NYC HEALTH+ HOSPITALS | Bellevue

Cogeneration System

Frequently Asked Questions

What is cogeneration (Cogen) and how will it work at NYC Health + Hospitals/Bellevue?

Cogeneration (Cogen) is a process that generates two forms of energy (electricity and heat) from a single fuel source. Natural gas is burned to drive an engine which provides the torque to spin a generator and produce electricity. Also known as Combined Heat and Power (CHP), Cogen captures and reuses the engine's exhaust waste heat to reuse it in multiple ways.

Large facilities, such as hospitals, are increasingly turning to Cogen to boost energy efficiency, save money, and relieve pressure on the existing electrical grid. Cogen provides a reliable backup energy source in case of power failure or other disasters.

Bellevue's new Cogen system will consist of two new gas engines that will generate approximately 4 Megawatts of electricity every hour of operation. The waste heat captured during the operation of the engine's cooling system will be used to make hot water, low-pressure steam, and other uses that the hospital requires for uninterrupted patient care.

Why is Bellevue switching to a Cogen system?

NYC Health + Hospitals is taking steps to advance sustainability and climate action goals by implementing this project. Cogen systems provide considerable environmental and economic benefits over purchased electricity:

+ The new Cogen system will help Bellevue achieve greater campus resiliency by enabling the hospital to maintain its mission-critical functions even when the electric grid is not available and emergency generators fail.
+ As a power-producing resource, Cogen reduces the demand on the grid, enhancing its stability and relieving the congestion that can lead to brownouts and blackouts.
+ Bellevue will continue to purchase power and steam from the local utility provider, though the quantities will be significantly reduced. An on-site Cogen system will typically generate electricity at a less expensive rate than purchasing the same amount of electricity. This is primarily because Cogen systems use less fuel to produce the same amount of electrical energy, resulting in lower energy bills for the hospital.
+ Power from the Cogen unit is expected to produce electricity to meet 60 percent of the hospital's power needs during the winter and 40 percent during the summer
+ Cogen systems capture and use heat that would otherwise be wasted from the production of electricity, decreasing the amount of fuel needed to produce the same amount of energy. A Cogen module produces the least amount of carbon dioxide per kilowatt (kW) of useful work of any comparable fossil fuel heat source.
+ A Cogen module produces the least amount of carbon dioxide per kilowatt (kW) of useful work of any comparable fossil fuel heat source. By consuming less fuel per unit of energy produced, Cogen systems significantly reduce other greenhouse gas emissions and pollutants such as nitrogen oxide and sulfur dioxide.
+ Cogen is a key component of NYC Health + Hospital's compliance with Local Law 97 which outlines the City's commitment to reducing greenhouse gas emissions by at least 50 percent by 2030.

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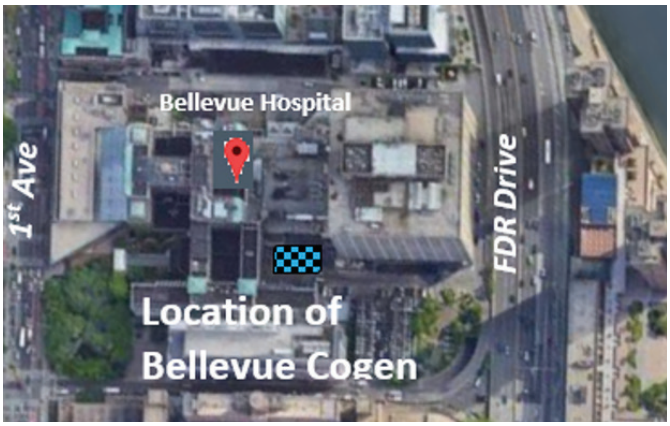
How will the Cogen system impact the surrounding community?

+ The Cogen system is a self-contained unit located in the hospital's South Parking Lot, which is enclosed on three sides by the Bellevue campus. The system is not visible from the street or sidewalks.
+ Construction will not impact pedestrian or vehicular traffic, nor interrupt access to the emergency room or hospital entrances. There will be no significant increase in noise levels during construction.
+ Project completion would result in an overall reduction in greenhouse gas emissions within the local community, and generate less demand for water resources. The project is part of the hospital's efforts to reduce its carbon footprint and meet New York State and City initiatives to curtail and eventually achieve net zero greenhouse gas emissions.

Will flooding and rising sea levels affect the Cogen system?

The Cogen plant will improve Bellevue's ability to handle storm events. Equipment is being designed and positioned specifically to maintain operation during severe weather conditions.

All the key equipment in the new Cogen system will be built above the anticipated 500-year flood level.



As utility work progresses on campus, we have already relocated critical equipment to elevations that will not be prone to flood damage in the future.

How common is Cogen in North America?

Currently, Cogen applications supply approximately 8 percent of all the energy consumed in the United States. Other hospital systems, including NYU Langone, in the proximal area to Bellevue have switched to Cogen for the benefits identified above.

Additional Information on Cogen Systems

View the EPA website for additional details about the benefits of cogeneration in terms of efficiency, cost-effectiveness, and environmental impact.

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