

Control System Retuning

A Low-Cost Path to Energy Efficiency and Cost Savings

Commercial buildings account for almost 20% of the total U.S. energy consumption, and 10-30% of the energy used in commercial buildings is wasted because of improper and inefficient operations (*Pacific NW National Lab, PNNL*).

Today, commercial buildings use sophisticated Building Automation Systems (BAS) to manage a wide and varied range of building systems. Although the capabilities of the BAS have increased, many buildings are not operating under the most optimized control strategies that their BAS can provide. This leads to higher than necessary energy costs and reduced life expectancy of expensive HVAC equipment.



Retuning the BAS in commercial buildings helps to ensure maximum energy efficiency and comfort for building occupants. Although a poorly tuned control system can maintain comfort, it may do so at a high energy cost while compensating for undetected operational inefficiencies.

Opportunity in Operations and Controls

The average simple payback operations and controls improvements is 0.49 years, representing a low-cost practice for enhancing building performance. Studies suggest that adjustments to HVAC operations and controls need to be scheduled regularly to maintain the energy savings and maximize occupant comfort. Even when more permanent improvements such as equipment upgrades are made, regular operations and controls adjustments are critical to meet the changing demands on the building.

The Pacific Northwest National Laboratory (PNNL) has developed a methodology, called “building retuning,” which details the process for reviewing and adjusting HVAC operations and controls. Retuning is implemented primarily through the building control system and may also include small, low cost repairs, such as replacing faulty sensors and adjustments to air/water flows. Retuning leverages information from an existing building automation system (BAS) as a low-cost approach to provide energy efficiency and improvements in occupant comfort.

Benefits of Re-Tuning your Building

Utilizing the equipment and controls that you already have, re-tuning reveals where energy is wasted and identifies low cost measures that can provide the following benefits:

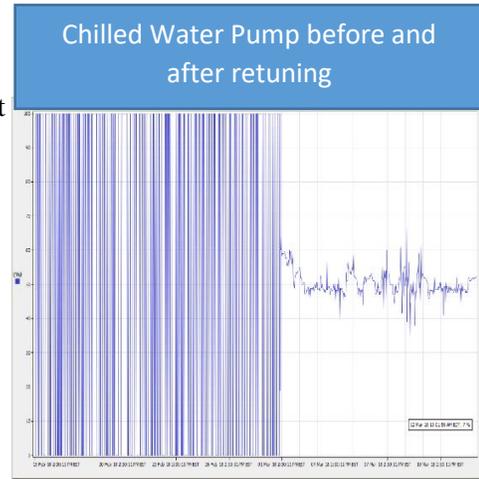
- Reduces energy use and associated costs 5 to 20%
- Improves comfort
- Extends equipment life
- Increases the asset value of commercial buildings
- Continuously saves you money

Examples of Building Systems That Are Not Optimized

- High energy costs associated with HVAC, lighting and domestic hot water heating systems
- Frequent repairs and replacement of parts
- Air and water flows that don't match the current facility requirements
- Changes in space use
- Temperature sensors and controls that require calibration or adjustment
- Heating and cooling systems that run simultaneously

Steps of the Building Re-tuning process

- Collect building information
- Benchmark the building using Energy Star Portfolio Manager
- Setup trends and analyze data
- Conduct onsite inspection based on analysis of trend data
- Make recommendations
- Approve recommendations
- Implement recommendations
- Track performance using Energy Star Portfolio Manager or by other cost-effective software



Why EBCx Services

Scott Gordon with EBCx Services worked directly with Pacific NW National Lab (PNNL) in a control re-tuning pilot program at multiple building sites across North America in 2011 and 2012. During that time, Scott worked with Johnson Controls at the national level as the Technical Manager for Energy and Sustainability and participated in several PNNL Building Re-Tuning™ training workshops and actual control retuning projects. Scott has extensive training plus significant hands on project experience in the Building Re-Tuning™ process. Scott continues to use the PNNL Building Re-Tuning™ approach to detect energy savings opportunities and implement improvements in project work across the country.

Please contact EBCx Services for additional information on how to reduce energy costs and improve occupant comfort at your building or facility. Building re-tuning is a low-cost investment that yields significant energy savings.



EBCx Services

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