Success Story 4

Significant benefits of Combined Cooling, Heat & Power (CCHP) System Energy Utilization Rate Reaches 91%

ENN Science Park Block C

Distributed Energy Project (CCHP) Project Overview

The project at ENN Science Park Block C in Langfang, Hebei Province is the first E135 micro gas turbine CCHP project. On the west side of Block C is a three-story office building, and on the east side are workshops and laboratories. The area required for cooling and heating is 25,500 m2. The original heat pump system has been operating for too long. The water well is corroded seriously and the system efficiency is low. The maintenance cost is high and the system requires special personnel to manage. The system also occupies a large underground area and has a serious impact on the soil.

Based on investigations and simulations , it is shown that one set of E135 micro gas turbines can fully cover the energy usage. A bromine chiller is used to provide heating in winter and cooling in summer to produce more energy saving.

The system began operation in November 2018 and has been running stably for two heating and one cooling seasons. According to the cold and hot test data, the temperature of each functional area fully met the specified requirements. The system met the expectations with a certain margin.

Applicable Industries

- Manufacturing and office buildings

System Components

- one E135 micro-gas turbine + one bromine cooler

Delivery Time

- November, 2018

Location

- Langfang City, Hebei Prov.

KEEPING ORIGINAL ENERGY SOLUTION

- Water source heat pump system, with nominal cooling capacity: 1,156 kW
- Nominal heating capacity:1,030 kW
- Energy demand area: 25,500 m2

CUSTOMER' S PAIN SPOTS

1. Well corrosion and low efficiency due to long-term operation of the heat pump system;
2. High maintenance cost, difficult to service due to concealed installation, and the special personnel are required for operation and management;
3. High level noise generated by the units;
4. Occupied a large underground space,changed land structure and limited future utilization.

SOLUTION

- One E135 micro gas turbine with an1.5 million kCalbromine chiller are used to ensure tiered energy utilization and high overall energy efficiency;
- Long maintenance cycle, high degree of automation;
- Noise level < 75 dB; dominant at high-frequency noise and it is easy to eliminate;
- Occupy small space without using underground space.

CUSTOMER BENEFITS

01	Tiered energy utilization	System energy efficiency reaches 91%
02	Freed underground space	Original underground area is released
03	Convenient and worry-free	Contract energy management mode; Exempt the customer's self-built system investment: RMB 2.2 million Labor costs reduced: RMB 40,000 /year;
04	Reduced energy bill	Annual power supply: 162,000 kWh Provided cooling and heating area: 25,500 m2; Cooling/heating costs reduced :RMB 410,000/year compared to same service provided by municipality;