



Photo Credit: Jake Snyder, Red Skies Photography

CASE STUDY

20 MW Fuel Cell Power Plant Repurposes Industrial Site

20 MW Fuel Cell Power Plant provides Grid Power and Heat Recovery to Campus Infrastructure

Our expertise in clean energy, fuel cell technology, and Combined Heat and Power (CHP) plants was vital to repurposing the former iconic Stanley Tools Works vacant site. Concord Engineering Group, the engineer of record for Phase 1, established a cogeneration energy source to support the Energy & Innovation Park in New Britain, CT that primed the site for redevelopment. Solution included the design and construction of an Ultra-Low Emissions 20 MW Fuel Cell Merchant Power Plant to provide grid power and heat to the Innovation District.

THE CONCORD DIFFERENCE

- Design and integrate a first-of-a-kind heat recovery system from the Bloom Energy Servers to provide thermal energy to an adjacent industrial facility.
- Hands-on approach working across teams minimizes construction costs and ensures a successful outcome.

THE CHALLENGE

- Revitalization of an iconic heavy industrial site.
- Convert DC Power and step-up voltage to meet electric grid requirements.
- Connection to the local utility.
- A legacy substation in need of refurbishment.

CONCORD ENGINEERING SOLUTION

- Design a 20MW Bloom Fuel Cell merchant power plant that provides low-emission Class 1 renewable energy exported to the NE ISO.
- Refurbish a legacy substation, allowing interconnection to local utility and design of supporting infrastructure.
- Provide all MEP engineering for the CHP plant and site distribution.
- Minimize construction costs.

+ LOCATION

New Britain, Connecticut

+ SERVICES

MEP Engineering
Engineer of Record
Energy Services

+ PARTNERS

Generate Capital
O&G Industries
Bloom Energy

+ TAGS

Fuel Cells
Power & Infrastructure
CHP Plants
Data Center
Campus Infrastructure
Cogeneration

GET IN TOUCH

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CASE STUDY

10 MW Fuel Cell Substation Design for Delmarva Power

Powering Mission Critical Loads in Data Centers & Manufacturing

Bloom Energy is a provider of breakthrough solid oxide fuel cell technology generating clean, highly efficient onsite power from multiple fuel sources. The company produces power for many Fortune 500 companies, notable nonprofits, data centers, and more.

Concord Engineering Group served as Electrical Engineer of Record, providing the detailed engineering and first-phase design of a 27MW fuel cell plant at Red Lion Energy Center in New Castle, DE. The project included state-of-the-art fuel cell technology applications from Bloom Energy for direct connection of power to the PJM grid via the Delmarva Power Company.

THE CHALLENGE

- The Red Lion Energy Center site comprises 135 refrigerator-size Bloom Energy servers—which are grouped in clusters in an open yard—along with a natural gas regulation station and stormwater management systems. Functioning as an industrial site without any permanent building structures, the project highlights the fuel cells' sleek design and their aesthetic appeal—a factor that Bloom uses to market its product to potential clients

CONCORD ENGINEERING SOLUTION

- Provided detailed electrical, mechanical, and project engineering design services for each project, including the design of the 27 MW plant with a 138 kV substation and transmission line connection to the Delmarva power grid
- Installation of “Bloom boxes” to generate power, reducing carbon dioxide emissions by 40%-100% compared with the U.S. grid and virtually eliminating emissions of sulfur oxide, nitrous oxide, and other harmful smog-forming particulates
- Extend power to Bloom’s 200,000 sq ft manufacturing plant in Newark, DE that is part of the University of Delaware’s Science, Technology, and Advanced Research (STAR) campus

+ LOCATION

Newark, DE
New Castle, DE

+ SERVICES

Electrical Engineer of Record
Energy Services
Power Engineering
Mechanical, Electrical, &
Project Engineering

+ PARTNERS

Bloom Energy

+ TAGS

Government
Fuel Cells
Power & Infrastructure
Distributed Generation
Mission Critical
Substation
Power Grid

GET IN TOUCH

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CASE STUDY

Fuel Cell Installation for NYC Hall

Distributed Generation – Fuel Cell Unit

After more than a century without a major renovation, a major restoration project began at New York City Hall, the oldest city hall in the United States. Construction included upgrades to building services, structural enhancements, interior and exterior restoration work, as well as a renewable **fuel cell installation to provide supplemental power to the facility.**

Concord Engineering Group served as Engineer of Record for the design and installation of a new fuel cell unit, providing mechanical, electrical, and structural engineering services, as well as assistance during construction and set up.

THE CHALLENGE

The provided fuel cell package is typically prefabricated in an enclosure; however the standard vendor design required significant modifications to meet the New York City Building Code and meet the aesthetic requirements of an installation at a National Historic Landmark Site



CONCORD ENGINEERING SOLUTION

- Provided fabrication level drawings for natural gas piping, deionized water piping and conduit terminations to be field installed within the fabricated vendor enclosure
- Power generated by the new fuel cell offsets utility electricity purchased by City Hall
- State-of-the-art technology capable of reducing carbon dioxide emissions by 40-60% compared with the U.S. grid and virtually eliminates emissions of sulfur oxide, nitrous oxide, and other harmful smog-forming particulates

+ LOCATION

New York, NY

+ SERVICES

Engineer of Record
Energy Services
Power Engineering
Mechanical, Electrical, &
Structural Engineering

+ PARTNERS

Bloom Energy

+ TAGS

Government
Fuel Cells
Power & Infrastructure
Distributed Generation
Historic Preservation

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