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Additional submitted attachment is included below.

June 27, 2018

To: California Energy Commission (CEC)

From: A. Sung AIA, LEED AP, BD+C, ISSP-SA Principal, Greenbank Associates

RE: Comment in Support of Decarbonizing Buildings + ZNE focus on CA Public K-12 sector, CEC docket 18-IEPR-09

First I'd like to thank the CEC and commend you on the openness of your public engagement and comment outreach as demonstrated by this 2018 IEPR update process thus far. In particular, I'd also like to thank the great group of presenters on June 14th's workshop for their cogent, practical and real-world solutions to the challenge before us.

Most of the uploaded presentations and the 2 economic /scenario analyses presented as documents of the 18-IEPR-09 Docket already overwhelmingly support the case for decarbonizing buildings, and addressing the mitigation of existing natural gas infrastructure as well as preventing unwise expansion in general, as an imperative. The technical feasibility for electrification, the cost effectiveness, the case study examples of ZNE implementation with no natural gas use, and cost saving, effective heat pump equipment performance, and innovative programs presented had me convinced. AB32 and SB 32 will hopefully continue to drive our power grid and other local sources to clean, renewable energy. The evidence was well presented. The longer the State delays in addressing decarbonization in successive policy, code/regulation development, and funding/incentivizing implementation, the more costs will rise, risks will rise, GHG emissions will increase, human health and vulnerable, disadvantaged communities will be impacted.

I strongly support CEC policy in building decarbonization in concert with the State's movement towards the following ZNE/zero carbon and GHG emissions reduction actions.

- a 100% renewable energy power grid with robust storage
- grid harmonization with distributed on-site renewable energy systems/
- integrated with SMART inverters and
- right-sized distributed on-site storage for local community resilience
- guidance to encourage rapid decarbonization outcomes to occur at optimal, planned systems/appliance replacement, upgrade, retrofits or building renovation/construction at scale to meet 2030 and 2050 goals.

Policies should be clearly written to facilitate implementation in alignment with the proper loading order of: demand reduction, (coupled with behavior management and smart controls,) energy efficiency, plug load reduction, and then supplying power through renewables. In the face of climate change and in listening to the many other co-benefits outlined in your series of June 14, 2018 workshop presentations, it's clear that in general, new natural gas infrastructure should be avoided (it's too costly), and policies should be set to address the decarbonization of existing buildings (for the cost savings, health/safety benefits, especially to children, and pollution/GHG emissions reductions).

In your upcoming policy work, I urge the CEC to take this opportunity to develop the 2019 IEPR, emphasizing the time-urgency of deep energy retrofits of **existing buildings to ZNE integrated with electrification/decarbonization**, with the following long term goals in mind:

- Further **demonstrate leadership** in championing the public good for the benefits of: life cycle cost savings, health, safety and welfare, resource/energy conservation, and transformational climate impact
- **To share its intelligent policy-making** and sound technical rationales with its State agency partners: the CPUC, CARB, OPR/SGC, Legislature, and incoming Executive Branch
- **Leverage and cross-coordinate** these policies, including anticipating economic/funding and implementation implications through these state and local agency partnerships
- **Apply systems thinking at all levels of scale**
- **Mobilize** to set the policy **to allow for the creation of new business models** through its EPIC grant program and other (e.g. CPUC controlled public goods charges) funding mechanisms to assist in **developing long-term programmatic approaches to rapid implementation at scale**, spreading jobs/work to all industry stakeholders, not just a few favored contractors
- **Prioritize the Public Sector**, and of these, **public K-12 schools first**, to bring broad public awareness, institutionalize energy efficiency, demonstrate decarbonization, and showcase the benefits of renewable energy and zero carbon best practices in every neighborhood of the State. Policy might begin to prioritize these K-12 schools of, in, and for, some of the most disadvantaged populations,-- our children and youth-- in crumbling urban infrastructure, and forgotten in rural corners.

Furthermore, I respectfully caution that the mere referencing of past technical assistance or EE implementation programs (e.g. Bright Schools or Prop. 39 Clean Energy and Jobs Act, ECAA loans); however helpful, are not consistently funded, and should not be relied upon as the CEC's (nor CPUS or IOU's) solution to addressing the scale of the need for deep energy retrofits to ZNE and decarbonization towards the creation of zero carbon schools across this State. The potential for many co-benefits is great, not the least of which is the seeding of schools as centers of sustainable/resilient communities.

Additionally, there may be other new opportunities, yet to be explored, for safe, beneficial reuse of the natural gas distribution infrastructure, both internal to a building and at community scale. For example, perhaps existing gas distribution piping might be repurposed to convey recycled water or greywater. Food for thought.

Thank you for your good work and for this opportunity to engage.