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Specialized retrofit financing a boon for Johnson Controls

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[Correction: This article previously misstated that Empire State Building retrofits were financed by property assessed clean energy financing (PACE). They were not.]

When it comes to considering energy efficiency retrofits, the key factors for building owners -- and biggest past deterrents -- are the cost of the project and financing.

Innovative financing options, however, have helped turn the tide and ramp up growth in the sector.

Energy performance contracting and property assessed clean energy (PACE) are the two financing models that have done the most to spur efficiency retrofits, according to Clay Nesler, vice president of global energy and sustainability at Johnson Controls Inc. (JCI) in Milwaukee, Wisc.

PACE works by adding the cost of the retrofits to the building's property taxes, a model pioneered in Berkeley, Calif., where it was used to finance residential solar energy.

Instead of owners paying for solar or retrofits upfront, lenders fork up the money for the project and owners add the payments to their property taxes over 20 years, so if they were to sell the building, the new owners would continue to pay for it.

Given the rate of default among homeowners, the Federal Housing Finance Agency felt this was a risky investment, since property tax assessments such as PACE would take priority over the mortgage.

Many cities phased it out for the residential market, but it has now caught on in the commercial sector.

"It was such a great idea, a no-brainer, that it moved from private application to commercial applications. For businesses that are already fully leveraged, banks don't want to make loans to them for retrofits. Also businesses tend to flip buildings. So this model works great," Nesler said.

"PACE is a very clever way of addressing many barriers -- when owners don't want to pay for all the retrofits, or when tenants want the benefits of energy efficiency without paying

more for it."

JCI is collaborating with the City of Milwaukee on the Milwaukee Energy Efficiency program, also known as Me2. The federally funded program helps homeowners and business owners make energy efficiency improvements on residential and commercial buildings without shelling out money upfront, instead repaying the loans from energy savings over time. It's supposed to be a win-win for everyone -- the city generates local business and jobs through the projects, putting people back to work while owners save on energy costs.

Nesler pointed to a co-op building called Newport that was part of the Me2 program. It had an aging infrastructure but the owner did not want to take on retrofit loans that would be passed on to tenants. With PACE, Newport will save about $48,000 each year in energy bills, or about $4,000 per month, and -- because of lower interest rates -- will pay a little less than that each month for the loan. That means it will effectively end up paying nothing for the retrofit and will reap the full benefits of the energy savings after the loan is paid off.

"That's why we're so bullish about some of these new financing models for retrofits," Nesler said.

Another model,energy performance contracting or EPC, helps unlock capital by offsetting the cost of the retrofit through the savings it produces. The way it works serves as an incentive for building owners to authorize projects, since it reduces financial risk and responsibility.

The performance contractor or energy services company undertakes the risk, by arranging third-party financing, in addition to providing turnkey service improvements and guaranteeing the savings over the period of the contract.

This model is not exactly new. JCI helped establish the model and has delivered contracts to a wide variety of schools, hospitals, universities and governments since 1983 when it was first created.

"The story goes back 20 to 25 years with performance contracting. It started with public schools in Ohio and spread to schools and universities around the country," Nesler said. "It's one of the most enduring models. The revenue from the public sector is about $5 billion. One of the most interesting things about performance contracting is that we're using funding from the banking sector."

JCI has implemented 2,500 of these projects so far, with carbon emissions savings of about 11 million tonnes and active savings guarantees of $4.6 billion in North America.

Nesler, who has been with JCI for nearly 30 years, recalled that back then, a good portion of the projects consisted of lighting retrofits. Now, in addition to lighting, heating, ventilation and air-conditioning (HVAC) systems are a big focus.

HVAC systems have improved a lot since then, with more advanced control systems that are better at scheduling and operating. The systems are more efficient in cooling and

heating, and quieter with the most current technologies that use magnetic bearings to reduce noise and improve performance.

JCI has also improved energy efficiency for buildings, starting with its own buildings. At its corporate headquarters in Glendale, every cubicle has its own mini air-conditioning system, which provides individualized temperature control and switches off the system when people leave their workspace.

"We're using under-the-floor heating and cooling, so it takes air from the floor and mixes it with air in the room. It's very handy. If you go to the gym at lunch and come back wanting cooler air blowing on you, this enables it," Nesler said.

"(It's) like in a car (with separate temperature controls for each passenger), except this system allows you to have cool air for your upper body and warm air at your feet -- if you are wearing a skirt, for example."

JCI is seeing increasing interest from the corporate sector, where companies can set goals, establish baselines, benchmark progress and identify opportunities and capital funding.

"I think that's the next step, where we go from harvesting the low hanging fruit to top-down, where they put in place systems to track energy use," Nesler said. "There are a lot of great examples of companies like Dow and Johnson & Johnson that have been doing this for years and gotten great results."

Worker image via Shutterstock.

Energy Efficiency Finance