BRIGHT POWER

Balancing an Inefficient Steam Heating System

Objectives

- Address critical resident comfort issues
- Increase operational efficiency
- Create a plan to reduce carbon emissions for Local Law 97 compliance

Challenge

The Clinton Hill Cooperative, a 12 building, 1,223 apartment cooperative located in Brooklyn, New York, struggled with heating imbalances in the winter months. Bright Power began working with Clinton Hill on Local Law 84/133 (LL84/133) benchmarking with EnergyScoreCards. Armed with their energy consumption data, the cooperative's Board engaged Bright Power to identify and assess how the co-op could reduce its energy consumption while addressing resident comfort issues.

The most significant area for improvement was the inefficient steam heating system. Anyone living in a steam-heated building understands the problem with steam heat: some units are stifling hot while others are freezing cold. Unfortunately, this is just a way of life for many New Yorkers, remedied by opening windows in the winter or by plugging in space heaters. Even worse: buildings can waste up to 40% of the money spent to heat the building due to open windows in the winter. This was especially true for The Clinton Hill Co-ops. Their steam distribution network is particularly difficult to balance because of its unique downfed metro steam system, making it impossible to correct through traditional methods.

Solution

Bright Power assessed if The Cozy™, an innovative solution by Radiator Labs that mitigates over-and under-heating, would be the right fit for The Clinton Hill Co-ops. After reviewing the technology and performance data, Bright Power determined the Radiator Labs system was the best solution to achieve the co-op's goals. Beyond energy savings, the residents with Cozys experienced considerable improvements in their comfort. It was evident that The Cozy™ from Radiator Labs was the ideal solution to address the heating imbalances across the 12-building complex.

The Radiator Labs system consists of a network of smart, internet-connected, insulated radiator enclosures—called Cozys—installed around baseboards, cast iron radiators, and recessed convectors throughout the property. The Cozy regulates how heat is distributed from each radiator by a thermostatically controlled fan. This limits the amount of heat delivered to the "hot" apartments and allows more steam to travel to the "cold" apartments while **giving residents greater control over their comfort through temperature controls on every enclosure and a mobile application**. Since The Cozy is insulated, residents no longer have to worry about bumping up against a hot radiator.

After the Radiator Labs system installation, Bright Power integrated our **MoBIUS® real-time energy management system and sensors to track the performance**. Paired with the Radiator Labs system's smart, internet-connected Cozys, Bright Power determined the two solutions would qualify for NYSERDA's Real-Time Energy Management (RTEM) program and considerably reduce the project cost. Bright Power is now set to complete the commissioning of the Radiator Labs system to ensure the system works optimally and as designed.

Throughout the project, Bright Power and Radiator Labs held regular Town Hall meetings to share information about the technology and answer resident questions. The forums helped residents learn about the project and the system, which increased the buy-in necessary to complete the in-unit work.

By installing the Radiator Labs system of about 3,500 Cozys throughout the 12 building complex, the property **significantly reduced gas consumption, vastly improved resident comfort, mitigated heating-related carbon emissions** helping the property to comply with **Local Law 97**, and enhanced the cooperative's NYC **Local Law 33/95 building energy grade.** While the Radiator Labs system uses very little electricity, there was a very small increase in electricity consumption across the property; however, it was negligible when compared to the amount of gas savings. The integration of Bright Power's MoBIUS continues to verify energy savings while the real-time alerts from Radiator Labs assist with preventative maintenance and keep resident heating issues at bay.

"[Radiator Labs'] The Cozy, recommended by Bright Power, made a huge difference in our lives. It gives us complete control over the room temperature in which it is installed. We are no longer opening windows in the winter and wasting energy—we're actually comfortable in our apartment! Because The Cozy completely covers and insulates the radiator, now, I don't have to worry about my young son overheating at night. I highly recommend The Cozy."

-Clinton Hill Resident

Bright Power's Role

- NYSERDA Real-time Energy Management (RTEM) incentive procurement
- Real-Time Energy Management with MoBIUS®
- Commissioning The Cozy

Results

33%
GAS SAVINGS

$215,400
HEATING SAVINGS ANNUALLY

$818,700
INCENTIVES PROCURED

262,700
THERMS REDUCED ANNUALLY

1,580
TONS OF CARBON EMISSIONS OFFSET ANNUALLY