New Jersey's Clean Energy PROGRAM™

Your Power to Save

Success Stories

KPMG Leads the Way in Energy Efficiency

PROJECT INFORMATION

Organization

- KPMG LLP

Location

- New Jersey

Project Contact

- John Reina, Information Technology Systems Executive Director

Technologies

- Combined Heat & Power
- Absorption Chillers

NJCEP Incentives

- $800,000 Pay for Performance (CHP)
- $98,020 NJ SmartStart Buildings

Total Project Cost

- $2,375,000

PROJECT SAVINGS

Estimated Annual Savings

- 7,000,000 kilowatt hours of electricity
- 2,200 tons of carbon dioxide

Project information, savings and environmental benefits were provided by the project contact.

KPMG's CHP plant produces 7,000,000 kilowatt hours of electricity efficiently to power its New Jersey data center.

"Working with New Jersey's ***Clean Energy*** *Program* and the Board of Public Utilities was almost effortless and the incentives turned out to be the tipping point in carrying out this innovative design."

John Reina
Information Technology Systems
Executive Director

Background

Known as one of the "Big Four" accounting firms, KPMG LLP is the United States member of KPMG International Cooperative, an internationally renowned audit, tax and advisory services company with operations in 144 countries. Among its 87 locations throughout the U.S. is the 28-acre suburban New Jersey data center which is home to information technology services and hosts technology production operations.

Challenge

When KPMG made the decision to build its new data center in New Jersey, one challenge was to align the firm's national "Living Green" environmental goal, which includes energy reduction targets and reduction of the firm's carbon footprint by 25% within just three years. Another critical parameter for the project was a reliable, scalable design which would allow for space and capacity to accommodate approximately 10 years of growth without disrupting operations.

Solution

One major facet of the plan to uphold KPMG's sustainability effort was addressed within the electrical infrastructure—specifically the heating, ventilating and air-conditioning systems and central plant. While the typical data center relies on the nation's electrical grid for all its power, KPMG's data center was designed to receive a majority of its energy from an on-site combined heat and power (CHP) plant, which would allow the simultaneous production of electricity and heat using natural gas.

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KPMG's New Jersey data center was designed to incorporate state-of-the-art IT equipment and advanced energy efficiency measures.

"We set out to design our new data center in a cost-effective, environmentally-friendly way. Using an on-site power generation plant with low emissions would accomplish both goals," said John Reina, Information Technology systems Executive Director. "During the design process, we were directed to *New Jersey's* ***Clean Energy*** *Program*."

KPMG learned that its CHP project would be eligible for substantial financial incentives through two initiatives offered by *New Jersey's* ***Clean Energy*** *Program*: Pay for Performance and New Jersey SmartStart Buildings for new construction.

With pre-approvals from *New Jersey's* ***Clean Energy*** *Program* in hand, KPMG's data center was built with a total of 14 micro-turbines (including two back-ups) operating 24 hours a day, 7 days a week, all year round and generating approximately 720 kilowatts of power, making it one of the largest CHP installations in the country.

Then, rather than venting the plant's exhaust heat (which is about 600° F) into the environment, it is reclaimed and ducted directly to two 210 ton double effect absorption chillers operating at an annual efficiency of approximately 80%. These chillers use the waste heat to provide continuous "free" chilled water cooling for computer room air conditioning systems in the data center and for other air-handling equipment in the building. Heat removed by the chilled water stream is rejected to the environment through mechanical cooling towers. Two 420 ton centrifugal chillers are used as back-up for the absorption chillers and for additional cooling requirements during summer months.

Benefits

KPMG's CHP plant saves 7 million kilowatt hours of electricity annually and requires 22% less fuel then a grid-based energy supply system. The U.S. Environmental Protection Agency recognized the plant with a 2011 ENERGY STAR CHP award and congratulated KPMG for preventing an estimated 2,200 tons of carbon dioxide emissions each year.

Darren McGann, KPMG's Green IT Manager explained, "By using natural gas, our carbon footprint was reduced instantly. Other environmental benefits over traditional grid electricity are the reduction of nitrous oxide by 94% and sulfur dioxide by 99.9%."

The company has learned that sustainability is a viable and financially beneficial option for business today. In fact, the payoff is already evident. KPMG's project costs totaled $2,375,000, but with *New Jersey's* ***Clean Energy*** *Program* incentives of $898,020, capital costs were reduced by 35%. Overall, after accounting for natural gas charges, the investment resulted in a simple payback of five to seven years.

"Working with *New Jersey's* ***Clean Energy*** *Program* and the Board of Public Utilities was almost effortless and the incentives turned out to be the tipping point in carrying out this innovative design," said Reina.

KPMG