Cogeneration

> **Case History**
American Honda, USA

Cummins Power Generation

Our energy working for you.™

Where:
American Honda Corporate Campus,
Torrance, California, USA

What:
A turnkey combined heat and power (CHP) system producing 1.25 MW of electricity and 10 MMBtu of heat per hour to operate an absorption chiller and offset power purchased from the utility

Purpose:
To save up to 30 percent annually on total campus energy expenditures and demonstrate corporate leadership and environmental responsibility

Primary choice factors:
The reputation of products from Cummins Power Generation, positive comments from other customers, and the flexibility and engineering expertise demonstrated by the distributor, Cummins Cal Pacific

American Honda headquarters gets mileage with CHP system from Cummins Power Generation

TORRANCE, CALIFORNIA, USA — The campus of American Honda Motor Company's headquarters covers more than 100 acres, and includes 12 buildings with nearly 1.5 million square feet of mixed-use office space for approximately 3,000 workers. Honda is a company dedicated to environmental responsibility, and that dedication extends to its operations and facilities.

American Honda established the ability to generate its own electricity for its campus at a lower cost, both fiscally and environmentally, using natural gas. After researching generating systems from several manufacturers, American Honda selected a combined heat and power (CHP) system from Cummins Power Generation Inc. American Honda will save more than 30 percent in on-campus energy expenditures each year.

Cummins Cal Pacific, the local distributor for Cummins Power Generation, recommended a CHP system based on one of its most popular natural-gas engine generator systems. According to Herman Van Niekerk of Cummins Cal Pacific, "CHP systems consist of a generator set, heat recovery equipment and control systems.

Waste heat from the generator is used to run a 250-ton absorption chiller for the campus's air conditioning system.

The PowerCommand QSV91G gas engine generator from Cummins Power Generation produces 1,250 kW and over 10 million Btu of heat per hour.

They produce electricity and heat from a single source of energy — usually natural gas. The heat produced can be used for space heating/cooling or for making process hot water, cold water or steam."

A corporate commitment

"We make every effort to contribute to human health and the preservation of the global environment in each phase of the company's corporate activities, products, manufacturing and business practices," says Garth Sellers, American Honda's manager, national facility management. "Our decision to install cogeneration was an entirely logical one — it took our environmental commitment a step further. It was time to begin generating our own power."

The CHP system for American Honda consists of a 1250 kW PowerCommand® QSV91G gas engine generator from Cummins Power Generation, plus three Mueller heat exchangers that capture over 10 million Btu per hour of waste heat in the form of hot water from the engine exhaust, engine coolant and oil systems. The hot water is used to run an absorption chiller.

"Our decision to install cogeneration was an entirely logical one — it took our environmental commitment a step further. It was time to begin generating our own power."

The PowerCommand QSV91G generating set installed at American Honda is one of the cleanest gas generator sets available today. Without aftertreatment, the reciprocating gas engine generator's emissions of NO_X are 111 parts per million by volume (0.85 grams/BHP-hr). This level of emissions meets air-quality standards in most parts of the country. However, to meet California's strict air-quality standard, the generator's exhaust needed to be treated.

Cummins Cal Pacific designed and installed a selective catalytic reduction (SCR) system on the generator set's exhaust that uses a urea injection to reduce the NO_X in the engine's exhaust. Following treatment, NO_X in the exhaust stream is reduced to less than 14 parts per million by volume in compliance with the state standard.

Operating success

The CHP system is installed in American Honda's Central Plant building, which houses the other mechanical systems for the campus. Currently, the CHP system supplies 100 percent of the electrical needs of the Central Plant building for most of the year, but the cold water from the chiller is circulated throughout the entire 12-building campus for air conditioning.

Sellers says the CHP system operates only during the daytime for now, but American Honda will run the system 24 hours a day, seven days a week, in Phase Two of the project when two more buildings will be fed from the generator. The campus has a total electrical load of 5.2 MW, and with the addition of the CHP system that runs only during business hours, utility power consumption decreased 14 percent during the first year of operation.

"When we first looked at this project, the key was to do away with kW demand costs from the utility," says Sellers. "However, we found we could add the absorption chiller and supply 95–100 percent of the power needed for the Central Plant. This significantly increased the return on investment. The CHP system has thus far met, and in some cases exceeded, our expectations," Sellers concludes.

For more information about cogeneration power systems or other energy solutions, contact your local Cummins Power Generation distributor or visit www.cumminspower.com/energysolutions.

Our energy working for you.™

www.cumminspower.com

Cummins Power Generation