

## PROJECT INFORMATION

### Program Participant

- Colgate-Palmolive Company

### Location

- Colgate-Palmolive Technology Center  
 909 River Road  
 Piscataway Township  
 NJ 08854

### Project Contact

- Bruce Russell  
 Plant Engineer  
 Colgate-Palmolive Company

### Technology

- Magnetic-bearing water-cooled chillers
- Condenser water pumps
- Variable frequency drives

### Total Project Cost

- \$2,500,000

### NJCEP Incentives

- \$224,526 through the SmartStart program

### Estimated Annual Savings

- 2,365,818 kWh
- \$283,898

### Project Payback

- 8 years

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

## SmartStart incentives help improve energy efficiency of chilled water plants at Piscataway research facility

### Background

The Colgate-Palmolive Company has a long history of innovation in New Jersey. In 1896, the company opened a Jersey City research laboratory, the first formal lab of its kind. An expanding product line of hundreds of soaps, perfumes and toothpastes prompted the company in 1962 to open the Global Technology Center in Piscataway, New Jersey, where new products are still being designed for a variety of household, oral and personal care brands.

Commitment to innovation extends to how the company consumes energy. Each year a minimum of two percent of manufacturing capital expenditures globally is targeted to energy-reduction projects. With those funds, Colgate-Palmolive aims to reduce its manufacturing energy intensity to one-third of 2002 levels by 2020.

“To help us meet these ambitious energy goals, Colgate-Palmolive seeks out opportunities to partner with our stakeholders on key initiatives that advance our sustainability efforts, as was the case recently with *New Jersey’s Clean Energy Program* (NJCEP),” said Colgate-Palmolive Plant Engineer Bruce Russell.

### Solution

The NJCEP SmartStart program incentivizes qualifying new construction,



*The Colgate-Palmolive Global Technology Center received a combination of prescriptive and custom SmartStart incentives to help offset the cost of installing more energy-efficient chilled water plants.*

rehab and retrofit projects. All non-residential utility customers are eligible for up to \$500,000 per electric account and \$500,000 per natural gas account.

The SmartStart program offers prescriptive incentives for lighting, refrigeration and heating, ventilation and air conditioning (HVAC) equipment, among other technologies. The program also offers custom incentives, paid at the lesser of 50 percent of project cost, the amount needed to buy down the cost to a one-year payback, or \$0.16 per kWh and \$1.60 per therm saved over the first year following installation.

Colgate-Palmolive chose to improve the energy efficiency of the chilled water plant at the Global Technology Center through

*We were able to decrease electrical consumption per ton of refrigeration, increase total chiller plant efficiency, increase overall capacity to cover the expanding site's additional footprint and generate considerable cost avoidance savings.*

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 Plant Engineer  
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the SmartStart program. At the time, the chilled water plant consisted of a combined 2,150 tons of capacity and required an average of 1,700,000 kWh of electricity per year.

Contractors D&B Engineering and C-K Air Conditioning replaced the chillers with new higher efficiency units. The chilled water distribution system was retrofitted to include an air separation unit and new chilled water pumping system equipped with variable frequency drives (VFDs). In addition, three-way chilled water valves were replaced with two-way chilled water valves.

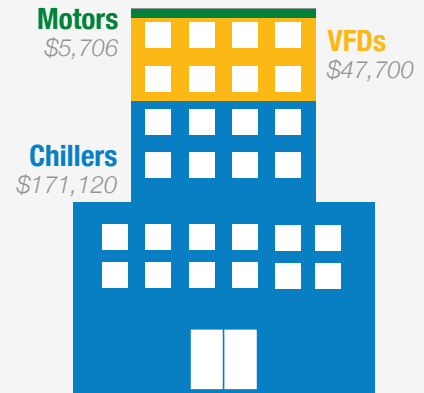
Instead of maintaining the water at a constant temperature as was done previously, the plant's water temperatures are now reset according to the day's weather. This reduces condensing pressures and improves the plant's ability to maintain constant water temperatures throughout the facility.

"Previously it was difficult to get cold water to the farthest building from the chillers. We're now able to deliver the right amount of cold water in all buildings at all times," said Jeffrey Barat, a partner with D&B Engineering. "The end result was everyone was more comfortable and Colgate-Palmolive saved even more energy than we expected."

The upgrade, completed in 2014, increased plant capacity to 2,850 tons and reduced annual electricity use by an estimated 2,365,818 kWh, or \$283,898

per year. As a result, Colgate-Palmolive qualified for \$224,526 in SmartStart incentives, applying a combination of prescriptive rebates for the water chillers and custom incentives for the cooling tower (VFDs), chilled water and condenser water pumps.

**Project Incentives: \$224,526**



"We were able to decrease electrical consumption per ton of refrigeration, increase total chiller plant efficiency, increase overall capacity to cover the expanding site's additional footprint and generate considerable cost avoidance savings," Russell said.

Colgate-Palmolive is now in the process of applying for additional incentives through the SmartStart program to replace the Technology Center's fourth chiller.

