



Pacific Heights Towers Condominiums: San Francisco



This 20-story condominium high-rise is one of the tallest buildings in the prestigious Pacific Heights neighborhood of San Francisco.

Offering spectacular panoramic views of the city including the famous Golden Gate Bridge and the infamous Alcatraz Island. The residents are very proud of their new energy efficient cogeneration system: a Capstone C60-ICHP that is located in the building's rooftop boiler room. The microturbine covers most of the common area power needs and serves as the primary heating source for the domestic water system of the Pacific Heights Towers.

While most Capstone MicroTurbine systems installed worldwide continuously operate at full-load, this particular site is set to load-follow 24/7 at an average of just over 35 kWe. Capstone systems can load follow in grid-parallel while maintaining a no-export buffer of a few kW. Or they can directly serve the entire fluctuating load in stand-alone mode.

Fortunately, Pacific Heights Towers was not affected by the massive power outages that struck more than a quarter of PG&E's 5 million Northern- and Central-California customers over the New Year's holiday weekend. The site is being upgraded to provide a sub-10-second fast transfer to stand-alone mode for when the grid goes down (otherwise a 4-5 minute warmdown cycle and restart is required). Fast transfer is a standard feature of Capstone's new C65 model with Capstone Dual-Mode Controller. And it's a quick, very low cost retrofit for existing installations of single units and arrays that have a Dual-Mode Controller.

Total net cost of the installation was \$242,748, a significant portion of which was dedicated to running new electrical lines from the rooftop boiler room down to protected loads in the building.

Since it operates at about 50% load, the microturbine's electrical efficiency is 2-3 points below the C60's 28% full-load capability (the C65 models are factory rated at 29%, a more than 4% boost in electrical fuel efficiency over the C60).

In its first six months of operation, the ICHP system saved the facility more than \$14,000 in net O&M energy savings inclusive of fuel, PG&E's distributed generation fees, and an all-inclusive Capstone factory-direct service contract. During the period, the system has shown an availability of more than 99%.

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