

Towers in Manhattan Gather Heat from Power Generators



Ruby Washington/The New York Times

Cogeneration plants occupy part of the parking garage at the Manhattan Plaza apartment complex in Midtown.

By ALEC APPELBAUM
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Later this year, a double-rigged crane will hoist a giant power turbine part way up One Penn Plaza, a black monolithic skyscraper next to Madison Square Garden. When the natural gas-powered generator on the 12th floor starts, it will not only produce some 6.2 megawatts of electricity — enough to power up to half the 57-floor building on a busy day — but it will also siphon off wasted heat and use it to help heat and cool the 37-year-old skyscraper.

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Gruzen Samton Architects

A rendering of the room that will house a cogeneration plant on top of Cooper Union's landmark Foundation Building.

With tenants defaulting and lenders withholding credit, this might not seem the opportune time for landlords to be getting into energy recycling. But [Vornado Realty Trust](#), which owns One Penn Plaza and 27 other office buildings in [New York City](#), is among the small but growing number of commercial landlords in the area that are installing the energy-efficient power stations known as cogeneration plants, or cogens for short.

Unlike conventional power stations, which let excess heat dissipate into the air as exhaust, cogens reuse that cast-off energy for heating and cooling. Given the improved efficiency, combined with government incentives and rising electricity costs, some landlords are now finding it cost-effective to install cogens and generate their own power.

The Related Companies, a large residential developer, recently installed a cogen at [Manhattan Plaza](#), a huge 1970s housing complex in Midtown. [Cooper Union](#) for the Advancement of Science and Art is constructing one at its new academic building, a futuristic structure designed by [Thom Mayne](#). And the [Durst Organization](#) has installed a cogen plant at One Bryant Park, a new office tower near Times Square.

The appeal is simple: cogens help landlords lower energy costs. “You start to see savings on monthly bills right away,” said Clark Wieman, Cooper Union’s planning director. He said that the new generator would cost eight cents a kilowatt-hour, roughly half the cost of buying electricity from [Con Ed](#).

For landlords, the assurance of on-site power also provides added comfort. “Backup power is another amenity we offer to our tenants,” said David R. Greenbaum, president of Vornado’s New York office division.

Cogens are also considered greener, because they lighten the demand on Con Ed’s older, dirtier plants and generate as-needed energy on location. Indeed, only 40 percent of each watt that Con Ed generates reaches the customer, according to Thomas W. Smith, the chief executive at Endurant Energy, the consulting firm managing the One Penn Plaza installation, mainly because much of it is lost when the electricity is generated.

By contrast, the cogen at One Penn Plaza is expected to attain efficiency levels as high as 80 percent, according to Mr. Smith. That translates roughly into 2,800 metric tons of greenhouse gas emissions that are offset each year. And the captured steam will replace a fifth of the centralized steam that now controls the temperature of the building.

“This is changing how buildings generate power, and helping the city alleviate a huge problem in getting power to buildings,” Mr. Smith said.

The technology behind cogenerators is straightforward. According to the Oak Ridge National Laboratory, a federal research center affiliated with the Department of Energy, power generators that recycle excess heat have been around since the early 20th century, mostly in giant factories. But in recent years, as high-tech Internet hubs and other power-hungry industries have strained the aging electricity grid, the demand for smaller, fuel-efficient cogens have grown.

Office buildings in Manhattan, which sit over gas lines, were a natural market. In fact, cogens were cited by Mayor [Michael R. Bloomberg](#) in 2007 as a key component of his ambitious blueprint to reduce the city’s greenhouse gas emissions by 30 percent by 2030.

The Durst Organization, a prominent landlord in Midtown, leapt first. Its cogenerator at One Bryant Park, a glassy 54-story skyscraper rising at the corner of 42nd Street and the Avenue of the Americas, is scheduled to come online this summer. Durst expects the 4.6-megawatt cogen to power as much as 35 percent of the building during peak hours.

Last year, Related Companies removed nine parking spaces at Manhattan Plaza, a 1,689-unit complex on West 43rd Street, and installed two 350-kilowatt cogens, which it plans to turn on next month. Related, which pays for tenants’ utilities, expects to save \$350,000 a year, and recoup its costs by 2012. “There should be no impact to the tenants,” said Nick Lanzillotto, an operations manager. “They won’t even know it’s happening.”

Related also installed cogens with microturbines, smaller versions of the conventional engine, at Tribeca Green, an apartment complex in Lower Manhattan.

While [New York State](#) offers a range of incentives through its Energy Research and Development Authority (Vornado, for example received a \$2.5 million package for One Penn Plaza), the upfront cost can turn many landlords pale. Vornado’s plant at One Penn Plaza cost \$18 million.

The steep price can make even well-endowed, green-minded places like Cooper Union hesitant. Instead of footing the bill for the cogen at its new academic building in the East Village, Cooper Union hired an outside company, Office Power, to build, own and operate the generator.

Cooper Union now wants a cogen in its landmark Foundation Building. “Earlier, the board did not want to spend on something that had not been proven,” Mr. Wieman said. “But we learned that the payback made sense.”

This article has been revised to reflect the following correction:

Correction: March 3, 2009

An article on the Square Feet pages on Wednesday about several buildings in New York City that are adding cogeneration systems to create electricity and capture otherwise wasted energy included several errors.

The buildings’ generators use wasted heat to produce steam to heat and cool the buildings; they do not use excess steam. (The headline also included the error.)

The unit of electricity that is transmitted to customers is a watt, not a volt.

The main reason that only 40 percent of electricity reaches the consumer is because much of it is lost when the electricity is generated; the losses do not come solely during the transmission and distribution of the electricity.

Natural gas in Manhattan is found in gas lines — not “rich veins” — that run beneath the city.

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