



DREAM TEAM: (left to right) William Zoha, president of Prescient Energy Corporation; Alex Kalajian, COO of Solstice Residential Group; Frank Simuneic, board treasurer of the Beresford; John Phufas, board president of the Beresford; and Mario Dusevic, resident manager of the Beresford.



The Beresford



The El Dorado

The **Grandes Dames** *of* **Forward Thinking**

The Beresford and the El Dorado Install Cutting-Edge Technology to Shave Electricity Bills

BY FRANK LOVECE • PHOTOS BY LORENZO CINIGLIO

They don't look the part. The Beresford and the El Dorado, two prewar jewels on Central Park West designed by the famed architect Emery Roth, look more like grandes dames than forward-thinking energy pioneers. But don't be fooled by these buildings' regal appearances. After installing energy-saving LED lights, cogen power plants and other upgrades, the Beresford and the El Dorado are now taking the ultimate step into energy-efficiency: they're installing battery energy-storage systems, known as BESS, cutting-edge technology that will help them shave a big chunk off their electricity bills.

For these two storied old co-ops, new is good, and the future is now.

No More Tired Excuses

"The driver for all this is that we wanted to create a way for co-ops and condos to be able to reduce their predominantly set energy costs," says Alex Kalajian, chief operating officer and co-founder of the Solstice Residential Group, which manages both buildings. "The only way you can really attack that is by not accepting the traditional answers about energy: 'It's a prewar building, it's a steam-heat building, there's not much you can do.' We just kept hearing these mundane responses."

And the co-op boards at the 183-unit Beresford and the 203-unit El Dorado, to their credit, rejected those tired old excuses. Instead, they have embraced technology that has already sliced costs widely regarded as "fixed." John M. Phufas, president of the Beresford's board, estimates that the steps the two co-ops are taking will ultimately reduce energy costs by a

significant amount – "from 10 percent [of the budget] to under 5 percent."

"Very sound business fundamentals support these initiatives," says Cathy Klema, the El Dorado's board president. "We want to do the right thing in terms of environmental sustainability while driving energy costs down. The goal is not just to do good for the sake of doing good but to derive discernible financial benefit from doing so. As you drive down energy costs over a period of time, you're going to recover the cost of the investment you made."

Those sound business fundamentals have saved millions of dollars over the past decade. The latest upgrades, including LED lighting and cogen systems, have added to the savings: \$175,000 a year at the Beresford and \$375,000 at the El Dorado. And those numbers are about to get much, much bigger.

How It Began

Nearly 10 years ago, the Beresford switched from using No. 6 fuel oil to natural gas. That alone, says Phufas, a corporate and tax attorney, has saved millions of dollars in heating costs over the years. The El Dorado, whose landmarked exterior had undergone a particularly expensive window-replacement project late last decade, converted from oil to gas around 2014.

A year or two later, both co-ops installed gas-fired cogen units to generate some of the buildings' electricity and produce heat for hot water. The Beresford's unit has a payback time of three years. "The base cost was around \$550,000, but the net cost was around \$320,000," Phufas says. The contracts required Aegis Energy, the manufacturer, to also act as the contractor and take on the risk

of obtaining the incentive from the New York State Energy Research and Development Authority.

"You don't want to be in the position where it's, 'Sorry, you paid half a million, but you didn't do this one little technical thing and you're not entitled to the incentive,'" Phufas says.

After both co-ops had installed cogen, the boards took an innovative next step: trigeneration. "Trigen means taking an absorption chiller" – a refrigeration unit that converts heat from the cogen unit into energy that drives a cooling system – "and installing a second cogen unit," says Kalajian, the property manager. The result is free air-conditioning after payback on the initial investment.

Upfront costs for the second cogen unit and the absorption chiller were high, however – \$1 million, before incentives, says William Zoha, president of Prescient Energy, a consultant hired by both co-ops. The Beresford



ENERGY MISER: John Phufas, board president of the Beresford, with the building's cogen system.



EL DORADO DUO: Bill Minihan, (left) resident manager, and Alex Kalajian, COO of Solstice Residential Group, in the basement of the El Dorado.

went into contract for trigen in February and expects to have it operating by late 2019. The El Dorado is in the process of installing it, with testing to follow before full implementation.

BESS Choices

The innovative next step was adding a battery energy-storage system, which can store energy either from the Con Edison electrical grid, solar panels on the roof, or a cogen plant in the basement – then release it for use during peak electrical-demand periods, when electricity costs the most. It's similar to how some people set their dishwashers to run in the early-morning hours, when energy demand is low and electricity costs less than during peak hours.

BESS technology itself is actually pretty simple: A battery energy-storage system is just a metal cabinet with a rack of rechargeable batteries, similar to those in a cellphone, only bigger. There are many types, but generally only two that the Fire Department of New York (FDNY) allows: lead-acid, as in most cars, and lithium-ion, as in most laptops. Per FDNY regulations, buildings can install lithium-ion batteries only outdoors, while lead-acid batteries can be kept indoors. A battery array for a building of these sizes costs about \$300,000, with an estimated payback period of about two years, says the Beresford's Phufas.

Here's how the savings work. Con Edison built the electrical grid, and so it charges for delivery even if a building gets its electricity through

an energy service company, known as an ESCO. Each month's charges are based on the building's highest 30-minute period of demand. In other words, what Con Ed charges per kilowatt hour is based on the price of the 30-minute period when a building used the most electricity. Since that's usually during the highest-demand – and most expensive – period, it's possible to save money if the building's peak 30-minute period is during a lower-demand, less-expensive time of day.

"If you can shave that peak, you can reduce that bill," says Lee Vardakas, head of Aegis Energy Services, the manufacturer, which installed the cogen systems at the El Dorado and the Beresford and will connect them to their battery arrays.

Though the co-ops have yet to apply for permits from the FDNY or the Department of Buildings, the technical end is proceeding apace. "We've piqued the interest of the conglomerate Siemens, and they've agreed to develop a microgrid for us at the Beresford, to be duplicated at the El Dorado," says Kalajian, the property manager. That will create a programmer – a software algorithm – to deploy the system at the most efficient rate.

The Beresford board is meeting with engineers from Siemens as well as from the cogen and the BESS equipment manufacturers to finalize the interconnections between these components and the controller – the electronic brain that coordinates their functions. "Only then can we calculate the savings, get final

pricing from Siemens for the controller, and look to see what incentives are available," Phufas says.

The El Dorado is paying for these projects from its reserve fund, Klema, the board president, says. Each of the two cogen units benefited from a roughly \$150,000 NYSERDA incentive. At the Beresford, says Phufas, "it's all been financed out of cash flow," meaning maintenance, flip taxes, and alteration fees. "We didn't do any dedicated loans," he adds. "We refinanced the underlying mortgage three years ago, and we've always had a more than adequate line of credit."

Building a Consensus

Was it hard to gain a board consensus for such pricey projects? The El Dorado board has a seven-member facilities committee, made up of both board members and other shareholders. "Cogen was vigorously debated at that committee and unanimously endorsed," Klema says. That recommendation went to the full board, which reached consensus to approve. "I provide a community letter to shareholders every quarter, and cogen has been heavily covered in that."

It was a little tougher at the Beresford. Speaking generally about co-op and condo boards, Phufas says: "Boards for the most part are composed of individuals who often lack real-world business experience, so they look to management companies for guidance. Management companies are good at collecting maintenance and paying bills, but most have little expertise in transforming to a 21st-century industry. I think there's a real need to educate board members throughout the city."

Phufas adds that educating his fellow directors involved a process: "Doing your homework, producing accurate spreadsheets, giving them expert testimony. Before you convince them, you have to educate them."

Once educated, the boards of these storied co-ops quit making excuses and became energy pioneers. Other boards can now follow the trail they blazed. In terms of both environmental conservation and money in the bank, that trail leads to a place that is very bright green. ■



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