U.S. DOE

CHP Technical Assistance Partnerships

PROJECT PROFILE

Comfort Inn & Suites Logan International Airport

75-KW CHP System

Quick Facts

LOCATION: Revere, Massachusetts
MARKET SECTOR: Hotel
FACILITY SIZE: 208 room hotel
FACILITY PEAK LOAD: 75 kW
EQUIPMENT: Agean Thermopower T-75
FUEL: Natural gas
USE OF THERMAL ENERGY: Showers, laundry, pool heating, and pre-heating the makeup air in the winter.
CHP TOTAL EFFICIENCY: 83.6 %
ENVIRONMENTAL BENEFITS: Reduces annual greenhouse gas emissions by 15%
TOTAL PROJECT COST: $230,000
YEARLY ENERGY SAVINGS: $45,000
PAYBACK: 4 years
CHP IN OPERATION SINCE: 2012

Site Description

This hotel is centrally located between Boston's Logan Airport, Revere Beach, and downtown Boston. This convenient location makes it a high demand place for travelers to stay. The pristine hotel includes an indoor pool, conference spaces, and 208 rooms. The hotel that has received Choice Hotels' Platinum Award and has earned Gold status on Trip Advisor's Green Leaders program. The Saunders Hotel Group, a fourth-generation family-owned and operated hotel management business, is achieving long-standing sustainability goals with a Combined Heat and Power system installed and operated by Aegis Energy Services.

Reasons for CHP

With a strong focus on sustainability and environmental practices, the Saunders Hotel group has a history of increasing efficiency through both products and management practices. The company is rooted in its commitment to sustainability and maintaining minimal water, carbon, and waste footprints by creating, practicing, and integrating leading sustainability initiatives into its daily operations and long-term strategies. The hotel management company is committed to continually improving operations throughout its properties to: Reduce energy use, increase sustainability, and infuse environmental values into their operation. The CHP unit at this

"We are excited about the long term environmental and economic benefits it will provide for the hotel."

-Scot Hopps, Saunders Hotel Group Vice President of Operations and Sustainability

hotel achieves reductions in greenhouse gas emissions and grid supplied electricity consumption by producing electricity and utilizing the waste heat for water and space heating.

CHP Equipment & Configuration

The Aegen Thermo Power TP-75 is a modular, scalable on-site cogeneration system that reduces energy costs for hotels. The high efficiency electricity generation and useable waste heat meets the large thermal demand usually required for pool heating, domestic hot water, and/or absorption cooling while reducing grid demand and lowering emissions associated with the site.

The success of a cogeneration installation is driven primarily on sizing the CHP system to meet the thermal needs of the hotel. The combined-cycle efficiencies approach 85% and the systems experience high runtimes and short paybacks when being used optimally.

Aegen Thermo Power TP-75

PHOTO COURTESY OF AEGIS ENERGY SERVICES, INC.

CHP Operation

CHP is a good fit for buildings that have a consistently high demand for hot water throughout the year, especially summer months so the unit's efficiency is optimized. The Comfort Inn & Suites runs its business all day, every day, so consistency and reliability are of the utmost importance. The hotel is able to self-produce approximately 33% of their total electricity and utilize what would otherwise be wasted heat energy and use it for showers, laundry, pool heating, and even pre-heating the makeup air in the winter.

“I can confidently say that our expectations are being met month after month,” said Scot Hopps, Saunders Hotel Group Vice President of Operations and Sustainability. “After 5 years of operation, the savings have paid for the unit and we have shifted to saving money annually as a result. We are quite happy with the impact it has made on our operation.”

Lessons To Share

The key to success is ensuring that nearly all waste heat generated from the CHP system is used in systems that would otherwise require additional energy generation. By working closely with the developer, the Saunders Team was able to make sure the CHP unit was properly sized for the thermal load of the hotel. A sound energy analysis led to a properly size system and met forecasted savings.

Scot Hopps researched the application of CHP to the hotel and worked with the engineers to develop the pitch to the decision makers in the Saunders Hotel Group. Understanding the different ownership structures, incentives, paybacks, benefits, and communicating those to the decision makers was the way he pitched CHP and got the project approved. The total cost of the project was $230,000; the group invested $160,000 and used a utility program to pay for the rest. They are enrolled in the APS program, that pay $6,000 per year when all of the waste heat is use. They have had a great working relationship with Aegis, who installed and operates the system that the Saunders Hotel Group owns outright.

More Information

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