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Zero grid impact home electrification

If we are going to quickly get to scale with home decarbonization it is becoming clear that we need to develop plans/approaches/technology with the goal of having zero grid impact home electrification. A combination of low power (or power-efficient) end-uses coupled with thermal and electric storage should let us electrify homes in California with no rewiring, no panel changes, no new service drops, no transformer replacement, no new distribution upgrades, etc. Furthermore, it will be needed given the lack of available utility resources, such as there not being enough transformers available, and delays in replacing service drops. The zero grid impact approach minimizes the huge costs to ratepayers from rebuilding the electric grid and building of new generation facilities. It also lets us make better use of renewables. It helps with household resiliency if there is a power curtailment (for whatever reason). I believe the commission should make zero grid impact home decarbonization a goal for R&D activities, rebate programs, etc. Even if implementation is not perfect it will still enable getting to scale to many more homes than the current business as usual of home electrification. Current research by the USDOE is investigating methods of avoiding the costs associated with electric panel replacement that is providing initial insights into how home electrification can be done in a way to reduce grid impacts that could form the basis for future efforts and support the appropriate policies, rebate programs, etc.