



CASE STUDY

One of the Most Resilient, Energy Efficient CCHP Plants in the Country

Penn Medicine's 636,000 sq-ft Princeton Medical Center, designed by a team of internationally renowned architects and consultants, reflects a forward-thinking approach to healthcare — combining sustainable building practices, enhanced airborne infectious disease mitigation, and onsite power resiliency and efficiency.

Concord Engineering Group served as Design Build Contractor and Engineer of Record to redesign the hospital's central utility plant and electrical infrastructure with resilient, energy-efficient solutions for a 3rd party owner NRG Thermal (now Cordia Energy).

THE CONCORD DIFFERENCE

- Integration of advanced, energy-efficient hospital design standards secured \$8M in incentives from local utility and ignited the launch of New Jersey's statewide hospital energy efficiency program.
- Brought complex energy modeling skills to incorporate gas turbine CHP and chilled water storage to the project

THE CHALLENGE

- Need for a central utility plant (CUP) capable of supporting full hospital operations during utility grid failure
- Ensuring proper protective relaying and microgrid control to balance critical and non-critical loads during islanded operation

CONCORD ENGINEERING SOLUTION

- Developed a medium-voltage substation and utility interconnection system in compliance with PSE&G standards, featuring onsite power generation and black start capability
- Strategically locating the 1-million-gallon chilled water storage system to reduce peak energy costs and create an added layer of reliability
- Design and implementation of a 4.6 MW CHP plant with heat recovery capabilities and a 6 MW diesel generator plant to support critical electrical loads to maintain full operation in a normal power grid failure

+ LOCATION

Plainsboro, NJ

+ SERVICES

Engineer of Record
Design-Build Contractor At Risk
Plant Engineering

+ PROJECT PARTNERS

Cordia Energy

+ TAGS

Health + Science
Power + Infrastructure
CCHP Plant
HRSG
Substation
Energy Resiliency
Island Mode Capability

GET IN TOUCH

Power Engineering
concord-engineering.com
(856) 427-0200