



AT A GLANCE...

Equity Office proactively sought to improve energy efficiency at its One Market Street office complex in downtown San Francisco.

Northern's solution: An advanced 1.5 MW cogeneration system consisting of three natural gas-fired generators with steam heat recovery.

Northern Builds Grid-Connected On-site Power System for Equity Office One Market Street Office Complex

Northern Power Systems provided an energy efficient, on-site power system to the One Market Street office complex in downtown San Francisco, owned by Equity Office.

Equity Office is the nation's largest publicly held office building owner and manager with a portfolio of 687 buildings comprising 122.6 million square feet in 18 states and the District of Columbia. With 1.5 million square feet of commercial space occupying an entire city block, One Market is one of the premier properties in San Francisco's financial district.

Completed in 2003, the advanced 1.5 megawatt cogeneration system consists of three natural gas-fired generators and a sophisticated heat recovery process, which converts waste heat from the engine cooling water and the exhaust into steam. The steam will be used to heat the building. Northern

SYSTEM OVERVIEW

Power Application	Power to provide cost effective electricity and heat
System Type	1.5 MW cogeneration system consisting of three natural gas-fired engine/generators and controls and heat recovery
Location	San Francisco, California
Customer	Equity Office

System Configuration

- Three 500 kW natural gas-fired generators
- Full heat recovery for steam and space heating
- Interconnected to utility grid in full compliance with PG&E's Rule 21 Interconnection Standards
- Half the greenhouse gas emission (CO₂) compared with a traditional fossil fired power plant and fossil fired heating system



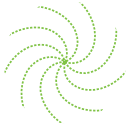
One of the premier office complexes in San Francisco's financial district, One Market contains 1.5 million square feet of commercial space.

provided overall system design, engineering and commissioning. Northern also supplied the generators and an automated control system designed to maximize system efficiency.

The new system is among the first on-site power systems to be interconnected to the downtown San Francisco utility grid in full compliance with the Pacific Gas & Electric's Rule 21 Interconnection Standards.

Since the on-site system operates in parallel >>





Northern Power Systems designs, builds and installs ultra-reliable electric power system solutions for industrial, commercial and government customers worldwide. Since our founding in 1974, we have installed over 800 systems in 45 countries on all seven continents.

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with the utility, it is able to meet a significant portion of the building's electricity demand. The utility only meets needs above and beyond what the on-site system can supply. Therefore, the electricity generated on-site is not burdened by the losses and additional cost associated with electricity transmission and distribution. By running at near full capacity, the on-site system provides the greatest amount of electrical efficiency.

At the same time, Northern designed the system to maximize the use of the waste heat from the generators, further increasing overall system efficiency. The thermal energy (waste heat) from on-site generation can be used to displace natural gas currently purchased for the boiler to heat the building. In the case of One Market this thermal completely displaces the boiler gas usage expected during the peak periods in the worst winter months. As a result, when building heat is required, the system can provide a fuel efficiency of roughly 78% as opposed to just 30% delivered efficiency typically found in grid power.

The City of San Francisco is working to find solutions for projected electricity supply shortages and transmission constraints within the next five years. This will be accomplished by developing sufficient replacement power through a combination of peak load reduction, energy efficiency, renewable energy, and other on-site generation technologies. Distributed generation as developed by Northern plays a key role in the plan.

"It is important to the City of San Francisco that building owners like EOP are successful in implementing on-site generation," said Ed Smeloff, head of San Francisco's Public Utilities Commission. "With this project, Northern is implementing the type of clean, reliable distributed generation system that our 'Electricity Resource Plan' outlines as one of the strategic solutions to San Francisco's energy challenges."



Three 500 kW natural gas-fired generators provide electricity for 1.5 million square feet of office space.

The cogeneration system can deliver approximately 30% of One Market's yearly electricity and 85% of the yearly steam demand.

Northern's power system is also considered a "green" system. In recovering waste heat, the system's overall fuel efficiency rises to approximately 80% (lower heating value), compared to typical efficiencies of 40% (lower heating value) from utility-produced power. The dramatically increased fuel efficiency can reduce greenhouse gas emissions by up to 40%. These higher fuel efficiencies also qualify Equity Office's new system for an incentive rebate from the Self-Generation Incentive Program of the California Public Utility Commission (CPUC). This program was established in 2001 to encourage on-site generation to reduce peak demand and avoid rolling blackouts such as those recently experienced by the state.

"Equity Office is leading the commercial real estate market in actively implementing power solutions that make sense from a power security and from an environmental standpoint," said Thomas Smith, Vice President of Energy Operations at Equity Office.

"Teaming with Northern Power Systems to create this innovative approach to energy supply is fully consistent with our commitment to maintaining superior quality of service to our tenants, improving the efficiency of our systems, and lessening the impact of our operations on the environment."