



**Creating *momentum*  
for transition with  
most efficient path to  
electrification**

*Using NYC As A Case Study*



# The need for *accelarated* decarbonization is clear

New York State's urgent drive to reduce its carbon footprint fuels its decarbonization journey, with buildings representing a crucial 31% of total emissions. Ambitious local and global climate targets demand rapid electrification as the most efficient solution. The Climate Leadership and Community Protection Act, along with local laws like NYC's Local Law 154 of 2021 and Local Law 97, enforce strict CO2 limits, accelerating the need for energy-efficient building solutions.

The push for rapid decarbonization results in a demand for technologies that enable cost-effective, scalable, and minimally disruptive transition.

OhmIQ's ThermIQ unit solution stands out in this context, offering a path to fully eliminate fossil fuel heating and achieve an all-electric building. This shift empowers buildings to benefit from NYS's increasingly green electric grid, ultimately aligning with a carbon-free energy future.

22%

of a typical NYC Office building's energy consumption is from space heating

14.5%

TCO2e GHG emissions from commercial buildings

85%

Reduction by 2050 GHG emissions target

40%

Reduction by 2030 GHG emissions target

70%

Target electricity in NYS by renewable energy by 2030

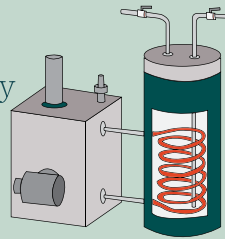
# The future is electric, but is it efficiently *scalable*?

## ***ELECTRIC BOILERS***

Electric boilers have lower conversion efficiency from electricity to heat.

Using an electric boiler would significantly increase the energy cost as electricity prices in NYS are 3-5 times higher than gas prices.

Switching to an electric boiler puts strain on the grid during peak demand periods.

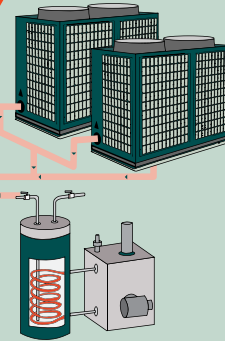


An all-electric future is the way forward, but the implementation needs to be done efficiently and rapidly. The standard all-electric heating options available lead to higher operating expenses, require deployment of more capital and pose a risk of not meeting indoor comfort requirements with an existing hydronic system and a poor façade.

## ***LOW TEMPERATURE ASHP WITH ELECTRIC BOILER***

Low-temperature heat pumps lose efficiency during lower outside temperatures and are unable to reach required temperatures to meet indoor comfort.

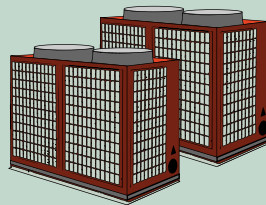
Thus, during cold days the building would rely on electric boilers despite its lower conversion efficiency.



## ***HIGH TEMPERATURE ASHP***

High temperature air source heat pumps (ASHPs) have high upfront capital expenditure because of limited availability.

As it is new to the market, the technology is less mature and poses installation challenges.

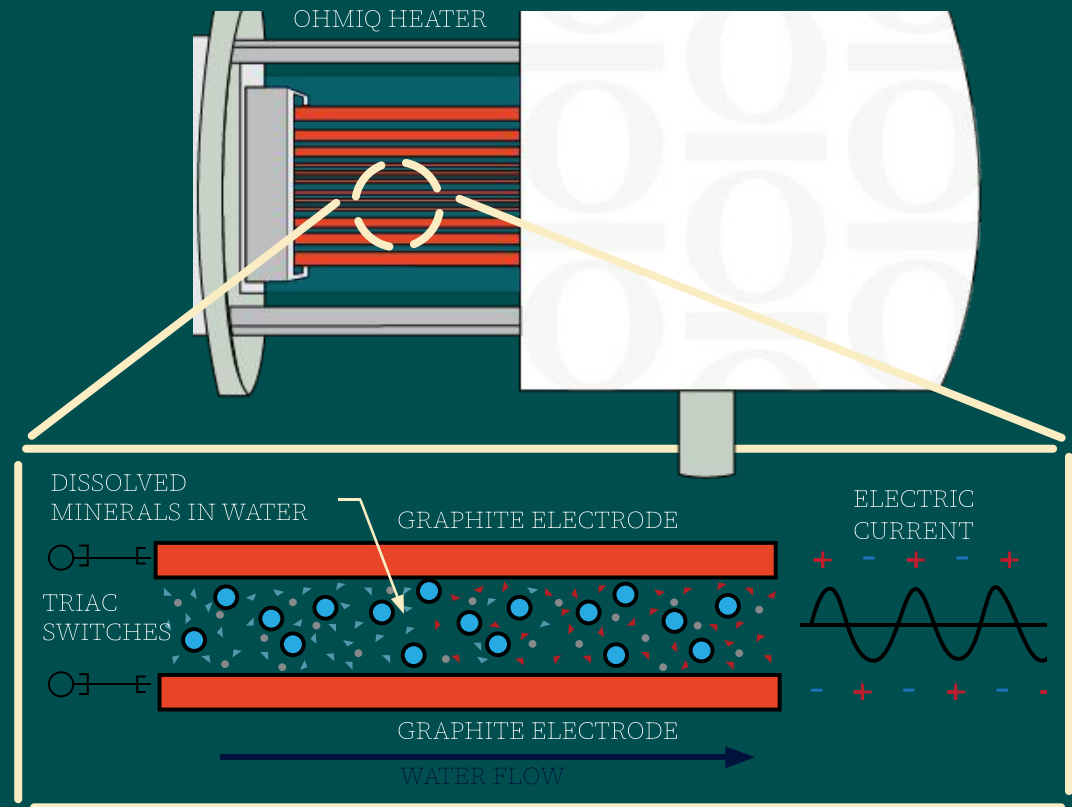




# The most innovative heating solution

The ohmic technology is an innovative approach to heating water by utilizing the direct application of electric current. Unlike traditional heating methods, where heat is generated externally and transferred to the water, the ohmic technology involves the passage of electricity directly through the water itself. When electricity is introduced, an electric field forms, inducing movement

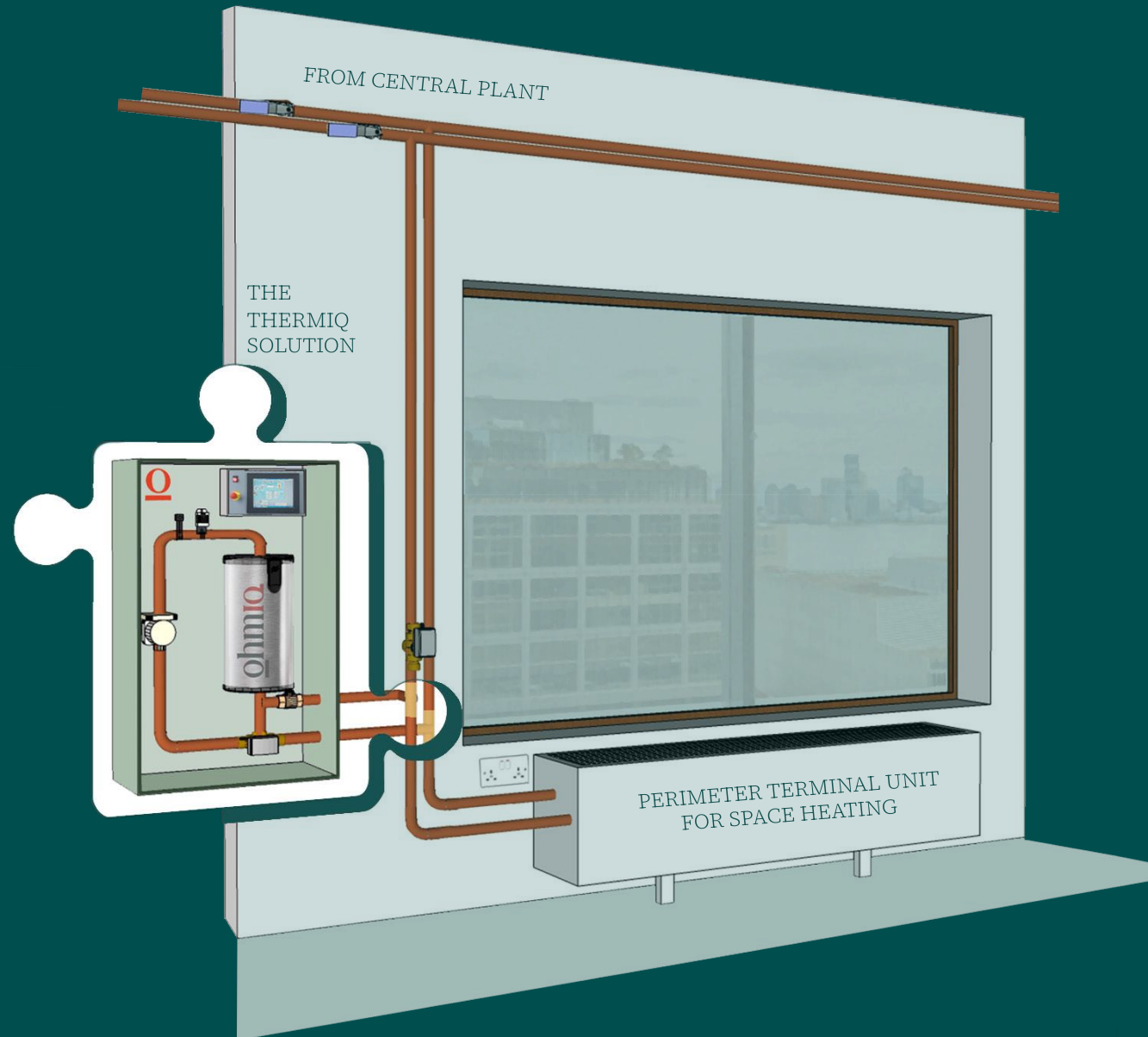
in charged particles within the water. These particles oscillate, colliding with water molecules and transferring energy, effectively raising the water temperature. The ohmic technology selectively energizes the parallel graphite electrodes, maintaining precise temperature control. This approach offers efficient heating, ideal for diverse applications such as space heating in buildings.



# The missing piece for rapid *electrification*

The ThermIQ solution integrates a patented Ohmiq-designed supplemental thermal battery (patent pending) with existing hydronic system distribution in commercial buildings. This allows the buildings to move away from gas and steam for meeting its heating needs, by utilizing off-the-shelf low-temperature heat pumps. During periods of heating demand, ThermIQ rapidly releases high-temperature hot water directly to the terminal end-use units as needed. This software-integrated solution provides flexibility and versatility in temperature control and power consumption.

“ThermIQ is a minimally disruptive and scalable technology with precise temperature control.”



# Empowered with AI *integration*



## *OCCUPANCY CONTROLS*

Intelligent algorithms anticipate heating needs using real-time occupancy data and historical patterns, optimizing energy usage and comfort.



## *TEMPERATURE SENSOR CONTROLS*

Monitors temperature data, proactively adjusting heating operations to maintain desired comfort levels while minimizing energy use.



## *WEATHER-BASED CONTROLS*

Adjust heating operations, factoring in temperature and humidity levels for optimal comfort.



## *SUPPLEMENTAL HEATING*

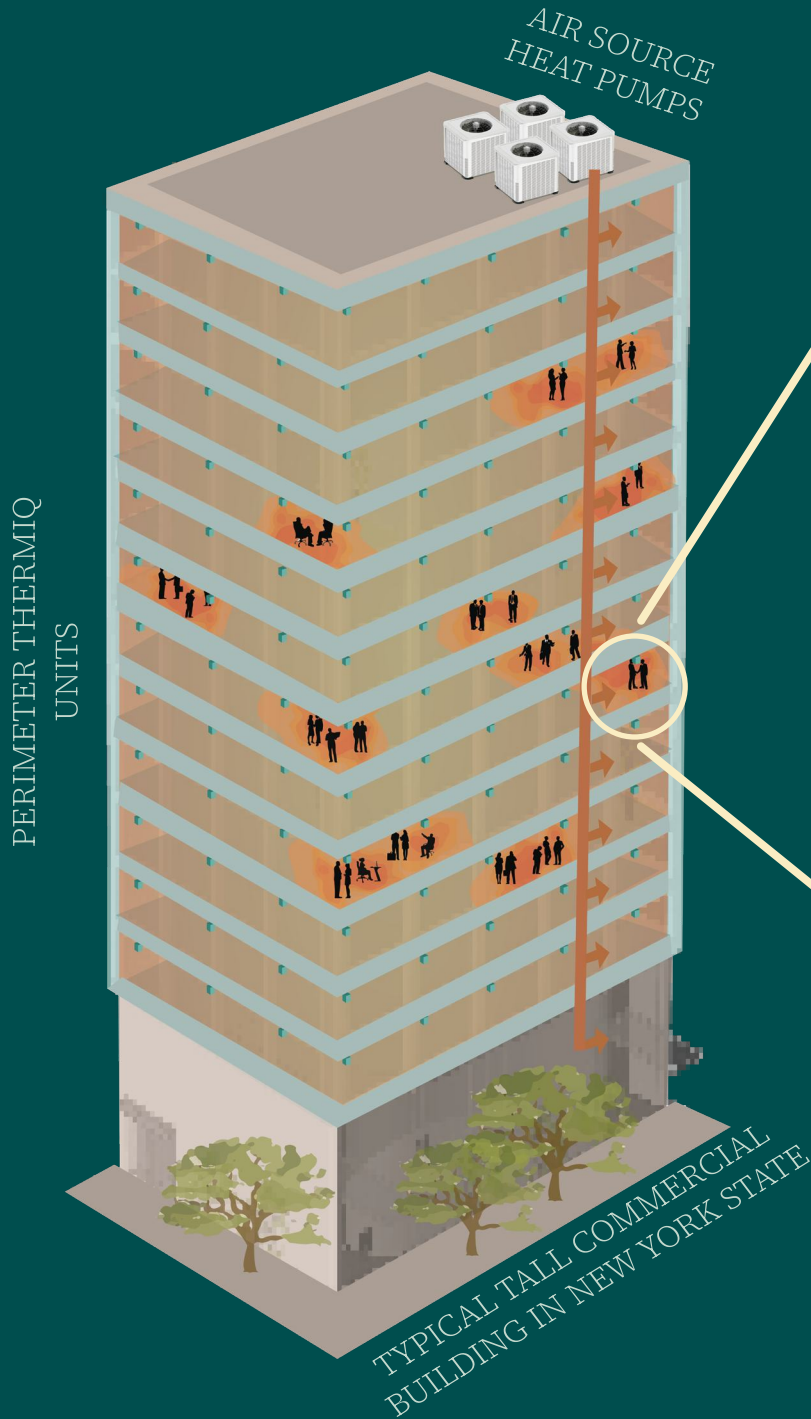
Adjusts heating temperatures based on demand, optimizing ASHP operation and selectively activating ThermIQ units for maximum efficiency.



## *DEMAND-RESPONSE CONTROLS*

Adjust heating in response to utility signals, optimizing energy use and supporting grid stability.

# Heating precisely *where & when* needed

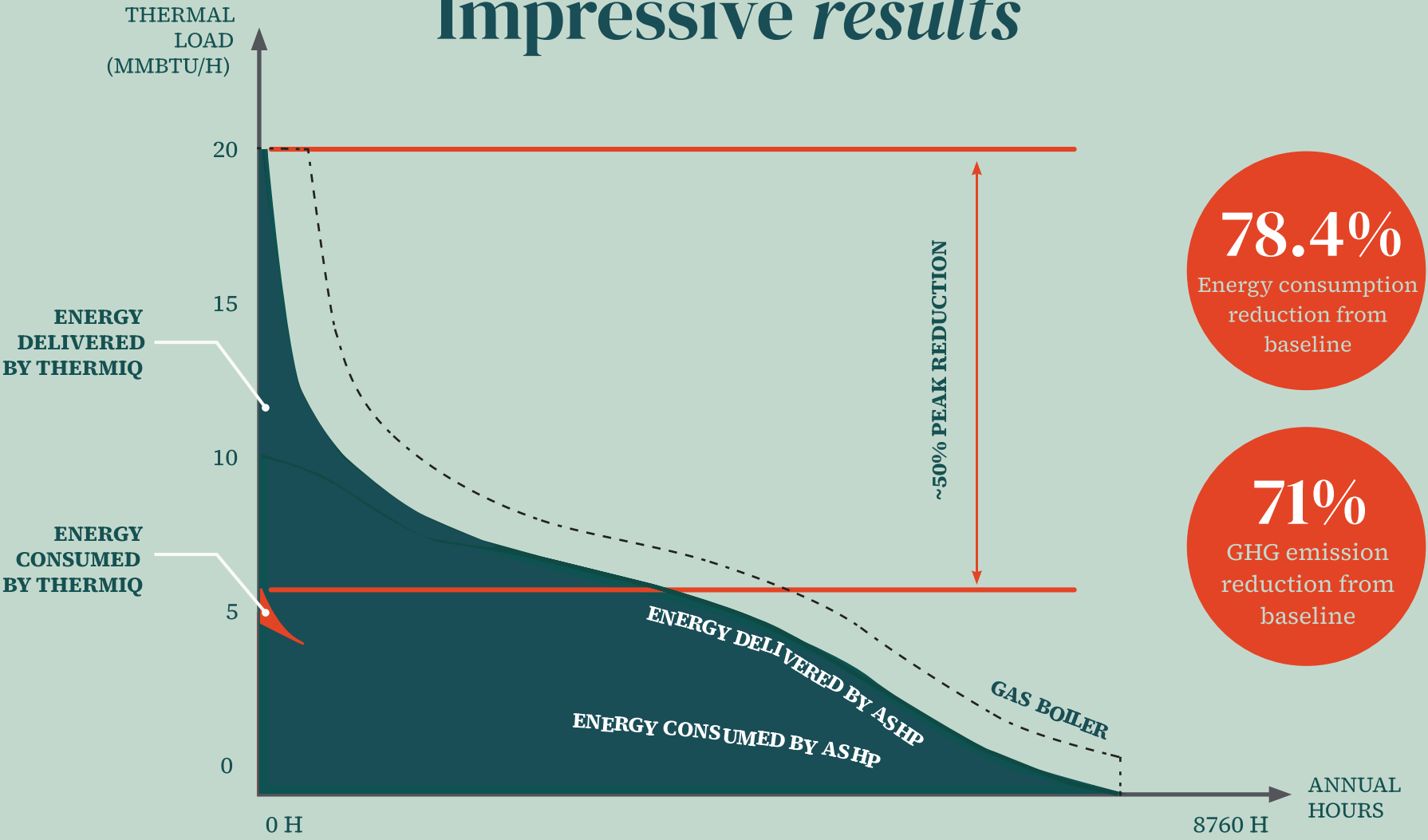











*A TYPICAL FLOOR PLATE WITH A THERMIQ UNIT INTEGRATED WITH THE TERMINAL END UNIT FOR HYDRONIC DISTRIBUTION*

ThermIQ's software integration, when connected to the building's automation system, provides the flexibility and variability needed to ensure precise heat delivery where and when it's required. It uses advanced algorithms and real-time data analysis to adapt temperature regulation based on demand, and adjust

operations according to external weather conditions, room temperatures and utility signals. This holistic approach ensures optimal heating efficiency, energy optimization, and cost-effective operation, making ThermIQ a versatile and effective solution for space heating within buildings.

# Impressive results



-  CENTRAL PLANT EFFICIENCY
-  LOW MAINTENANCE
-  NO DRY FIRE FAILURE
-  ENVIRONMENTAL EFFICIENCY
-  RAPID ADOPTION
-  DEPLOYMENT EFFECTIVENESS
-  PRODUCTION EFFECTIVENESS
-  DIGITAL EFFICIENCY
-  SPATIAL EFFICIENCY



# Accelerate *electrification* with ThermIQ

In most NYS commercial buildings, landlords control and install centralized heating systems. The ThermIQ solution enables a seamless transition from gas, steam, and oil to off-the-shelf heat pumps, mitigating potential fines under Local Law 97 and reducing on-site emissions while supporting

New York's clean grid transition. The compact solution optimizes heat pump sizing and performance, boosting them with ThermIQ as needed. This delivers massive energy savings to the landlord and rapid electrification without altering existing infrastructure, making it cost-effective while maintaining tenant comfort and convenience.





Join us as we endeavour to  
change the landscape of the  
rapid *decarbonization* of  
heating.

