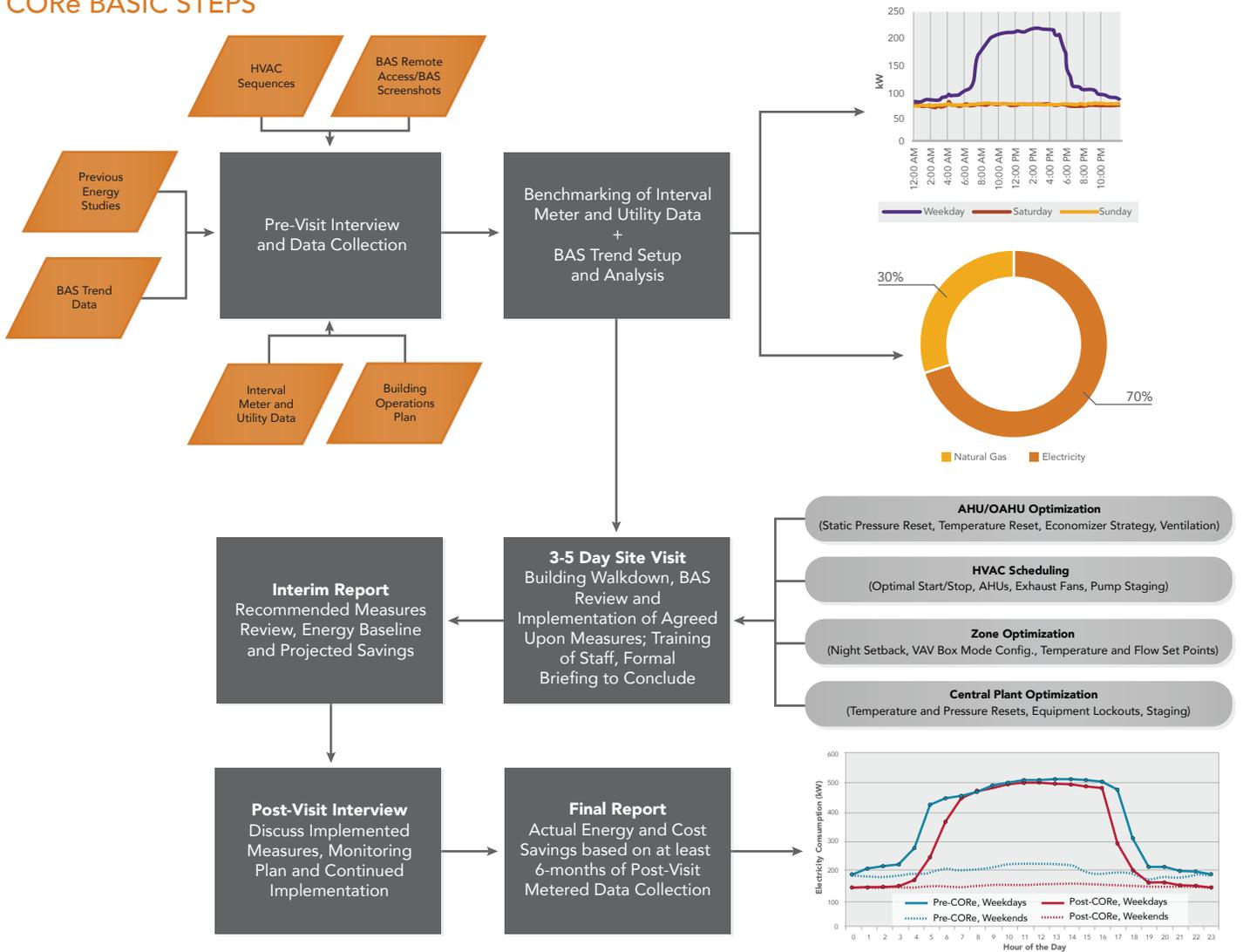


# Controls Optimization and Re-Tuning (CORE)

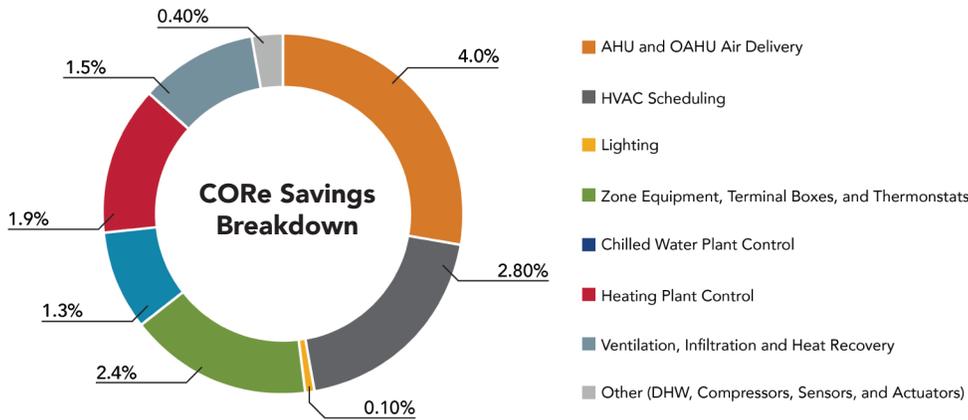
## OVERVIEW

The Pacific Northwest National Laboratory (PNNL) conducts controls optimization and re-tuning (CORE)<sup>™</sup> to identify and implement no- and low-cost energy efficiency improvements in commercial buildings. Re-tuning is a systematic process that aims at minimizing energy consumption by identifying and correcting operational problems such as inefficient scheduling, temperature set points, and static pressure set points. The re-tuning process relies on the building automation system (BAS) and whole building interval meter data as the central tools in the investigation, monitoring and diagnosis of the operating condition of the building equipment and systems. The process is applicable to single buildings and large campuses. As of 2016, PNNL has re-tuned over 25 million square feet of Federal facilities.

## CORE BASIC STEPS



## WHAT CORE CAN ACCOMPLISH

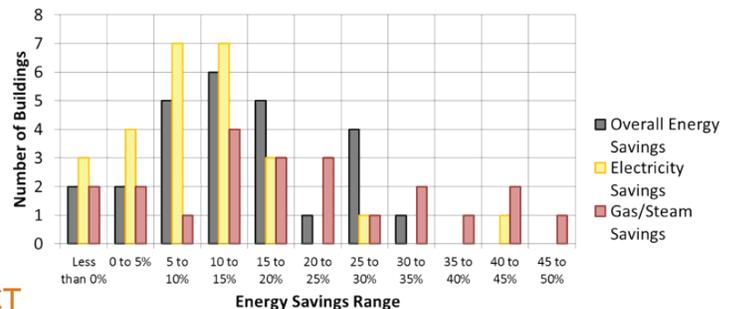
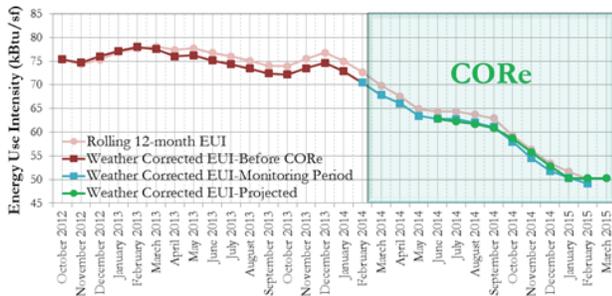


Relying on building energy models, typical meteorological year weather data, and engineering estimates, average predicted savings from 39 CORE site visits totaled 14.4%. For the 26 buildings in which post-site visit data has been collected for 6 months, actual savings is 12.7% (9.7% electricity/17.7% gas/steam). This results in an average simple payback of 16 months for CORE efforts that were undertaken in selected Federal facilities. The building sizes ranged from small commercial (< 50,000 square feet) to extremely large (> 2.5 million square feet) skyscrapers.



## WHAT PNNL BRINGS

PNNL performs the CORE, and in some cases, the BAS programming required for implementing the low-cost/no-cost control system improvements. In addition, PNNL provides advanced training to building energy, management, and operations and maintenance (O&M) staff on the re-tuning process and the implementation of re-tuning measures. This includes a long-term monitoring plan that is developed for each re-tuning measure implemented during the process, to promote long-term sustainability of savings while offering building staff with a report to refer to for troubleshooting. Although the focus of CORE is low-cost/no-cost controls improvements, PNNL also identifies and recommends low-cost O&M and capital improvement projects that may further improve the energy efficiency of the building.



## FOR MORE INFORMATION, PLEASE CONTACT

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