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Cover Letter for Mitsubishi Electric Comments on VCHP Duct Losses, Effective Buried Duct R-Values, and Unfactored Variables

Additional submitted attachment is included below.

**Cover Letter for “Mitsubishi Electric Comments on VCHP Duct Losses,
Effective Buried Duct R-Values, and Unfactored Variables”**

Submitted to the 19-DECARB-01 Docket, by Bruce Severance, June 22, 2020

Dear Andrew McAllister, David Hochschild, CEC and Case Team Staff,

I have reviewed the underlying research that is used to substantiate the Effective Duct R-value Tables in the RACM and continue to feel that there are significant inaccuracies in these tables that subtly undermine the electrification and building decarbonization goals embodied in SB350, AB3232 and other legislation. I have also reviewed the WCEC research on duct losses in VCHP systems, and while I agree with some of the overarching points of this research, the researchers admit to eliminating critical losses experienced in single stage equipment, most notably cycling losses and the btu loss that continues between ducts and attics when equipment has cycled off. Such justify uneven application of buried duct requirements and miss the great relevance of Rick Chitwood’s work for the CEC which has demonstrated up to a 70% capacity reduction on single stage equipment implementing a simple formula of prescribed measures which include deeply buried ducts.

The inaccuracies and myopic assumptions underlying these research efforts do great harm to the state’s efforts to make ducted HP systems more cost competitive with gas appliances. Specifically, the failure of the Energy Code to embrace the cost effective HVAC integration and duct design solutions embodied in Rick Chitwood’s work represents a serious lost opportunity to maximize “beneficial electrification” by avoid reducing HVAC loads on the grid, while saving residents billions in energy costs and saving grid managers billions in infrastructure, storage and capacity costs. The Chitwood Method, if broadly instituted with all market barriers addressed, has enormous societal benefits, which are not currently promoted by the ACM tables or the WCEC research. Deeply burying ducts and extremely low leakage rates are cost effective on all new construction and most retrofits, and should be embraced.

I must ask forgiveness in advance for the length of the attached analysis in advance. I realize that brevity is important to entice a large pool of readers to consider the comments. However, in this case, I am questioning the CEC’s data, and mean to do so both humbly and with thoroughness. The studies that the CEC presented in support of their ACM Effective R-value tables amounted to over 100-pages, and the WCEC research is similarly detailed. I wish to acknowledge the many valid points and detailed research in each of these studies and do not intend to “throw the baby out with the bathwater”. Thank you for considering the validity of Mitsubishi Electric’s stated concerns.

Thank you for the opportunity to comment on this critical policy issue. Respectfully submitted,



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