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More focus on technically and economically feasible ways to improve energy efficiency in the existing building stock

The proposed draft subthemes under Theme 1 of the next CEC EPIC 2018-2020 Triennial Investment Plan commendably focus on the development of new technologies, and improvements to existing technologies, that seek to reduce energy use in buildings. However, with the energy efficiency gains of modern LED lighting systems, energy use in buildings is becoming more and more dominated by HVAC equipment and plug loads. S1.1 focuses on even further improving lighting technologies while, and S1.5 addresses plug loads explicitly. However, for reducing HVAC energy consumption, the supported HVAC technologies are often only technologically and economically feasible to deploy in new construction (for example, S1.2.2, S1.2.3). The median building in the US is about four decades old, and thus these improvements simply will not have a large impact on building energy consumption until far into the future, even if those technologies gain a large market share immediately. The only subtopic that focuses on existing buildings (S1.2.1) artificially constrains applicants to one particular type of solution; that of improving the building envelope. However, there are other approaches that may yield comparable or larger reductions in HVAC energy use at lower cost. To name but a few: expanded indoor temperature ranges enabled by personal comfort systems and air movement, fault detection & diagnosis and improved control sequences for HVAC systems, even gamification of energy consumption for building operators.

We propose that the CEC support solutions that explicitly focus on reducing HVAC energy use in the existing building stock through another subtheme under Theme 1. Given the challenge of finding economically and technically feasible ways to improve the efficiency of the existing building stock, the solicitations should not be constrained to any one particular technology. It may be most effective to have an open call for solutions to this problem. This way potential applicants will not be deterred from submitting an application, or constrained in how they approach the problem, and the CEC can assess each proposal on its merit - based on its impact, practicality, and economic feasibility. For example, a subtopic such as: "Develop Tools and Technologies to Improve Energy Efficiency in Existing Buildings" .