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Partly Off the Grid, With a Mini-Utility in the Cellar

By J. ALEX TARQUINIO

Astor Wines and Spirits went beyond the conventional notions of a wine shop two years ago when it relocated to the landmark Theodore De Vinne Press Building and added a cooking school and wine tasting area on the second floor.

Unbeknown to customers, the shop was also blazing another sort of trail. Deep in the basement, the company installed a complex mechanical system to generate energy for its businesses. The energy would be produced far more efficiently than the electricity that could be purchased from the local utility. Over the long term, the system is also expected to provide a cost savings.

"It was clear that we would need to consume a lot of energy for the proper temperature control of the wines," said Andrew Fisher, who runs the company. "We also saw it as our civic responsibility to reduce our carbon footprint." The Fisher family, which has owned Astor Wines and Spirits since 1968, had owned the eight-story building it moved into at 399 Lafayette Street, on the northeast corner of Fourth Street in the East Village, since 1983. At roughly the same time the wine store moved, the owners installed two microturbines, which are similar to jet engines and run on natural gas.

The two units combined produce around 120 kilowatts of electricity an hour. The heat energy that the units produce is used to run the boiler for heat and hot water. It is also run through an absorption chiller that turns the steam into cold water for refrigeration, which keeps the wines properly chilled.

Experts say that using both the electricity and the heat that microturbines generate can help buildings tap as much as 70 percent to 80 percent of the energy available, compared with efficiency rates as low as 30 percent for some older power plants owned by utilities.

This system was an expensive proposition for the Fishers. Their initial outlay was around \$480,000 — and roughly \$250,000 of that went for the microturbines alone. But Cory Glick, who sold the system to the Fishers, estimates that the money they save on utility bills will allow them to break even in about four years.

The clock only recently started ticking on that payback period, though, because the Fire Department did not allow the Fishers to hook the natural gas up to their microturbines until a few months ago, once the city had issued a rule governing their use.

Previously, microturbines had not been specifically addressed in the city's building code, said Deborah Taylor, the chief sustainability officer for the New York City Department of Buildings. But a handful of buildings started installing them two years ago. So the city formed a task force with the Buildings Department, Fire Department and outside experts to draft a microturbine rule.

Ms. Taylor said she did not know of any other major American city that had created such a rule — although microturbines have been installed in others. "But we were concerned about the density of our urban environment" and the possible danger of fires from a relatively new category of equipment, Ms.

Taylor said.

When Mayor Michael R. Bloomberg announced the new microturbine rule in December, he said that it would help "spur the real estate and development communities to build more efficient, greener projects," while also helping the city toward its goal of reducing its greenhouse gas emissions 30 percent by 2030.

Ashok Gupta, the air and energy program director for the Natural Resources Defense Council, an advocacy group based in New York, served on the task force. "We don't expect every existing building to put in a microturbine," he said, "but we are supportive of this as part of a portfolio of solutions." Emission-reducing actions include cleaning up older power plants and using more renewable energy as well as tapping technologies like microturbines that produce energy from fossil fuels more efficiently than power plants.

Mr. Glick, the president of RSP Systems in Brooklyn, which installed the system at Astor Wines and Spirits, said he recommended microturbines to clients who were spending at least \$8,000 a month on utilities. He said apartment buildings needed to have a minimum of 60 units for microturbines to be cost efficient.

For example, RSP Systems installed a microturbine at the Millennium Tower Residences, a new 35-story 400,000-square-foot condominium in Battery Park City on the southern tip of Manhattan. The 234 one- to four-bedroom apartments in the building had all sold for \$900,000 to \$3.5 million when it opened a little over a year ago.

The tower, at 30 West Street, was the first residential building in the city to get a gold LEED rating, the second-highest category, from the United States Green Building Council, which has a point-based rating system that allows developers to market their buildings as green. Installing the microturbine counted toward the LEED rating, which stands for Leadership in Engineering and Environmental Design.

The 60-kilowatt unit at the Millennium Tower Residences produces about 10 percent of the electricity that is used in the building's common areas, said Charles Norman, a project manager for the developer, Millennium Partners, which is based in New York. "Not only are we able to use natural gas, which is a very clean-burning fuel," he said, but the recaptured energy heats the boiler. This helps reduce the common charges, he said.

Meanwhile, Mr. Fisher of Astor Wines and Spirits said he would like to install a third microturbine. The first two units produce enough heating, cooling and electricity for the store and Astor Center — as the cooking school and gallery upstairs are known. A third unit, he said, could provide the heat and electricity for the commercial tenants on the six floors above. "Our goal is to be completely off of the grid," he said.