison of E3 heat loss between tank shell and flat surface.)



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| **Indoor: 145 Deg F Tank Temp, 75 Deg F Ambient** |  |  |
|  | Heat loss Bare tank, Btuh/sqft | Heat loss Insulated, Btuh/sqft |
| DataSpec File (Workpaper) | 125.7 | 15.47 |
| 3E - Tank Shell - Horizontal | 125.7 | 15.39 |
| 3E - Tank Shell - Vertical | 125.7 | 15.39 |
| 3E - Flat Surface - Vertical | 125.7 | 15.39 |
| 3E - Duct/Tank - Flat Top | 143.2 | 16.46 |
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| **Outdoor: 145 Deg F Tank Temp, 51 Deg F Ambient, Wind = 1.86 (CZ01)** |  |  |
|  | Heat loss Bare tank, Btuh/sqft | Heat loss Insulated, Btuh/sqft |
| DataSpec File (Workpaper) | 173.2 | 21.42 |
| 3E - Tank Shell - Horizontal | 173.3 | 21.31 |
| 3E - Tank Shell - Vertical | 173.3 | 21.31 |
| 3E - Flat Surface - Vertical | 173.3 | 21.31 |
| 3E - Duct/Tank - Flat Top | 198.7 | 22.46 |