

PNNL-SA-162625

Peak Demand Limiting and Optimization of HVAC Systems for Common Areas in High-Rise Multi-Family Housing

CRADA 518 (PNNL 74081)

June 2021

Osman Ahmed

Federal Capital Partners (FCP)



DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor Battelle Memorial Institute, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or Battelle Memorial Institute. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

PACIFIC NORTHWEST NATIONAL LABORATORY

operated by

BATTELLE

for the

UNITED STATES DEPARTMENT OF ENERGY

under Contract DE-AC05-76RL01830

Printed in the United States of America

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831-0062; ph: (865) 576-8401 fax: (865) 576-5728 email: reports@adonis.osti.gov

Available to the public from the National Technical Information Service 5301 Shawnee Rd., Alexandria, VA 22312 ph: (800) 553-NTIS (6847) email: orders@ntis.gov https://www.ntis.gov/about Online ordering: https://www.ntis.gov

Peak Demand Limiting and Optimization of HVAC Systems for Common Areas in High-Rise Multi-Family Housing

CRADA 518 (PNNL 74081)

Abstract

June 2021

Osman Ahmed

Prepared for the U.S. Department of Energy under Contract DE-AC05-76RL01830

Pacific Northwest National Laboratory Richland, Washington 99354

Abstract

This project aims to create an innovative energy saving solution that is affordable and easy to implement. Initially, the proposed solution will fulfill an existing need for HVAC systems that serve multi-family housing. However, the solution can be easily expanded to other markets such as large hospitals, hotels, and commercial buildings. The proposed solution will be creatively packaged so that it can work where peak demand charge is high or where goal is to conserve energy and reduce carbon footprint. Of course, both Peak Demand Limiting (PDL) and Set-point optimization (SPO) can also operate simultaneously.

Pacific Northwest National Laboratory

902 Battelle Boulevard P.O. Box 999 Richland, WA 99354 1-888-375-PNNL (7665)

www.pnnl.gov