

## Net Positive Home Retrofit

“Home Retrofit Results in Net Positive Energy Operation” in June’s *ASHRAE Journal* by John Suzukida; Daniel Bacellar; Reinhard Radermacher, Ph.D., Fellow/Life Member ASHRAE, is a well documented case study that includes useful information so readers can understand the engineering that supports the project. However, it describes an unsustainable approach to net zero design.

It does not mention storage, so it seems to be yet another example of net positive/net zero buildings that use the grid for balancing. This is a euphemism for the idea that net zero customers rely on nearby

energy “pigs” to use solar electricity that the net zero customers generate during the day but cannot use at that time. Net zero customers still need nearly the same capacity and energy from the grid they would need without their solar cells to light and heat their buildings during the cold, dark hours of winter.

I cannot help concluding that under the prevailing wisdom for net zero design, if everyone were to try to be net zero, no one could be. What am I missing?

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### The Authors Respond

This initiative is a work in process, with storage to come, but practical realities dictated not doing everything at once. Electrification,

reducing energy consumption using heat pumps, generating power with solar PV and the use of a charging station for an electric vehicle (EV) represent one model of the future. Cost-effective storage, including potentially using the EV for storage and real-time pricing coordination with the utility, are potential next steps. In the meantime, we thought it may be helpful to share what’s possible with available technology.

Clearly, the manner by which we use energy in the future will need to be all-encompassing and systems-oriented. Utilities, consumers, et al., each will have roles that result in net zero carbon in total and not just focused on net zero energy at a site.

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