

# TECOGEN®

## CM-60 & CM-75 COGENERATION MODULES

# Case Study

SITE: 1080 CHESTNUT STREET SAN FRANCISCO, CALIFORNIA



1080 Chestnut Street is a co-op style residential high-rise located on San Francisco's prestigious Russian Hill. The property was completed in the early 1960s and boasts outstanding views of the Golden Gate Bridge, Alcatraz, and downtown San Francisco, making it one of the most desirable addresses in San Francisco.

And since 1988, the building has substantially had reduced annual energy costs, thanks to the installation of a packaged cogeneration system from Tecogen.

In fact, over the past 10 years, Tecogen's

system has produced cumulative energy savings of approximately \$400,000, according to North Coast Solar Resources, an independent, third-party energy consulting firm based in Santa Rosa, California.

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*Over the past 10 years, energy savings have topped \$400,000*

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Since the property is run cooperatively, space heat, electricity, and hot water are produced centrally, and residents pay a monthly fee for these services. In 1988, property managers sought a way to control the residents' rising energy costs.

The Solar Center, a forerunner of San Francisco-based Occidental Power, was the project developer for 1080 Chestnut Street and recommended a natural gas-powered cogeneration system. Simply put,

this system contains an engine that burns natural gas to power a generator, which in turn produces electricity for the building.

And since the engine is water-cooled, it can also turn its "waste heat" into useful hot water, taking over the work of boilers and hot-water heaters. Experts predicted a payback between two and five years for the 126,000 square foot property.

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## TECOGEN COGENERATION MODULE CASE STUDY: 1080 CHESTNUT STREET

Engineers specified and installed a Tecogen CM-60 module, which produces 60 kilowatts (kW) of electricity along with 440,000 Btu/hour of hot water. Because its "waste heat" is used, the Tecogen unit produces electricity about three times more efficiently than a conventional utility power plant.

As predicted, the Tecogen system paid for itself within the first four years of operation. And the system has produced consistent savings in every subsequent year, for an average annual net savings of \$40,000 over the past ten years. This even includes the cost of full maintenance, which is provided by Tecogen's local service office.

According to Doug McAbee, property manager for 1080 Chestnut Street, energy costs in 2000 were approximately \$97,000 — 27% lower than they would have been without the Tecogen system in place.

Because the cogeneration unit produces electricity for the building, it reduces the amount of expensive residential electricity that needs to be purchased from the local public utility. Similarly, the system's waste heat is used to offset residential natural gas purchases for space heat and domestic hot water boilers. The

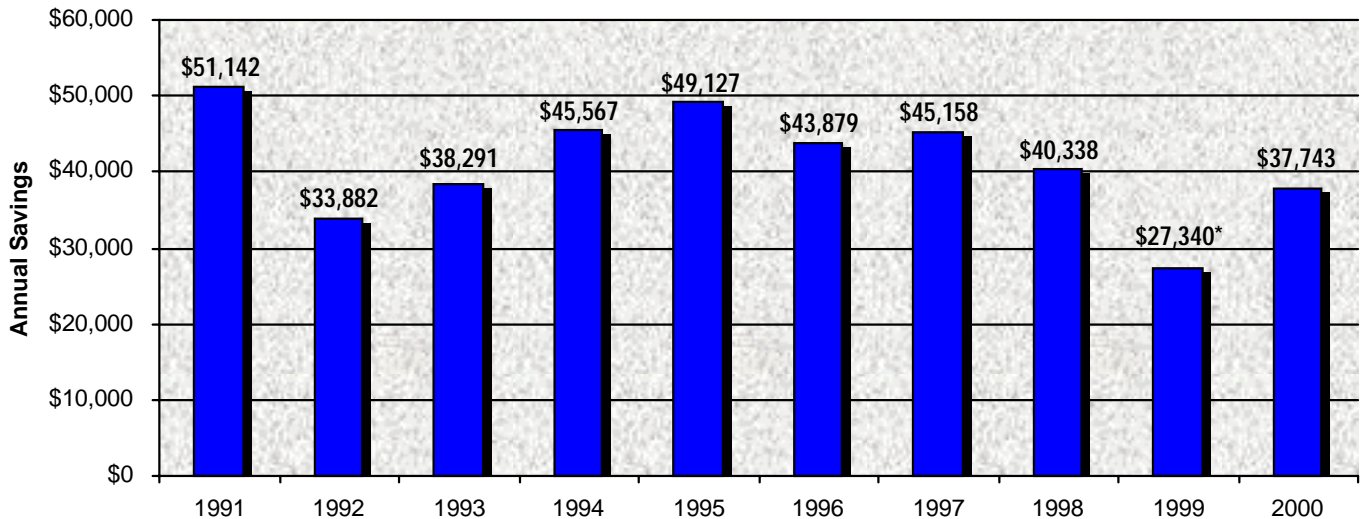
Tecogen system also qualifies for a specially discounted cogeneration gas rate, thanks to its high efficiency. These benefits have helped shield the customer from the chaotic rate increases that recently occurred as a result of electric utility deregulation in California.

1080 Chestnut's cogeneration system has proven its reliability and effectiveness, logging more than 90,000 hours of operation since start-up. To ensure optimal performance, it is monitored and adjusted by a sophisticated energy management system.

Since Tecogen introduced the first CM-60 packaged cogeneration module in 1983, more than 13 million operating-hours have been accumulated on over 500 units. Tecogen modules have been installed in high schools, hospitals, athletic clubs, hotels, laundries, nursing homes, apartments, and colleges.

These fully packaged systems are available for quick delivery; their standardized design enables faster site engineering — which leads to low-cost installation and start-up, as well as more effective and efficient maintenance.

### ACTUAL ANNUAL NET OPERATING SAVINGS FROM TECOGEN: 1080 CHESTNUT STREET



\*Note: 1999 savings shown do not include one-time balance-of-system service costs.

FOR MORE INFORMATION:

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