



## **Filing Receipt**

**Filing Date - 2024-07-12 11:02:31 AM**

**Control Number - 56510**

**Item Number - 12**



<b>Contacts</b>	Mark Bergum: (608) 316-3630 or mark.bergum@tetrattech.com Graham Thorbrogger: (608) 316-3623 or graham.thorbrogger@tetrattech.com
<b>Meeting Link</b>	
<b>Access</b>	PUC – Interchange Filing: Case 56510 <a href="#">Interchange - Documents (texas.gov)</a>  Teams site: <a href="https://tetrattechinc.sharepoint.com/:f/r/teams/PUCTHeatPumpWorkinggroup/Shared%20Documents/General?csf=1&amp;web=1&amp;e=mCHkEh">https://tetrattechinc.sharepoint.com/:f/r/teams/PUCTHeatPumpWorkinggroup/Shared%20Documents/General?csf=1&amp;web=1&amp;e=mCHkEh</a>  Past Meeting recordings: <a href="https://vimeo.com/channels/HPWG">https://vimeo.com/channels/HPWG</a>
<b>Review of Residential Measure Barriers</b>	Residential Measure 2.2.2 (Review) <ul style="list-style-type: none"> <li>• Load Calculations (Manual J &amp; S)</li> <li>• Consumption hours</li> <li>• Right-sizing calculations (limitations to different capacities)</li> <li>• Winter savings for gas heat replacement – Baseline as std. heat pump</li> <li>• Winter savings for HP replacement – Pre and post are both equal amount of supplemental heat (77%)</li> <li>• Current ID of VSHP is based on SEER being greater than 15.2</li> <li>• VSHP do not have the mismatched equipment concern seen with units a few years ago.</li> <li>• New Construction baseline = 115% of summer load</li> <li>• Summer and Winter Peak Coincident demand factors need to adjust based on summer peak capacity and winter supplemental heat.</li> <li>• EFLH is multiplied times SEER/HSPF to determine consumption.</li> <li>• EUL is 15 years for heat pumps.</li> </ul>
<b>Identification of Commercial Barriers that vary from Residential</b>	Commercial Measure 2.2.2 <ul style="list-style-type: none"> <li>• Replacement capacity limited to 20% adjustment</li> <li>• New Construction baseline capacity = Installed capacity</li> <li>• Baseline efficiencies per DOE standards or IECC2015</li> </ul>
<b>Discussion Schedule</b>	<ul style="list-style-type: none"> <li>○ May 7: Identification of VSHP, Load Calculation requirements, Consumption calculation (EFLH), EUL</li> <li>○ May 21: Summer Peak &amp; Consumption</li> <li>○ June 4: Winter Peak &amp; Consumption</li> <li>○ <b>June 18: Baseline equipment, upsizing/downsizing calculation, and coincidence factor</b></li> <li>○ July 09: Envelope incorporation</li> <li>○ July 16: Draft measure</li> <li>○ July 30: Review measure</li> </ul>
<b>Envelope</b>	Can envelope improvements be incorporated into TRM energy savings calculations? <ul style="list-style-type: none"> <li>• The interactive effects of envelope improvements and new HVAC is important, although should be part of the longer adjustments to the measure. It was noted that PNNL is doing field studies and would like to include Texas.</li> </ul>



	<p>Also noted that AMI data may be able to be used to identify the difference in adjusted homes versus non adjusted homes.</p> <ul style="list-style-type: none"><li>• Oncor noted that they are exploring the ability for a punchlist of envelope measures can be completed to determine up to 3 levels of weatherization by visual inspection. Results may be applicable to the HVAC sizing/load of this measure.</li></ul>
<b>Equation Testing</b>	<ul style="list-style-type: none"><li>• Reviewed scope of calculation and HPWG. The HPWG is not designed to set policy on the requirements of systems or technology installed, but provide a calculation of energy savings for what is installed.</li><li>• Reviewed the capacity ratio adjustments for the baseline equipment and identified the ratio of the efficient equipment as being critical in the calculation.</li><li>• Reviewed data collection being 100% from AHRI for the unit capacity and efficiencies. Other data collection included the Aux. heat type and capacity, Identification of Manual J completion, Variable Speed identification. Discuss the need for data collection of capacity and efficiency ratings at 5 degrees. It is not required for the calculation that is being proposed. But collecting it now would create a full set of data for future analysis. Noted that the NEEP database also has rating information that the AHRI rating has. Current measure is going to continue to use the AHRI as the standard, although NEEP can be accessed by individuals to gather capacity and efficiency of units.</li><li>• Noted that the NEEP database also has a calculation tool based on capacity ratios and could be used for Texas. But it is not tested and understood how it works in Texas right now.</li><li>• Reviewed the critical components of the definition of Cold Climate Heat Pump. Although there are several details, the critical component when we discuss in Texas HPWG is that the capacity at 5 degrees is 100% and COP is 1.75 or greater.</li><li>• Comment after the meeting: Calculation adjusts the amount of the peak winter demand that is completed by the auxiliary heat as a percentage of the capacity overload. Although the actual is the percentage of the peak hours/temps divided by the capacity at those temperatures. Tetra Tech is reviewing to see if that fraction can be adjusted in the winter peak demand calculation.</li></ul>
<b>Next Meeting</b>	<p><b>July 16 at 11:00</b> <b>Topic – Equation finalization and draft measure</b></p>



Acronym	Term
ACCA	Air Conditioning Contractors of America Manual J is the sizing calculation from ACCA
AHRI	Air Conditioning, Heating, and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CCHP	Cold Climate Heat Pump (as defined by NEEP)
COP	Coefficient of Performance
CPUC	California Public Utilities Commission
DHW	Domestic Hot Water
DOE	United States Department of Energy
EER	Energy Efficiency Ratio
EFLH	Equivalent Full Load Hours
ER	Early Retirement
EUL	Effective Useful Life
HP	Heat Pump
HSPF	Heating Seasonal Performance Factor
IECC	International Energy Conservation Code
NC	New Construction
NEEP	Northeast Energy Efficiency Partnership
PNNL	Pacific Northwest National Laboratory
PUC	Public Utility Commission of Texas
ROB	Replace on Burnout
SEER	Seasonal Energy Efficiency Ratio
TRM	Technical Reference Manual
VSHP	Variable Speed Heat Pump