

Energy Research and Development Division
FINAL PROJECT REPORT

OpenBuildingControl

DRAFT – NOT FOR CIRCULATION

California Energy Commission

Gavin Newsom, Governor

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PREFACE

The California Energy Commission's Energy Research and Development Division supports energy research and development programs to spur innovation in energy efficiency, renewable energy and advanced clean generation, energy-related environmental protection, energy transmission and distribution, and transportation.

In 2012, the Electric Program Investment Charge (EPIC) was established by the California Public Utilities Commission to fund public investments in research to create and advance new energy solutions, foster regional innovation, and bring ideas from the lab to the marketplace. The California Energy Commission and the state's three largest investor-owned utilities — Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company — were selected to administer the EPIC funds and advance novel technologies, tools, and strategies that provide benefits to their electric ratepayers.

The Energy Commission is committed to ensuring public participation in its research and development programs that promote greater reliability, lower costs, and increase safety for the California electric ratepayer and include:

- Providing societal benefits.
- Reducing greenhouse gas emission in the electricity sector at the lowest possible cost.
- Supporting California's loading order to meet energy needs first with energy efficiency and demand response, next with renewable energy (distributed generation and utility scale), and finally with clean, conventional electricity supply.
- Supporting low-emission vehicles and transportation.
- Providing economic development.
- Using ratepayer funds efficiently.

This report is the final report for the OpenBuildingControl Project (Grant Number 14-308) conducted by the Lawrence Berkeley National Laboratory. The information from this project contributes to Energy Research and Development Division's EPIC Program.

All figures and tables are the work of the author(s) for this project unless otherwise cited or credited.

For more information about the Energy Research and Development Division, please visit the Energy Commission's [website](#) or contact the Energy Commission at 916-327-1551.

ABSTRACT

REWRITE 300 words max: This report is part of the OpenBuildingControl Project, which is intended to improve the development and implementation of the building control strategies (typically called “sequences of operation”) that are used to control the comfort, safety, energy efficiency, and demand response capabilities for commercial buildings. The project involves the development of a set of tools to resolve many of the existing process challenges related to building controls or "building automation systems" (BAS). This document provides a strategy for the project team to engage the industry and promote the adoption of the process and tools developed in the project as a means of market transformation.

Keywords: *OpenBuildingControl, Open Building Control, commercial buildings, energy efficiency, automation, high-performance controls, description language, sequences of operation, BACnet, ASHRAE*

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