



Smithfield Gardens

Assisted Living Community

75 KW CHP Plant

Site Description

Smithfield Gardens, a 56-unit affordable assisted-living facility in Seymour, CT, installed a Combined Heat and Power (CHP) system in the boiler room during the construction phase of the building. The energy-saving cogeneration system consists of a 75 kW Aegen 75LE CHP module, supplied and installed by Aegis Energy Services, of Holyoke, MA. The highly efficient Aegen 75LE module employs an oil cooler, engine jacket, exhaust gas manifolds and heat exchangers, in order to recover otherwise wasted heat

Reasons for Installing CHP

The Smithfield Gardens Assisted Living complex was developed by the Seymour Housing Authority. The housing authority had been pleased with the cost-savings it experienced with a similar CHP system, engineered and installed by Aegis Energy Services, at another one of its facilities located next door at Callahan House. Anxious to proactively reduce their operating expenses at Smithfield Gardens as well, they contacted Aegis about the potential for a CHP system in that facility. The energy analysis revealed that Smithfield Gardens could save 22% on its annual energy costs by employing a CHP system. Aegis remotely monitors Smithfield's CHP system to ensure high runtimes and efficiency. In addition, Smithfield has contracted with Aegis for the comprehensive maintenance of their system.

Quick Facts

LOCATION: Seymour, Connecticut

FUEL: Natural Gas

MAX CAPACITY: 75 KW

POLLUTION CONTROL: Non-Selective 3-way
Catalytic Reduction system

ENVIRONMENTAL BENEFITS:

74% NO_x reduction, 32% CO₂ reduction

AVERAGE CAPACITY FACTOR: 90 %

IN OPERATION SINCE: November 2006

EQUIPMENT: 75kW Aegen 75-LE cogenerator,
American Yazaki absorption chiller,
Baltimore Air Coil cooling tower

USE OF ELECTRICAL ENERGY: Displaces
building loads previously supplied by the
local utility



Aegen 75 -LE cogeneration unit



Smithfield Gardens



American Yazaki 10T Absorption Chiller



Aegen 75-LE cogeneration unit pump module

The 500,000 kWh of electricity annually generated by the system supplies 56% of the total building demand, and offsets loads typically supplied by the local utility. The recovered heat from the engine is used as the source of energy to drive the absorption air-conditioning system in the summer, along with winter space heating and domestic hot water on a year round basis. The CHP system supplies 54% of the building's thermal requirements. Natural gas boilers provide peak heating energy when required. The water-fired absorption chiller provides 10 tons of cooling capacity, thus offsetting the expensive-to-operate electric chillers. Absorption cooling relies on heat instead of electricity, in order to operate.

Lessons to Share

Absorption Chillers add to summer thermal load thus improving the payback on a CHP system.
Service contracts are important to maintain CHP systems to maximize energy savings.
Housing authorities are sensitive to energy costs and are forward-thinking about energy technology

For More Information

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