Title of Proposed Initiative: **Improving interoperability and common methods in building energy analysis tools**

Investment Areas (Check one or more) – *For definitions, see First Triennial Investment Plan, page 12*:

Applied Research and Development

Technology Demonstration and Deployment

X Market Facilitation

Electricity System Value Chain (**Check only one**): *See CPUC Decision 12-05-037, Ordering Paragraph 12.a. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.*

☐ Grid operations/market design

☐ Generation

☐ Transmission

☐ Distribution

X Demand-side management

California Energy Commission
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Issues and Barriers:

A variety of tools exist in the buildings marketplace: benchmarking, building asset rating tools, simulation and modeling tools – for code compliance, for commercial new construction (CNC) design assist programs like "Savings By Design," and additional tools that form the basis of rating, labeling and disclosure laws.

The recent Savings by Design evaluation concluded that ***"for future efficiencies and transparency, the IOUs should move toward a consistent modeling platform and clear documentation of inputs."***

The chronology of the design/build/perform-operate process mean there are a multitude of moments any one of these tools might be used to a) bring information to the building stakeholder for action, b) compare either design or performance between individual buildings or across broad classes of buildings, 3) disclose for purpose of heralding or shaming building owners and occupants into improving the efficiency of their buildings.

The commonality of policy goals vs the disparity of tools that could be used to provide information is beginning to reach critical levels. There are real winners and losers (building owners and occupants) in the marketplace, whose performance depends on the consistency of outputs from individual tools and sometimes from multiple tools (or at least a clear understanding of where those inconsistencies lie).

Initiative Description and Purpose:

An evaluation and objective comparisons of tools and a description of the methodology, inputs, outputs and market segment most appropriate for use required for each of these types of tools:

- Benchmarking
- Asset Rating

- Code Compliance
- Design Assistance
- Energy Information Systems
- Simulation, Energy Analysis, and Modeling Tools

There is a need to develop better tools to evaluate the status of the existing building stock and the methods to improve energy performance and reduce overall energy use.

Stakeholders:

This initiative has a large list of stakeholders including IOUs, building owners, tenants, facility managers, and state policy and regulatory groups.

Developers of these tools will benefit from either comparison and contrast and an understanding of the optimal vs marginal uses of each tool.

Local jurisdictions that elect to use rating, labeling and disclosure laws with preferred tools that demonstrate that compliance.

Consumers and building owners/occupants.

Utilities and other DSM program administrators and implementers

Background and the State-of-the-Art:

- Some individual comparisons by segment have occurred: public sector tools, schools tools, multi-family tools.
- Public policy is beginning to get ahead of tools and we need to get a handle on how and when these tools perform and what their optimal use is. Understanding the shortcomings and value of specific approaches and methodologies for different outcomes of specific tools and classes of tools is needed.

Justification:

Describe how this technology or strategy will provide California IOU electric ratepayer benefits and provide any estimates of quantified annual savings/benefits in California, including:

- Name of sector and estimated size and energy use.
- Quantifiable performance improvements for the proposed technology/strategy.
- Maximum market potential, if successful.
- Number of direct jobs created in California.
- Why this research is appropriate for public funding.

This initiative affects the California buildings stock in general. It is an area that can improve the robustness of the energy efficiency programs. Ensuring that the energy savings programs are more robust can produce good green jobs. This area is appropriate for public funding because it would not be done by a single organization or stakeholder group on its own.

Ratepayer Benefits (Check one or more)**:**

☐ Promote greater reliability

☒ Potential energy and cost savings

☐ Increased safety

☒ Societal benefits

☒ Environmental benefits – specify – Lower energy use and associated benefits

☒ GHG emissions mitigation/adaptation in the electricity sector at the lowest possible cost

☐ Low emission vehicles/transportation

☐ Waste reduction

☒ Economic development

Describe specific benefits (qualitative and quantitative) of the proposed initiative

Public Utilities Code Sections 740.1 and 8360:

Please describe how this technology or strategy addresses the principles articulated in California Public Utilities Code Sections 740.1 and 8360. The California Public Utilities Code is available online at www.leginfo.ca.gov/cgi-bin/calawquery?codesection=puc.