

High Energy Use Intensity (EUI) and utility bills stretching your budget?

No need to be overwhelmed; partner with an expert in energy reduction strategies and incentives to slash those utility bills and lower that EUI. New equipment, technology, building materials, and a good hard look at existing energy and control strategies offer many opportunities to reduce energy consumption. Utility companies often incentivize energy consumption reduction, but now the US Government has also made a significant investment in doing so with the Inflation Reduction Act (IRA). Even tax-exempt building owners can benefit from the IRA.

The IRA provides several ways to capitalize on the available incentives for new or existing buildings. New buildings can get up to \$5 per square foot for reducing energy consumption against ASHRAE 90.1 standard, with incentives starting at \$2.5 per square foot for a 25% reduction in anticipated energy consumption. Existing buildings follow the same incentive plan, but the baseline is existing energy consumption. This makes poorly performing buildings an attractive option to reduce energy. Clean energy investments like solar, wind, geothermal, and energy storage are incentivized with a tax credit based on the system installed cost of 30-50%, pending the fine print. Construction cost rebates are available at the same rates for non-profit organizations. This helps reduce payback in existing buildings and can lower the first cost of a new build based on the extent of the system.

Typical energy consumption breakdown varies per building, but there are certainly common themes across multiple building types. The building mechanical systems are by far the biggest energy consumers in a building, especially chillers, fans, and outdoor air heating and cooling. Steam systems and lighting are also significant energy users. Focusing on these systems will typically provide the most significant impact on energy savings.

Replacing older, outdated equipment with newer, more efficient equipment or technologies is a great way to reduce a deferred maintenance backlog while also reducing energy consumption. Newer chillers, condensing boilers, and replacing constant speed motors with variable-speed drives are easy and proven technologies that save operating dollars. Replacing old fluorescent lights on switches with LED fixtures and associated lighting controls is another method of improvement that can be budgeted in multiple phases throughout a building and will generate immediate savings. Installing a geothermal system to replace cooling towers - or even better - providing both heating and cooling generates substantial savings in energy and water usage while providing an opportunity for large incentives to help pay for the investment.

If large equipment purchases or upgrades are difficult to fund, studies and retro-commissioning may be an alternative. A simple study of airflow set points and equipment temperature control sequences can offer numerous possibilities to update and generate immediate savings for a lower first cost. Putting mechanical equipment on a setback schedule to turn off when the building is not occupied is a simple solution to reduce energy consumption. If turning equipment off is not an option, taking a hard look at temperature and lighting setbacks in individual spaces can generate equivalent results.

Retro-commissioning existing systems is another great way to ensure the systems are operating as efficiently as initially intended. Systems drift over time; users override set points to reduce calls or issues, setback schedules get reduced for one-time events, and so on and on. It is always money well spent to have your existing systems and controls reviewed on a regular basis to ensure you are getting the most out of your investment.

Obviously, there is much to consider regarding energy consumption, available incentives, and capital investment regarding existing buildings, but do not fret. BSA LifeStructures is an expert partner available to assess your existing buildings and generate options for consideration to reduce your operating costs without breaking the bank. BSA is uniquely positioned to offer creative and customized solutions across healing, learning, and discovery.

If you have questions or want to learn more about improving your facility's energy efficiency and taking advantage of new incentives, please contact BSA by visiting bsalifestructures.com or contact Kevin McNutt, director of engineering, at kmcnutt@bsalifestructures.com