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Comment Received From: Kelly Murphy

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Steffes Comment - 2019 ZNE Residential Standards Apr 20 Workshop

Additional submitted attachment is included below.



Commissioner Andrew McAllister and Energy Commission Staff
California Energy Commission
Dockets Office MS-4
Re: Docket No. 17-BSTD-01
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

RE: April 20, 2017 Staff Workshop 2019 Zero Net Energy Residential Standards

Dear Commissioner McAllister and Energy Commission Staff:

We at Steffes appreciate this opportunity to share our comments in response to the 2019 Zero Net Energy (ZNE) residential standards workshop that took place on April 20, 2017. We give especially high marks to the careful detail that CEC staff continues to provide in the stakeholder process of developing the 2019 Title 24 building standards. Also, we look forward to participating (remotely) once again on the June 1st workshop during the Domestic Hot Water Measures portion for the 2019 Residential Standards.

Our comments in this submittal regard an emerging grid and GHG compliance tool known as Grid-Interactive Water Heaters (GIWH) and its valuable inclusion to support a framework for the development of a model ordinance to include electric water heating paired with renewables in order to further load flexibility and system stability.

There is growing realization that GIWH's "build load" when the bulk power and distribution system needs to absorb excess renewable energy and versions of GIWH can be induced by time-of-use and real time pricing, or refined and pinpointed by utilizing real-time grid-interactive flexible load. Steffes, as a leading supplier of a high-end version of that GIWH technology is especially pleased to be able to refer to specific GIWH supporting comments made by non-suppliers in studies and by leading thought leaders.

The first comments are from LBNL led - Final Report on Phase 2 Results: 2025 California Demand Response Potential Study (<http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442451541>):

- Page 101 Section 5-25 - Shift service type resource is by far the largest opportunity
- Page 169 -Water heaters were not explicitly modeled in this study, but could potentially offer shift and shimmy services to the distribution and transmission systems
- Page 169 – (continued) electrification of this end use (retrofitting existing gas water heaters with electric) could increase the potential for this resource to provide thermal storage for shifting load and/or providing shimmy services, especially in constrained service areas
- Page 182 - Shifting energy demand from early morning and evening hours to the middle of the day is a robust strategy for supporting renewables integration, and it creates significant value to ratepayers by making it less expensive to meet RPS targets



This second group of comments is from the DNV/GL - Water Heater Technology Economic Assessment: Draft Report

(https://pda.energydataweb.com/api/downloads/1832/Water%20Heat%20Technology%20Economic%20Assessment%20_DraftReport_v3%20clean.pdf):

- Page 29 – “Electric water heaters are perhaps the most flexible residential load on the grid. Large-scale adoption of grid-interactive electric water heaters presents an opportunity to provide ancillary services, i.e. smoothing of intermittent renewable loads, and support to frequency stability.”
- Page 33 - “DNV GL’s back-of-the-envelope methodology found that grid- interactive water heater’s have the potential to be a cost-effective resource to providing flexible load and value to the California energy mix.”
- Page 32 – “Furthermore, combining the grid-interactive water heater’s ancillary services with real time pricing results in the lowest costs among the technologies described in the figure.” (Referring to Figure 4-13)

And third, these extracts are from a Greentech Media “Fireside Chat” between Shayle Kann and CPUC President Michael Picker on March 9th (<http://www.ustream.tv/recorded/100815491>):

- At 02:30 - the challenge now is GHG emissions – making the system the most important piece
- At 22:20 President Picker talked about the possibility of fuel switching natural gas water heaters to electric water heaters ~ that may “confound (current) strategies” in order to deal with GHG impacts from natural gas

We also would like to refer to an earlier submittal by NRDC et.al. in which they included their ideas for “Renewable Water Heating” and, given the 3rd party comments regarding GIWH that we have cited in this submittal, we believe that the opportunities called out regarding GIWH should merit an inclusion within that evolving water heating model.

We at Steffes value the very strong multi-year working relationship we’ve established with NRDC and we welcome extending that collaboration to furthering the discussion on renewable water heating - not only with them - but with a host of others in this stakeholder process hosted by the CEC.

Finally, Steffes has a long history of working directly with and complying with the protocols and procedures of the International Code Council (ICC) and see interactions with that well established standards organization as valuable and appropriate for such codification of “Renewable Water Heating”.

Thanks again for the opportunity to provide this comments. We ask that you strongly consider inclusion of GIWH technology in your ZNE residential standard. I welcome further dialog with you. My direct line number is 701-690-7428.

Very truly yours,

/s/

Kelly Murphy