

# ARE YOU READY FOR LOCAL LAW 97?

## AN ENERGY EFFICIENCY CASE STUDY

A 10-story, 108,000-square-foot commercial office building in Queens, New York was at risk of failing to meet the greenhouse gas emission caps set forth by Local Law 97.

The owner had hired another engineering firm to perform an energy analysis and received a comprehensive, high-level report, devoid of feasibility studies or the costs to implement solutions. This firm was also unable to develop the construction documents needed to implement any solution.

H2M stepped in to evaluate the current condition of the building and perform an independent analysis of the building's HVAC system. The goal: determine realistic and unique solutions designed specifically for this building's needs.

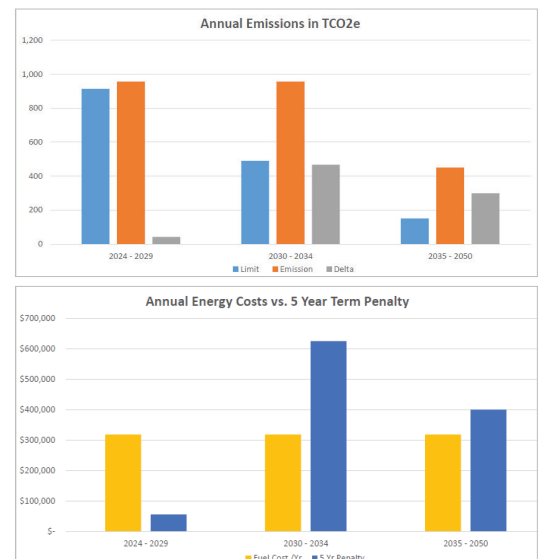
H2M overhauled the HVAC system by replacing the boilers, chillers, air handling units, and pump motors. The design also included new Variable Frequency Drives (VFDs) and everything was integrated into a new Building Management System (BMS) to optimize system efficiency. The existing electrical room was able to accommodate a new electrical service and electrical panels.

System replacements resulted in hundreds of tons of CO2 reductions. The changes to the chiller plant alone reduced energy waste by 25%. The energy improvements are expected to result in an annual energy cost reduction of about \$80,000 (net savings of 37%), along with an annual CO2 reduction of 537 tons.

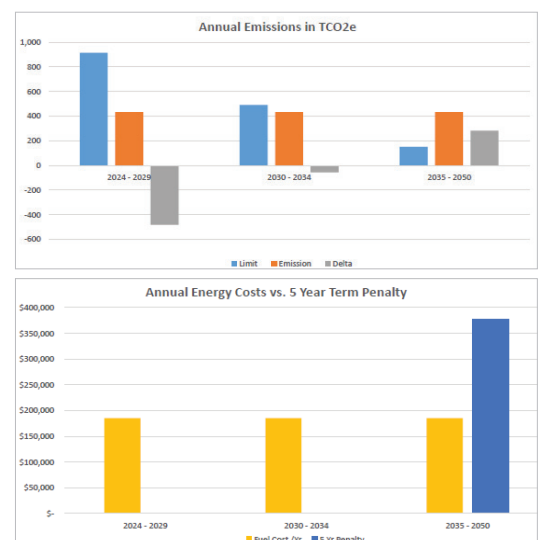
Construction is expected to conclude in 2024, just in time for the Local Law 97 emission caps to go into effect. With the completion of this project, the building's projected emissions of 433 tons of CO2 will bring this building into compliance with, not just the 2024–2029 limits, but also with the projected 2030–2035 limits, avoiding any fines for the next decade!

While the energy cost savings are an attractive payback for this project's investment, the CO2 reductions make this a showcase for the real-world success that can be achieved with responsible leadership and client commitment to a sustainable future.

## Projected Values of Existing Conditions



## Projected Values with Energy Efficiency Measure (EEM) Implementation



## LL97 CALCULATOR

While the energy cost savings are an attractive payback for this project's investment, the CO2 and fine reductions make this a showcase for the real-world success that can be achieved with responsible leadership and client commitment to a sustainable future.

<b>Building Size</b>	108,000	Area of occupied space square feet		
<b>Occupancy</b>	B	Business; office, service, public, civic		
2024-2029	0.00846	tCO2e/Yr	914	tCO2e/Yr Allowed
2030-2034	0.00453	tCO2e/Yr	489	tCO2e/Yr Allowed
2035-2050	0.0014	tCO2e/Yr	151	tCO2e/Yr Allowed
Penalty Rate	\$ 268	/tCO2e		

Fuel Type	TCO2e Conv.	Fuel Unit
Electricity	0.000288962	/kWhr
Natural Gas	0.00005311	/kBTU
Propane*	0.00005311	/kBTU
#2 Oil	0.00007421	/kBTU
#4 Oil	0.00007529	/kBTU
Steam	0.00004493	/kBTU

Fuel Usage		Units	Unit Cost	Cost	tCO2e
Electricity	614,660	kWhr	\$ 0.22	\$ 135,225	178
Natural Gas	146,500	Therm	\$ 1.25	\$ 183,125	778
Natural Gas		CCF	\$ 1.22	-	0
#2 Oil		Gallons	\$ 5.00	-	0
#4 Oil		Gallons	\$ 5.00	-	0
Steam		kBTU	\$ 0.50	-	0
<b>Total</b>				\$ 318,350	956

Report Year	Limit	Emission	Delta	Fuel Cost /Yr	5 Yr Penalty
2024 - 2029	914	956	42	\$ 318,350	\$ 56,273
2030 - 2034	489	956	467	\$ 318,350	\$ 625,458
2035 - 2050	151	450	299	\$ 318,350	\$ 400,392

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Fuel Usage	Annual	Units	Unit Cost	Cost	tCO2e
Electricity	547,745	kWhr	\$ 0.22	\$ 120,504	158
Natural Gas	51,708	Therm	\$ 1.25	\$ 64,635	275
Natural Gas		CCF	\$ 1.22	-	0
#2 Oil		Gallons	\$ 5.00	-	0
#4 Oil		Gallons	\$ 5.00	-	0
Steam		kBTU	\$ 0.50	-	0
<b>Total</b>				\$ 185,139	433

Report Year	Limit	Emission	Delta	Fuel Cost /Yr	5 Yr Penalty
2024 - 2029	914	433	-481	\$ 185,139	\$ -
2030 - 2034	489	433	-56	\$ 185,139	\$ -
2035 - 2050	151	433	282	\$ 185,139	\$ 377,476

## CONTACT US



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