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Global Warming Potential of Refrigerants used in Heat Pump

Additional submitted attachment is included below.

November 3, 2018

Chair Robert Weisenmiller
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Comments on Draft 2018 IEPR Update Volume II

Dear Chair Weisenmiller,

I would like to congratulate the energy commission on the current IEPR draft and especially the discussion on the importance of building decarbonization. Furthermore, I appreciate the IEPR authors for taking into account my earlier comment on the current status of high GWP refrigerant in heat pumps.¹

Though the content of the discussion on refrigerant GWP is accurate, I would like to point that the entire discussion on alternate low GWP refrigerant was included in my comment and is based on our peer-reviewed paper.² Current text in the IEPR draft reads as follows:

“In written comments, the UC Berkeley Energy and Resources Group notes that as heat pump water heaters become more prevalent, the issue of refrigerant leakage becomes more significant.⁵⁴ **However, group members indicate that initial testing of** a new refrigerant, R-1234yf, suggests it might be able to achieve very similar performance to the conventional refrigerant R-134. This result is promising because it has a GWP of four, as opposed to R-134 with a GWP of 1,430.”

Suggested edit:

“... However, the comment and other group members **indicate that** the initial testing of a new refrigerant, R-1234yf, suggests it might be able to achieve very similar performance to the conventional refrigerant R-134. This result is promising because it has a GWP of four, as opposed to R-134 with a GWP of 1,430”.⁵⁴

Sincerely,
Shuba V Raghavan
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U.C. Berkeley, CA
(shuba.raghavan@gmail.com)

¹ https://www.energy.ca.gov/2018_energy_policy/documents/2018-06-14_workshop/2018-06-14_comments.php, TN #: 223989

² [Raghavan, Wei, Kammen, Scenarios to decarbonize residential water heating in California, Energy Policy 109 \(2017\) 441-451](#)

