



**THE SAGA OF TWO
BOARDS, THEIR
RISING ENERGY
COSTS, AND
THEIR GROWING
COMMITMENT TO
SOLAR POWER.**

It all started because Suzanne Musho spoke up at a board meeting of her condominium. And the lives of the residents were changed forever.

230

230 EAST 73RD STREET

KITTY

By CAROL J. OTT

MINS

PHOTOS BY CAROL J. OTT



THE SUN ALSO RISES...IN THE HALLS

Musho (left) climbs Kips Bay bulkhead where solar panels will be placed.

Captured sunlight will light hallways (right). "It's our responsibility to research other ways of producing energy despite financial factors."

the property had hallways and a lobby that needed an overhaul. The board, led by Hayden Schofield, now in his 12th year as board president, undertook a major hallway and lobby renovation in 1998. That included installing a doorman station, upgrading the elevator cab from operator-run to automatic, painting the hallways, and refurbishing the floors.

What it didn't include, however, was an upgrade of the hallway lighting. "We spent a lot of money during the first renovations but didn't have enough to improve the lighting in the hallways," Schofield recalls. "It was clearly very dim and not very attractive."

By the mid-2000s, the original renovation needed a "wear-and-tear" upgrade, says Schofield. "One of our goals was to significantly improve the hallway light. Questions started to come up. If we were going to increase the amount of light, that meant an increased amount of power."

Schofield researched how the property could add more light without more power cost and soon was at the doorstep of the New York State Energy and Research Development Authority (NYSERDA). Once there, 230 East 73rd signed up for a full energy audit. "The lighting project then led into a much more comprehensive view of how we operate our building from an energy perspective," he explains.

Hiring consultant Tom Sahagian, the board began to uncover energy-saving opportunities. The first analysis Sahagian developed was under NYSERDA's ResTech program (now called Multifamily Performance), and included the normal run of energy-saving ideas: lighting, adjusting the heat timer, weather-stripping insulation, and more. On the list was a solar hot water heater.

When solar power was mentioned to him, Schofield admits to initial skepticism. "They produced this comprehensive report which had solar in it, and my view was, 'Look, we'll undertake the suggestion so long as the math works.'"

1 + 2 = Solar

Math and cash, the two anchors needed if you are to take control of your building's finances – and make a stab at utilizing solar energy in the process. At Kips Bay, for

BROUGHT IT UP ONE DAY about a year and a half ago," says Musho, then just six months on the board. It wasn't a radical idea, but some might say it wasn't a very practical one, either: for the good of the planet – and maybe to save a few

dollars in the long run – why not harness the sun's power and go solar?

Meanwhile, further uptown, another building was also now considering solar – partly by accident, partly by plan – as a lobby and hallway renovation led the board down a path to energy incentives and solar hot water.

What's up? Quite literally, the sun, which is becoming a factor in economic planning as boards explore new methods to trim energy costs. While admitting that it can be costly and limited in the kind of energy it provides, solar can make economic sense, says Tom Sahagian, senior project manager at Power Concepts, an energy-consulting firm, "when you combine it with other things that have faster paybacks."

It certainly made sense for two apartment buildings on Manhattan's East Side, Kips Bay Towers and 230 East 73rd Street. Although one came upon it by accident and the other arrived at it partly by design, each building is tapping into the sun's power as a part of other efforts to control increasing energy bills, and they are both relying on government incentives and subsidies to justify the expense.

Here Comes...the Lobby?

Some people devise long-range plans. Others fall into situations through luck. For 230 East 73rd Street, going solar began with something that had nothing to do with the sun, the stars, or energy. It began with an attempt to revisit the lighting in the hallways. A prewar, red-brick building of 89 units that had been converted to a co-op in 1987,



instance, the math and the cash added up when three events took place: the board switched to a forward-thinking management company, Cooper Square Realty, in 2005; it elected a new board president, Mitchell Berg, who knew about the economics of real estate as a management executive at Maxwell Kates; and it heard Musho's suggestion to explore solar.

Some might say Musho had more of a vested interest than most in pushing for the energy-saving (and possible cost-saving) controls solar would bring: she has called Kips Bay her home for her entire life (she was born and raised there, and now lives at the 1,110-unit condo with her husband and two children). The complex itself is comprised of two 20-story buildings and sits on 7.5 acres between Gramercy Park and Murray Hill. Designed in 1961 by I.M. Pei and converted to a condominium in 1981, the property obtains its fuel from Con Ed steam, and the costs, like steam's vapors, were shooting upwards.

Before solar had even been suggested, the board was looking to take control of costs by reining in its boilers. To that end, in October 2007, Kips Bay completed a boiler conversion from steam to dual-fuel. Clocking in at nearly \$1.9 million, the project had a payback of only three years, with savings of between \$500,000 and \$600,000 annually on fuel. It was financed with a ten-year, low-interest loan, subsidized by NYSERDA.

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IS IT WARM YET?

Solar team examines hot water location (left), then meets with Schofield (top, in yellow tie) at 230 East 73rd (right): energy investments that aren't just "feel good."



"We had the operating budget set up now and we were doing some smart things in terms of savings," says Berg. "But we only had about \$700,000 in reserves. We had some leaks, we had to replace both roofs, we had the lobbies to do. So we were really looking at \$3.5 to \$4 million worth of capital expenditures. We decided we had to get creative."

The result was a restructuring of the condo's garage lease. From an annual return of \$450,000, the board negotiated a 40-year extension to the remaining 15 years. In return, the garage tenant would make two payments of \$2.5 million each, an additional \$100,000 per year for the remaining term of the original lease, and a new payment formula tied to gross revenue (kicking in at the start of the new term). This money allowed the condo board the freedom to consider solar.

Once again, it was math and cash, and both were perfectly aligned for what happened next: Musho's suggestion to explore solar power. As another potential method of gaining control over its financial future, the board embraced it. "The original idea was that we were going to supplement the building's electricity with solar panels," she explains. "How much it was actually going to generate was something we had to do research on."

When the complex's engineer called in a solar expert, David Buckner, president of Solar Energy Systems, things changed. A panel array spreading out over the large roofs

was impractical, he reported, because the parapet threw off too much shade, while the fans and other mechanical equipment took up a lot of space – as did the roof-hook attachments for the window-washing equipment. What the buildings did have, though, were two enormous bulkheads, each with its own sun-catching potential.

Buckner did the solar analysis, and presented his report to the board in early 2007. His findings revealed that solar panels could be placed on the roofs of the bulkheads. He sized the system for each building at 55kW. Taking into account the various state incentives and the fact that NYSERDA would be picking up the tab for half the

Energy-Savings Analysis from 230 East 73rd Street

MEASURE	INSTALLED COST	ANNUAL SAVINGS*		
		ENERGY SAVINGS (kWh)	COST SAVINGS	PAYBACK (YRS)
Weatherstripping	\$518	0	\$ 566	.9
Install TRVs + Night Setback	\$53,406	0	\$ 6,550	8.2
COMMON AREA LIGHTING	\$11,140	18,614	\$ 3,325	3.4
Ventilation Upgrade	\$37,724	1,663	\$ 1,018	37.1
Front Loading Washing Mach.	\$5,296	0	\$ 456	11.6
Solar DHW Heater	\$123,473	0	\$ 4,346	28.4
DHW Recirculation Control	\$1,495	327	\$ 99	15.2
Insulate Piping, Equip., Spec.	\$5,723	0	\$4,274	1.3
Upgrade Hallway Lighting	\$11,500	6,965	\$1,163	9.9

Measures to be undertaken by building. Savings accrue to individual shareholders.

Apartment Lights	\$1,600	11,051	\$1,991	.8
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* All installation costs include design costs.

\$500,000 project, the payback period was estimated to be about ten years.

More Math = Cash

At 230 East 73rd Street, keeping control of the finances was equally important, and the fiscally prudent Schofield wouldn't even consider energy consultant Sahagian's solar suggestion until he had done all the numbers. The board was focused on reducing or eliminating its debt. Five years ago, it refinanced the building's underlying mortgage by taking on two different loans to pay it off. The first is a fixed-rate, interest-only, ten-year loan, while the second is a credit line with a floating interest rate. From 2003 to 2008, the building substantially paid down the credit line by budgeting a certain sum each year to do so, leaving it with only the \$1.2 million ten-year loan. To finance its new

projects, shareholders are being assessed, and the building will also borrow \$445,000 from the NYSERDA loan fund.

To Schofield, eliminating debt was just one more method of gaining control of the co-op's financial future. "We've been proactive in paying down debt. That's the one thing we can control in our maintenance. If we can eliminate our debt two things happen. One is we permanently reduce our maintenance by our now-eliminated debt service. And the other is, and this is less quantifiable, buyers like buildings that don't have debt. Buyers have the choice of controlling how much debt they take on, but if they know that the building has no debt, then it is fundamentally sound."

With that idea in mind, the board carefully laid out a blueprint for controlling its future. Many buildings do a little bit of this and add a little bit of that, and call it a plan. Schofield's co-op has built its thinking about all projects

A PATH TO AVOIDING CONTROVERSY

ISSUES AND ANSWERS: EXCERPTS FROM HANDOUT PROVIDED BY KIPS BAY BOARD TO OWNERS.

1. What is the total cost of the project?

The total cost of the project is approximately \$500,000. This project qualifies for the NYSERDA rebate incentive program. The rebate is approximately 50% of the project cost. The final cost of the project is approximately \$250,000. The company performing the project, SES, will receive payment directly from NYSERDA. This does not include any additional battery project which is discussed later in this pamphlet.

2. Is there a cost the building should be aware of that we should include for maintenance of the system? If there is, what would be your annual estimate?

Because the system is solid state, once installed, there is very little maintenance. We would provide a full system warranty of five years along with the manufacturer's warranties. So there would be zero maintenance cost during that time and we'd offer training to the building maintenance staff. It's pretty minimal stuff.

3. Do the numbers assume a percentage of sunny days? Do you use typical numbers or use a precedent to generate your estimates?

[see] http://rredc.nrel.gov/solar/codes_algs/PVWATTS/ How the solar radiation might vary for your location may be evaluated by examining the tables in the Solar Radiation Data Manual for Flat-Plate and Concentrating Collectors http://rredc.nrel.gov/solar/old_data/nsrdb/redbook/ The sun is very predictable over the long haul. We've been extremely pleased with our actual production numbers compared to our original projections.

4. Do the install numbers include the link to the building's electrical system?

The costs estimated are for a turnkey project.

5. Although the advantage to the environment is astounding, we also need the numbers to make sense. The ten-year payback is not as impressive as was hoped. Can you give any more encouraging information about the numbers/costs/paybacks?

Ten years is pretty solid for solar, but remember that the 10 years assumes no cost increase in utility-supplied power. If rates continue to rise as I'm sure they will, that payback will drop a few years... The biggest benefit of solar is its longevity. The modules have warranties of 25 years and have engineering lives



Kips Bay bulkhead: a board on top of the situation.

of 40+. So even if it takes 7 years to pay itself back, the rest is free plus some minimal maintenance costs. Even factoring in an inverter replacement between years 15 to 20, the cost of the PV electricity will come in much lower than traditional Con Ed sources over the same 25 to 40 years.

6. Do these panels move, or is there something within the panels that move to allow for the changing angle of the sun? Are there any sound considerations we should be aware of?

The system's modules are fixed and they generate in silence. The inverters will make a slight hum when operating during the day, but nothing loud.

7. Is glare a problem from the panels?

The modules are anti-reflective. The module wants to absorb as much sunlight as possible as opposed to the surface reflecting it away.

8. Is it possible to use the solar energy collected for running building systems in the event there is a blackout?

Yes. The solar system would need to be connected to a battery in order to use the solar energy during a blackout. This is something we have the solar company investigating for us. It would be an additional cost, but may prove to be a great solution for keeping some systems running in the building in the event of a blackout.

9. What will the roof bulkheads look like with the solar panels?

(Reference here to a picture included in the package). We propose, as a pilot project, to install the solar array on one bulkhead in each tower. The east side of the North Tower and the West Side of the South Tower are the proposed locations.

from a cash management perspective. Indeed: the work required for planning the debt reduction and oversight of the three major projects (Local Law 11, hallway renovation, and energy investments) has been huge.

“From a cooperators’ perspective, it’s worth it,” Schofield reflects. “The board has undertaken an enormous amount of effort. If you had to quantify our work at market value, though, it probably wasn’t worth it. But it has had a positive economic payback.”

He adds: “Current owners, and potential buyers recognize a well-operated building. They will pay a premium for being in one. Maybe because it’s costing less to occupy the building, or they may recognize that it’s well-run, or they may like being in a building that’s energy-conscious. All three of those things come into play in residents’ and buyers’ minds.”

The board, says Schofield, turned a sharp eye on the financials of solar power. “Because energy costs have gone up so much our improvements will defray the increase. We’re not going to reduce our costs from where we were in ’06 and ’07, but we will pay less than we would have paid had we not done these investments.”

Getting a Thumbs Up

The final control may, however, be in the unit-owner’s hands (depending on the bylaws). At Kips Bay, for instance, the project was considered “discretionary,” so 25 percent of owners needed to give their go-ahead. “There was curiosity but minimal controversy,” remembers Keith Werny, the site manager and a senior vice president at Cooper Square Realty. “The board does a very nice job of laying things out. What we try to do is anticipate the questions and then do a Q&A with the owners to minimize the questions down the road. So we stay a step ahead of the game.”

Musho devised a handout answering possible owner queries (see box, p. 12). “There were a lot of questions that I assumed were going to be asked, so I included them in the Q&A sheet I prepared,” she says. She remembers that there was a concern that “we were going to be the first residential building to do solar in Manhattan. A lot of people didn’t want to be the first. Why do we have to forge new ground? Why can’t we be ‘afterwards,’ after all the kinks are worked out?”

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(What Musho’s fellow residents didn’t know was that another co-op, far up in Washington Heights, had already installed solar on their roof. At 15-story Cabrini Terrace, 900 West 190th Street, a 50kW system was successfully inverting energy from the sun, providing power to run the

TAKING THE PLUNGE

Despite the expense and long payback, solar offers the prospect of free energy at the end of the road.

elevators, the laundry room, and the hall lights. For more, see “Good Day Sunshine,” *Habitat*, September 2007.)

Despite the expense and the dizzying array of incentives to explore, taking the solar plunge is probably a good step to explore in controlling spiraling costs. In fact, as energy prices continue to rise, more buildings will probably consider the switch. “These energy investments have a positive economic payback,” says Schofield. “They are money-making. You spend money to make money. That’s the primary impact of all this. It’s not just a ‘feel good’ thing.”

Not that the “feel good” factor should be completely discounted, however. Explains solar advocate Musho: “Honestly, it’s not just about how much money we are saving, or how long it will take itself to pay back. It’s also just our responsibility to research other ways of producing energy regardless of the financial factors. Everybody is relating it to money, but it’s really not just about money.” **H**

Kips Bay Towers Project

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ENGINEER: Ralph Germain
SOLAR: Solar Energy Systems
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230 East 73rd Street

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