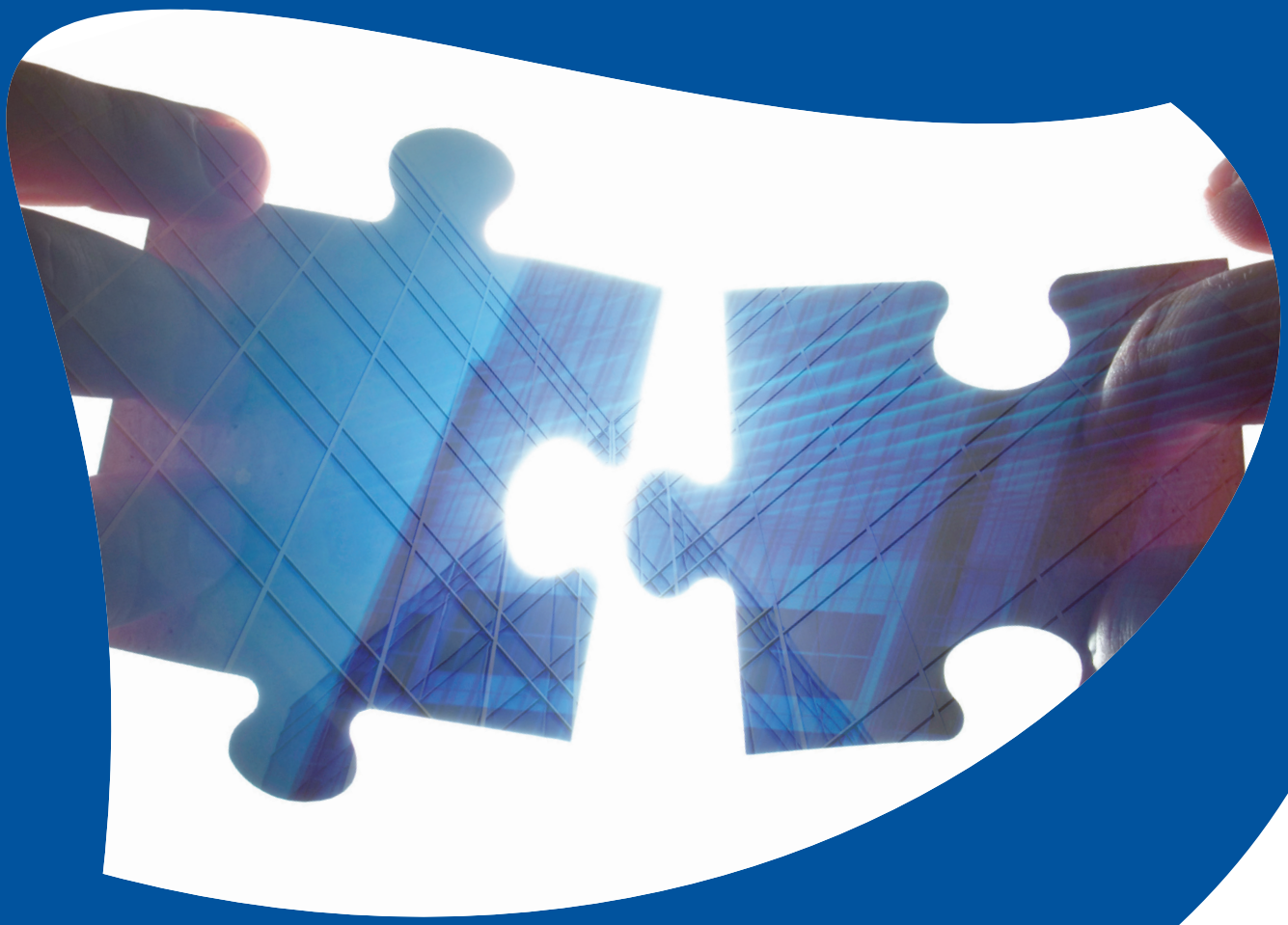
ENERGY EFFICIENCY SPECTRUM

Partnering with you to deliver energy efficient solutions



Johnson Controls

Where are you on the energy spectrum?

When it comes to energy efficiency and sustainability, one size does not fit all. Where you start depends on your goals, your progress and where your building is in its lifecycle. You can tackle smaller, more immediate opportunities and work your way up to larger energy management strategies, or you can take a more comprehensive approach using larger-scale initiatives. Our objective is to help you define the best approach to achieve your energy efficiency goals.

Energy and Building Information Systems

Looking for a way to get a handle on your building's energy and operational performance? You can't manage what you don't measure. Energy and building information systems are the foundation of successful energy efficiency programs. By aggregating and organizing information from building systems, utility bills and other sources of data, these systems provide dashboards with actionable insights into ways you can save energy and improve your building's performance.

Controls Tune-Up

Looking for something you can do with your existing systems? Your building is likely hiding secret energy wasters that cost you money. Using the equipment and controls you already have, you can partner with us to find ways to improve the energy efficiency of your building. Trained technicians will help identify opportunities for energy savings through operational and controls strategy changes. It's a quick way to jump start your energy program.

Retro-Commissioning

Are you looking for ways to improve both energy efficiency and building operations? Retro-commissioning (RCx) is a systematic process to bring systems into line with the building's existing use. RCx typically focuses on equipment that uses the most energy, such as mechanical equipment, lighting and controls. The process identifies improvements to operational and maintenance practices, controls strategies, and opportunities for system upgrades or replacements.

Enhancements & Small Retrofits

Looking for improvements with minimal capital investment? You can improve your building's energy efficiency through enhancing your existing systems and replacing smaller pieces of equipment – for example, adding variable speed drives or replacing motors with higher-efficiency models.

Central Plant Optimization

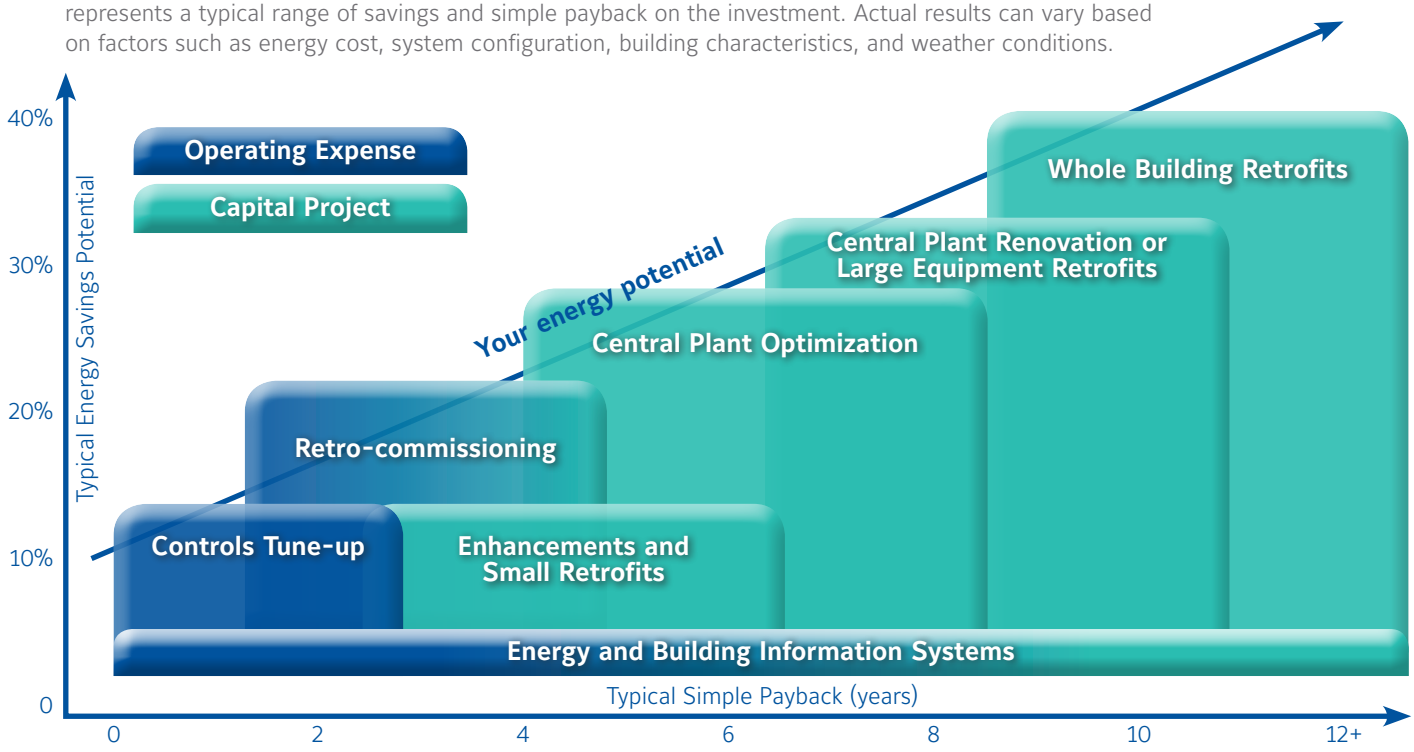
Do you have a chilled water plant? Depending on operating conditions, approximately 35 percent of the power required to run your facility's HVAC system is consumed there, making it the biggest opportunity for energy savings. We can help you improve your chilled water plant's performance and savings through an optimization solution developed by controls and equipment experts.

Central Plant Renovations and Other Large Equipment Retrofits

Is your central plant more than 10 years old? It may be more cost effective to upgrade older equipment or reconfigure the plant. Chillers manufactured 15-20 years ago had a peak efficiency of between 0.7 and 0.8 kw/ton when new, and, even with a good maintenance program, this performance may have decreased over time due to wear and tear on the machine. New chillers have part-load efficiencies in the range of 0.35 kw/ton. Combined with variable speed drives and chiller plant optimization strategies, renovating your plant and replacing older equipment can have a significant energy impact, as well as provide savings in operational and maintenance costs.

The Spectrum of Energy Efficiency Solutions

The spectrum of energy efficiency solutions shows different actions you can take to save energy. Each bar represents a typical range of savings and simple payback on the investment. Actual results can vary based on factors such as energy cost, system configuration, building characteristics, and weather conditions.



Whole Building Retrofits

Does your energy efficiency strategy require a 360 degree look at your building? Research shows the best way to achieve meaningful energy savings is to look at the building as a whole. By taking advantage of the synergies between different building improvements, whole building retrofits can often achieve 30–50 percent savings. For example, Johnson Controls helped the Empire State Building achieve 38 percent savings using this comprehensive approach.

Renewable Energy

Is your building as efficient as possible? Once you have made your building as efficient as possible, consider how you might use renewable energy technologies, such as solar thermal water heating, solar photovoltaic electrical generation, or wind power as part of your strategy. Harnessing natural resources to power your building can also serve as a visible demonstration of your commitment to preserving the environment.

Demand Response

Does your utility company offer incentives to curtail your energy use during peaks in usage? Demand response programs, combined with a powerful building management system, help you maximize incentives from power providers by systematically curtailing your energy use during times when the power grid is heavily loaded. If your energy provider offers these incentives, they can be a source of funds to fuel your energy initiatives.

Financing and Incentives

Looking for a way to pay for it all? Financing and incentives can provide you access to funding to implement your strategies. You can choose from a variety of financial mechanisms ranging from traditional loans and leases, to PACE (property assessed clean energy) loans and performance contracts. In addition, incentives and grants offered by utilities and governments can help reduce the payback by offsetting some of the costs.

Efficiency Enablers

Enablers can facilitate and complement your energy efficiency strategy.

- Demand Response
- Financing and Incentives
- Proactive Maintenance
- Renewable Energy

Proactive Maintenance

Looking to stay at peak efficiency over the long haul? Properly maintained systems perform better for longer. Optimizing your approach using a combination of reactive, planned, and predictive maintenance, can help you get the most out of your total operations budget.

Facts about Johnson Controls:

- Ranked in the U.S. Fortune 100 list of America's largest companies
- Ranked in the Global Fortune 500 list of world's largest companies
- Listed in *Corporate Responsibility* magazine's "100 Best Corporate Citizens"
- Recognized as one of Ethisphere Institute's "World's Most Ethical Companies"
- Listed in IAOP Global Outsourcing 100 for fifth consecutive year
- Corporate Headquarters campus awarded LEED® Platinum certification by the U.S. Green Building Council, the highest available rating
- Immediate service and technical support from more than 500 branch offices in over 150 countries
- 1.8 billion square feet of facilities under management worldwide

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