PRELIMINARY TECHNOLOGY ASSESSMENT – JULY 2020

Grid-Interactive Efficient Buildings

Technology Overview

Grid-interactive efficient buildings (GEBs) deliver cost savings by leveraging technologies and strategies that provide continuous demand management and load flexibility. GEBs comprise an optimized blend of energy efficiency, energy storage, distributed energy generation, and load-flexible control technologies. What makes them unique is their ability to optimize across these attributes over time (today such measures are individually optimized) while providing superior load flexibility. The GEB strategy results in a less peaky, more flexible energy load profile that unlocks new opportunities for efficiency, cost savings, and resilience.

Why is GSA Interested?

A recent Rocky Mountain Institute (RMI) report examined the benefits of a GEB strategy adopted across GSA's entire portfolio. RMI identified five GEB capabilities with direct value for GSA:

- demand-charge management
- demand-response revenue
- GEB-specific rebates and incentives
- ability to access flexible time-of-use tariffs
- cost savings from enhanced energy efficiency

RMI also noted the added benefits for GSA of:

- better building control and occupant comfort
- reduced CO_2 emissions
- deeper savings in energy savings performance contracts (ESPCs) and utility energy savings contracts (UESCs)
- continued Federal-government and real-estate-industry leadership

If implemented comprehensively throughout GSA's portfolio, RMI estimates $50 million in annual cost savings, $206 million in net present value over eight years, and payback under four years.

How Will Success Be Measured?

Key performance indicators will be demand charge savings greater than 10% and payback under 5 years. Labor required to manage the technology will be tracked against increased operating efficiencies.

GSA Proving Ground (GPG), in association with the Department of Energy National Laboratories, is evaluating the real-world performance of multiple GEB solutions at four GSA test-bed locations. GEB solutions will be provided by Kinetic Buildings; Data Systems Analysts; Logical Buildings/Comcast MachineQ; and Prescriptive Data.

Emerging Technologies' two programs, GSA Proving Ground (GPG) and Pilot to Portfolio, enable GSA to make sound investment decisions in next-generation building technologies based on their real-world performance.