

## Trent Center East

*Trenton, New Jersey*



### Background

**T**rent Center East is a 229-unit senior housing high-rise building located in Trenton, NJ. Built in the early 1960s, Trent Center East enables its 250 residents to enjoy active and independent living.

Trent Center East was running a twenty year old single effect steam absorption chiller to provide air-conditioning during the summer months. Because of its age, the old chiller was no longer able to meet the cooling needs of the building, had lost significant efficiency and had become expensive to maintain. Additionally, running the old absorption chiller required keeping the steam plant operating during the summer. This created further operating problems for the building. The resulting boiler operating costs for air-conditioning alone was \$150,000.

“As a non-profit housing organization, we have to be proactive to limit our operating costs,” explained Lionel Kier, Executive Director of BTC Management Corp and the Managing Agent for the owners of Trent Center East Apartments. “When we observed a substantial degradation of performance of the existing air conditioning system, we realized we needed to upgrade our equipment, but still wanted to avoid a major capital expenditure.”

### Solution

**W**orking with Trent Center East, American DG Energy evaluated the historical use patterns for the existing cooling equipment. Subsequently, American DG Energy determined that installing a new 200 ton natural gas engine driven chiller to replace the twenty year old single effect steam absorption chiller would allow Trent Center East to realize both a notable increase in cooling capacity and a decrease in operating costs.

Even before reviewing American DG Energy’s recommendations, Mr. Kier was aware of the need to shut down the existing steam plant during the summer cooling season. “We knew we could save money if we didn’t need to run the boiler year round,” mentioned Mr. Kier, “and we wanted to take advantage of technology that complements our existing cogeneration equipment. So, instead of upgrading a twenty year old absorption chiller in a forty-one year old building, we decided to let American DG Energy install a new natural gas fired chiller that we wouldn’t have to buy or maintain.”

At no cost to Trent Center East, the new natural gas engine driven chiller was installed by American DG Energy in a matter of a few weeks. American DG Energy handled

all permitting, necessary modifications to the existing infrastructure and complete installation of the new chiller.

Since Trent Center East did not pay any up-front costs to install the chiller, they were able to avoid a \$450,000 expense. Because American DG Energy's dedicated operations group handles all management, service and maintenance, Trent Center East needs no manpower to support the equipment and avoids the ever-increasing maintenance expense, which had cost them \$20,000 per year.

Now Trent Center East only pays for the cooling or chilled water supplied every month. Each monthly invoice presents how much cooling was produced and includes the site savings. For Trent Center East, they are applying the savings to other projects.



With the new chiller in place, Trent Center East realized a significant increase in cooling performance. Now its residents can enjoy the comfort of their air-conditioned apartments and Trent Center East's public spaces when outside summer temperatures soar.

According to Mr. Kier, "Costs are only going to go up, but still we're looking for ways to reduce operating costs or at least decrease the increase in operating costs. This new chiller from American DG Energy, along with the cogeneration equipment we already have, will allow us to do that."

**No Cost | No Responsibility | No Risk**  
*Just Savings*

## Project Highlights:

Trent Center East achieved the following goals at no cost:

- Installed a new 200 ton natural gas engine driven chiller
- Avoided capital expense of \$450,000
- Annual site savings of \$30,000 (not including boiler savings)
- Increased cooling capacity for the building
- Eliminated Trent Center East's cost and responsibility for chiller system maintenance
- Reduced year-round demand on the old boiler system including summer shutdown of steam plant
- Upgraded piping and controls
- Installed additional metering to monitor system operation

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