



## 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 3<sup>rd</sup> 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**  
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