



BELIMO RetroFIT+

# Belimo Energy Valve™ Helps New York City Property Manager Cut Carbon Emissions by 40%

## NYC Building Owner Reduces Energy Costs with Belimo RetroFIT+

In response to New York City's Local Law 97, which mandates improved energy efficiency and reduced carbon emissions for large buildings starting in 2024, property owner Paramount Group undertook a significant retrofit of three key properties in New York City: 1301 6th Avenue, 1633 Broadway, and 31 West 52nd Street. This law aims to reduce carbon emissions by 40% by 2030, and will become increasingly stringent by 2050. The retrofit project utilised the Belimo Energy Valve™, a pioneering, IoT-enabled device designed to optimise energy use and to maintain design Delta T in HVAC systems.

### TYPE OF BUILDING

Office Buildings

### PROJECT

Retrofit

### SECTOR

Commercial

### PRODUCTS

Energy Valve



Learn more  
[www.belimo.com](http://www.belimo.com)

**BELIMO**<sup>®</sup>

# Belimo pressure-independent applications make existing buildings more efficient

## Project Overview and Motivation

Ian Morrell, Director of Engineering at Paramount Group, highlighted the challenges they faced with the legacy systems. "We were either overheating or overcooling the offices, and there was no real way to control tenant comfort, which is not great when you are a landlord in New York City. The legacy pressure-dependent valves that were in place were 2-way pneumatic valves. Really not too much controllability on the valves. They were tying into an old MSTP Apogee BMS system," he explained. The retrofit involved creating a pressure-independent system by integrating the Belimo Energy Valve™. "Today we're seeing the true design 18-degree delta at those coils, and in some cases above 20-degree delta T," he added, demonstrating the effectiveness of the Energy Valve in optimising coil performance and energy consumption.

Anthony Marinelli, Chief Engineer at 1301 6th Avenue, noted, "The EV's flow control has been a huge help with our fan coil units." The Energy Valve utilises an integrated ultrasonic flow sensor and control logic that throttles its characterised control valve (CCV) to maintain the flow setpoint. "We were operating at low delta Ts using maximum GPMs. We are now at 18° delta Ts, which makes for supply air setpoints at 150 GPMs on 500 GPM FCUs. It is a significant amount of energy savings in our pumping system and in our chillers. It has made a complete difference to what this building has been used for all these years".

The Energy Valve provides advanced cloud monitoring and analytics, offering recommended delta T and flow setpoints that can be updated remotely. "The Belimo cloud is a great tool," Anthony said. "I personally use it daily. I take a look at all my fan coils, make sure the numbers look right, and if there's any variance in the operating numbers, it allows me to look deeper into the coil and its operation. That's how we stay efficient and provide maximum tenant comfort."

Anthony also recounted an instance where the Energy Valve's reporting capabilities identified a reversed-flow issue in a fan coil unit. "We had one FCU where we found that the supply and return lines had actually been installed backwards about 50 years ago. Once the Energy Valve was installed, we had constant reverse-flow alarms, which was what actually led us to find this problem."



"There was a 5-degree delta T on the cooling coils. They're 18-degree coils, so something was wrong. We undertook a massive retrofit using the Energy Valves, and created a pressure-independent system. Today we're seeing the true design 18-degree delta at those coils, and in some cases above 20-degree delta T."

**Ian Morrell, Director of Engineering,  
Paramount Group**

## Application

The measurable outcomes of the retrofit are impressive. From 2022 to 2023, energy consumption at 1301 6th Avenue was reduced by over 1.9 million kilowatt-hours, 1633 Broadway saw a reduction of 2 million kilowatt-hours, and 31 West 52nd Street reduced its consumption by 188,000 kilowatt-hours. Combined, these reductions translated into over \$1 million in utility savings in 2023. These achievements have brought the buildings into compliance with the 2030 requirements of Local Law 97.

Paramount also leveraged the Energy Valve's data reporting to secure substantial rebates from the local utility provider, Con Edison. "Belimo's cloud reporting made it much easier for us to prove the measurement and verification process to Con Edison because all the data was easily exportable, and you can see in real-time all the kWh and the reduction in BTUs that you're actually achieving with the valves in place," Ian said. This data was crucial in securing a \$2.1 million rebate incentive, highlighting the EV's ability to improve efficiency and prove that it's doing the job it's supposed to.

In addition to improving efficiency, the EV's ability to maintain precise temperature control has reduced occupant complaints in the buildings. "We've had a huge improvement in occupant comfort since the Energy Valves were installed," Anthony said. "They allow us to maintain a more consistent temperature throughout the space, while at the same time we don't get as many complaints about hot and cold in the summer months."

"The Energy Valve was a way for us to defer capital," Ian explained. "It was an easy retrofit. The valves drop right into place. They're compatible with the new BMS system, which is BACnet/IP. It allowed us to create a far more efficient, pressure-independent system in an existing 1960s commercial office building."

Michael Jackson, Belimo District Sales Manager for New York City, noted, "I'm very excited about our partnership with the Paramount Group and I love to see these results where we're reducing both their kilowatt hours and their carbon footprint."



### **BELIMO ENERGY VALVE™**

The Belimo Energy Valve™ is an IoT cloud-connected pressure-independent valve that monitors coil performance and energy consumption while maintaining delta T.

- Patented power control and delta T manager logic monitors coil performance and optimises the available energy of the coil by maintaining the delta T.
- Glycol monitoring ensures glycol content meets design needs to provide optimum efficiency and safe operation.
- Cloud analytics provide recommended delta T and flow setpoints with remote update capability.
- Dynamic coil performance illustrates the operation of the coil in real-time, accurately providing transparency of power degradation and other operational issues.
- Expansive communication platform includes Cloud, BACnet MSTP and BACnet IP, Modbus, RTU and TCP/IP, Belimo MP-Bus, and one analogue feedback signal for valve flow, power, temperature, or position.



## Customer Satisfaction

This retrofit positioned Paramount Group's assets for compliance with Local Law 97, demonstrated substantial energy and cost savings, improved tenant comfort, and enhanced operational efficiency. This retrofit highlights the transformative potential of integrating advanced HVAC technology into legacy buildings, thus setting a benchmark for future sustainability efforts in New York's commercial real estate sector. The project underscores Paramount Group's dedication to sustainability and demonstrates the effectiveness of the Belimo Energy Valve™ in achieving substantial energy efficiency improvements.

