

PEPCO ENERGY SERVICES (PES)

State of North Carolina

Raleigh, NC



PROJECT OVERVIEW

Pepco Energy Services (PES), a subsidiary of Potomac Electric Power Company, was contracted by the State of North Carolina to provide an Energy Savings Performance Contract (ESPC). TAS Energy, in a partnership with Natgun, was selected by PES to retrofit and expand an existing central plant located on the state capitol campus in Raleigh, NC. Natgun was responsible for the build of a 2.7 MG chilled water Thermal Energy Storage (TES) tank and the repair of an existing 0.75 MG underground TES tank while TAS Energy was providing the 2900-ton packaged central plant solution to provide comfort cooling for the building complex.

THE CHALLENGE

The State of North Carolina had a very limited budget but needed to retrofit aging, inefficient equipment that supported a building complex comprised of multiple government buildings. To help mitigate rising energy costs, it was imperative a more efficient system solution was installed that would be able to meet the cooling capacity of 7,100 ton-hrs.

In addition, due to the “tight” urban job-site, there needed to be a close working relationship with all parties involved in order to maximize the benefits of the system and ensure a seamless installation.

THE SOLUTION

The ESPC that the State of North Carolina received allowed them to provide new equipment and a district cooling solution to modernize the current infrastructure and to help with the limited budget. The costs of the solution would be covered by the operational savings.

The partnership with TAS Energy and Natgun provided many advantages through the synergistic effects and high performance of the products.

THE SOLUTION (cont.)

Installation of the new central plant combined with the storage system serving the administration complex would allow PES to reduce the amount of capital investment to support the retrofit and expansion project and allowed thousands of tons of centrifugal chiller load to be displaced.

The partnership also helped mitigate the potential for site interference and other risks during the construction of the central cooling plant, as TAS Energy and Natgun were never on-site at the same time. Natgun requires no long lead times and the TES tank construction would be completed on-site while TAS Energy designed and built the modular chiller plant in a controlled factory setting at their Houston, TX facility. The chiller plant was delivered near completion time of the TES tank.

THE RESULTS

- ▶ High efficiency and operating performance of the two systems provided by TAS Energy and Natgun contributed to the majority of the project's overall annual energy cost savings.
- ▶ The estimated annual energy savings generated by the TES tanks is approximately \$400,000/yr.
- ▶ The annual operating cost savings (demand and time-of-use energy) for the total system, which includes the packaged central plant, the district cooling loop and the TES tank, is estimated to be in excess of \$1 million/yr.
- ▶ The central plant retrofit and expansion will reduce the state's energy consumption by improving operating efficiency from an average of 0.9 kW/ton to 0.75 kW/ton. The addition of the TES system allowed PES to shift electric load to lower, off-peak rates.



ABOUT TAS ENERGY

TAS Energy provides clean and highly efficient solutions through the design and manufacturing of modular energy conversion and cooling systems for the power generation industry; district, commercial and industrial process cooling; data center/mission critical; and the renewable energy sectors.

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