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Mitsubishi Electric Comments on Residential ACM VCHP Modeling Approach

Additional submitted attachment is included below.

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March 1, 2019

Larry Froess
California Energy Commission
Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Re: February 2019 Workshop on Variable Capacity Heat Pumps (Docket No. 19-BSTD-02)

Dear Mr. Froess,

Mitsubishi Electric Cooling & Heating, a division of Mitsubishi Electric US, Inc. ("MEUS"), a manufacturer of Variable-speed Mini-splits and Multi-splits (VSMS) and Variable Refrigerant Flow (VRF) heating and cooling systems, appreciates the opportunity to submit comments in response to information presented during the February 15, 2019 workshop covering the Residential Alternative Calculation Method Variable Capacity Heat Pump Modeling Approach, specifically CEC's proposed changes to the compliance credit for variable capacity heat pump systems in CBECC-Res.

One key concern we have with the proposals by CEC at the workshop relate to the position that granting higher compliance credit to variable capacity systems is problematic, not because the systems don't deserve the credit, rather because developers would have the ability to reduce key, permanent building envelope measures in a trade-off with improved compliance credit for VCHPs. Permanent building measures should be subject to minimum, mandatory values to avoid such trade-offs, and reducing the compliance credit that VCHP systems are due is suppressing a technology that, for example, supports Senate Bill No. 100.

Of the ten test cases studied at the Central Valley Research Homes (CVRH) project, most systems showed significant energy savings above the 14 SEER reference system, a system which was modified to operate at a higher SEER. Only one of the ten systems produced no energy savings greater than the reference 14 SEER system in both cooling and heating, and the CVRH staff acknowledged that these performance differences are attributable to issues with system control algorithms – issues that are easily addressed with software updates.

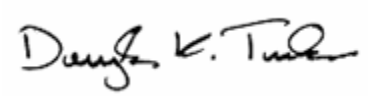
The CVRH data shows average energy savings of 18% and 31% in cooling and heating, respectively. The 5% compliance credit proposed for cooling and 12% compliance credit proposed for heating are significantly lower than anticipated and do not reflect the actual performance of VCHP systems.

The AHRI certification process is the best method for providing representative and repeatable performance tests and ratings. AHRI certified efficiency ratings should form the basis of equipment ratings in the State of California, and if they are to be de-rated based on CVRH data, then transparency, a

comprehensive discussion of the underlying science, and compromise are warranted. We look forward to collaborating with CEC on an interim compliance credit agreement that is fair to all concerned stakeholders.

Please contact me if you have any questions.

Best regards,



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