

Sustainability

C-PACE funds energy improvement projects

Combating climate change requires efforts on many fronts, one of which involves a significant improvement in building energy efficiency. Included in the Biden administration's American Jobs Plan is a goal to decarbonize 2 million buildings over the next four years. To meet this challenge as well as the commercial real estate industry's increasing commitment to environmental, social and governance initiatives, it will be necessary to replace the fossil fuels currently used to provide space and water heating in buildings with renewable sources of electricity generation.

This can only happen if we plan for, build and support an all-electric building infrastructure – referred to as beneficial electrification (or strategic electrification). The approach requires the replacement of systems that use fossil fuels (e.g., natural gas, propane, heating oil) with systems using electricity only. Beneficial electrification provides a path to buildings and systems that draw energy from renewable energy production sources, thereby eliminating or minimizing fossil fuel use, which in turn significantly lowers overall carbon emissions.

While innovative all-electric design strategies can be applied to both existing building retrofits and new construction projects, these design choices typically appear to be more costly than traditional equipment. Therefore, one of the main challenges to decarbonization and electrification is the need to



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present a building owner or property manager with a credible “business case” for what may appear to be the more costly solution.

Until recently this “business case” would come in the form of a time- and cost-intensive energy audit, which would estimate the life-

time energy cost savings and financial impacts of alternative solutions. Such an audit would either make the case (or not) for investment in high-efficiency equipment. Given the upfront cost for such detailed energy audit and uncertainty about the return-on-investment outcome, most existing building owners, when faced with an end-of-life HVAC equipment decision, opt for the lowest-cost code-compliant option.

■ **Emerging technology.** Bringing electrification to scale and “pushing the needle” will require tools that confidently expedite the decision-making process. Fortunately, inexpensive technology solutions have emerged to help project developers and HVAC contractors analyze, in real time, the economic impacts associated with high-efficiency HVAC equipment choices. These tools do not require a timely and costly energy audit and yet provide estimated energy savings, carbon



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dioxide emissions reduction and key financial metrics for multiple equipment upgrade alternatives.

One such tool that the Colorado Commercial Property Assessed Clean Energy program has successfully deployed is the Energy Performance Calculator. EPIC

enables property managers and building owners the ability to compare the benefits of an investment in high-efficiency equipment such as an all-electric variable refrigerant flow system vs. less efficient traditional systems, e.g., natural gas-fired space heating equipment.

In addition, building owners and property managers can quickly compare the impact to net operating income and projected annual cash flows of self-funding vs. financing options. In short, technology solutions have emerged to help overcome the conundrum building owners often face – investing in a time- and cost-intensive upfront energy audit that may result in unattractive project economics and therefore no path forward to recover the upfront audit cost.

■ **Innovative financing.** Another major challenge facing building electrification and decarbonization efforts is the capital cost of such

projects. This is where tools like Colorado's C-PACE program have proven an attractive solution for owners and managers of a wide range of building types.

C-PACE enables owners of eligible commercial and industrial buildings to finance up to 100% of energy efficiency, renewable energy and water conservation eligible improvements on existing buildings. Financing is provided by private capital providers at competitive rates, with repayment terms up to 25 years. The program also can finance 15%-20% of the costs associated with new construction projects that are designed to meet or exceed the 2015 International Energy Conservation Code.

While owners or developers often are reluctant to pay the cost premium associated with high-efficiency or all-electric equipment options, the choice becomes clearer when they can take advantage of C-PACE financing that provides low-cost capital, long-term (up to 25-year), nonrecourse financing that covers 100% of the costs of an existing building upgrade.

This rapidly growing, innovative program, which is leading the state's commercial building electrification and decarbonization initiatives, has provided over \$145 million in financing for retrofit and new construction projects in Colorado. As more building owners, managers and developers become educated on the benefits of C-PACE, they come to understand that this

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form of financing can provide a powerful solution to finance economically attractive building electrification and decarbonization projects in existing and new buildings.

Given the urgency of the climate crisis, it is imperative that we accelerate the process of electrifying and decarbonizing our commercial buildings. When technology solutions that empower building owners and managers to time and cost-effective-

ly evaluate their investment options are combined with financing that makes these investments economically attractive, building electrification and decarbonization becomes a compelling choice.

The result: The challenging climate

goals set forth by the state of Colorado and the Biden administration are, thanks to C-PACE, fast becoming a reality. ▲

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but the pool is still able to hold water. A wrinkle in the roofing material is an aesthetic concern and does not necessarily indicate that there is any water penetration or that a repair is necessary.

■ **Splits.** Splits are advanced openings and generally occur on an aged built-up roof where the oils have dissipated and dried to form a large crack. Splits also can occur in seams as the result of an application error. Splits should be repaired immedi-

ately as they are subject to damaging water penetration.

For property owners and facility managers, premature roof failure equals unexpected and often significant expenses. Understanding basic roofing terminology will go a long

way toward developing a comprehensive plan and proper budgeting to address any roofing issues before they become problematic and more costly. ▲

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Ludlum

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on the network. While all property managers can benefit from having their sites' emergency phones on the network, those most immediately interested would likely include:

- Properties located in a region prone to natural disasters;
- Properties that haven't been able to go cellular with emergency

phones due to poor service in the area;

- Remotely located properties where emergency personnel response is less than ideal;
- Businesses that provide an essential service; and
- Government buildings.

■ **How can property managers upgrade their emergency phones to attain access to the network?** FirstNet-embedded solutions go through

extensive review, so property managers will want to seek out FirstNet Ready emergency phones, meaning that they have passed the certification process that deems the equipment capable of FirstNet's reliability, security and performance standards.

The certification process is complex and rigorous. Every aspect of the equipment is examined and tested. The procedure is lengthy and detailed so that only the highly

functional devices that are proven to work well with FirstNet are given certification. As of now, our company is the only company that has embedded FirstNet into its fully turnkey emergency phone solution – that includes monitoring at our ETL-listed monitoring center staffed by Advanced Emergency Medical Dispatch-certified operators – for use in commercial and multifamily buildings across the United States.▲

Szoradi

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infection. The additional byproduct of cleaner indoor air is HVAC energy savings. Clean indoor air reduces the need to have as much outside replacement air in the ventilation system. Current ventilation stan-

dards lead to higher energy costs with indoor air that is replaced with outside air one to two times per hour.

According to the U.S. Department of Energy, buildings account for 40% of U.S. greenhouse gas emissions, and HVAC units are often the larg-

est energy consumers, accounting for 35% of total building energy. Bipolar ionization can reduce ventilation rates by up to 75%. Overall, it is estimated that purifying indoor air could lead to a 12% reduction in greenhouse gas emissions without any changes in human behavior.

COVID-19 has accentuated the need for all of us to take notice of the benefits of healthy buildings. Studies show that sustainable buildings offer the best of both worlds – environmental preservation and significant return on investment for everyone involved.▲

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