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Additional submitted attachment is included below.

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The Energy Commission is currently soliciting ideas and stakeholder input for the 2018 – 2020 EPIC Triennial Investment Plan. For those that would like to submit an idea for consideration in the 2018-2020 EPIC Triennial Plan, we ask that you complete the form below. Submittals are due by **5:00 p.m. on February 10, 2017.**

Part 1. Initiative Description and Purpose:

1. Please provide a brief description of the proposed initiative:

This initiative will focus on filling the technical, market, and informational gaps necessary to scale the adoption of advanced analytics, diagnostic, and control technologies in California's commercial building stock. To date, these technologies have seen early uptake in large campuses and porfolios, however, they remain under adopted throughout the commercial sector as a whole.
The scope of the initiative would encompass segment-specific: market assessment; delivery and usage models for technology&services; "all-in" cost-benefit assessments; software performance testing and validation; identification and pursuit of viable deployment mechanisms; and barrier-focused technology development to advance commercially available technolgies.
A holisitc initaitve of this nature will allow California buildings to realize deep energy and demand savings, and persistent operational efficiency.

2. What technical and/or market barriers would the proposed initiative help overcome? For scientific analysis and tools, what knowledge gaps would the proposed initiative help fill?

Today's analytics and control technologies (Energy Management and Information Systems, EMIS) can enable operational energy savings of up to 20%, yet they remain underutilized. Key barriers and knowldege gaps to more pervasive use include:
Credible 3rd party information on the costs to procure, implement, use, and mantain
Access to software vetting and testing methods (analogous to hardware)
The role of analysis-as-a-service in increasing access to unerserved sectors
Transparency in capabilities and as-used benefits across a diverse product market
Technical and organizational best practices to maximize savings - solutions to integrate into everyday operational/business processes
How to increase deployment through a combination of required, voluntary, and incentive-based activities
Reducing the cost and complexity of data access and integration

Part 2. Benefits and Impacts

3. If this initiative is successful, either fully or partially, what would be the expected impact? Who are the primary users and/or beneficiaries?

The primary impacts will be:
Achievement of operational efficiency savings
Demand savings
Persistence in savings over time

The primary users and beneficiaries include a broad cross section of stakeholders:
Building owners and energy managers
Utility efficiency program administrators
Regional energy efficiency organizations
Market transformation entities
Technology and service providers

4. Describe what quantitative or qualitative metrics or indicators would be used to evaluate the impacts of the proposed initiative:

Over-time energy, demand, and utility cost savings in participating facilities
Increase in the number of CA buildings using continuous meter analytics, fault detection and diagnostics, automated dynamic control optimization
Expansion of voluntary, requires, and incentive-based deployment activities
Increase in sales of technology and service-base analysis in CA
Adption and delivery of software performance testing methods
Effectiveness of any newly developed technology solutions

5. Please provide a list of peer-reviewed references that support the responses for questions 3 and 4. Proposed initiatives that include peer-reviewed references will be given stronger consideration.

Granderson, J, Lin, G. 2016. Building energy information systems: Synthesis of costs, savings, and best-practice uses. Energy Efficiency 9(6): 1369-1384.
Mills, E, Mathew, P. Monitoring-based commissioning: Benchmarking analysis of 24 UC/CSU/IOU projects. Report prepared for CEC PIER, June 2009, LBNL #1972E.
Granderson, J, Price, P, Jump, D, Sohn, M. 2014. Development and application of a statistical methodology to evaluate the predictive accuracy of building energy baseline models. Energy 66(1): 981-990.
Piette, MA, Granderson, J, Kiiccote, S, Wetter, M. 2012. Intelligent building energy information and control systems for low-energy operations and optimal demand response. IEEE Design and Test of Computers 29(4): 8-16.
Roth, K, Llana, P, Westphalen, D, Broderick, J. 2005. Automated whole building diagnostics. ASHRAE Journal 47(5): 82-84.

6. (For technologies only) What competitive advantages does the proposed technology solution have over current benchmark technologies? If the technology is beyond the prototype stage, what strategies do you suggest to bring to scale?

This initiative is primarily focused on overcoming adoption barriers. Where new technology development is determined to be necessary, the benchmark will be commercially available software technolgoies and their associated control, data acquisition, integration and communication hardware elements.

Part 3. Connection to Energy Commission's EPIC Framework

Energy Commission staff have developed a draft strategic framework to guide the CEC's planning and implementation of EPIC across triennial investment cycles. One of the objectives of the draft strategic framework is to communicate a consistent set of priorities for organizing current and future EPIC investments.

7. Please indicate which of the following strategic framework themes you feel the proposed initiative best fits within:
    - Advance Technology Solutions for Deep Energy Savings in Building and Facilities
    - Accelerate Widespread Customer Adoption of Distributed Energy Resources
    - Increase System Flexibility from Low-Carbon Resources
    - Increase the Cost-Competiveness of Renewable Generation
    - Create a Statewide Ecosystem for Incubating New Energy Innovations
    - Maximize Synergies in the Water-Energy-Food Nexus
    - Develop Tools and Analysis to Inform Energy Policy and Planning Decisions
    - Catalyze Clean Energy Investments in California's Underrepresented and Disadvantaged Communities

Advance Technology Solutions for Deep Energy Savings in Building and Facilities

If Other, Please Specify