

LL97 Compliance Study Analysis of Preliminary Rules Summary of Analysis and Results

Dec 7th, 2022

LL97 Compliance Study

Range of Demand from NYC Buildings

Purpose of this Study:

To understand the number of properties over the GHGI limits set in the draft rules according to a variety of energy efficiency retrofit and REC limiting scenarios.

Scope of this Study:

- 1) Based on LL84 CY2019 data set (cleaned by Urban Green)
- 2) Buildings covered by LL97 Article 320 (removed City Owned BBLs and <25KSF)
- 3) Proposed rules issued by DOB in October 2022

Results from this Study:

- 1) Energy efficiency retrofits and REC purchases are effective at achieving the GHG targets for most properties in the first 2024-2029 compliance period.
- 2) Over 13,000 properties could be out of compliance in 2030 if no retrofits or changes to energy use occur since CY2019 energy use.
- 3) In 2030 over 9,000 properties would still be over limits even if RECs can be used for all electricity GHG emissions.

Floor Area Summary

Summary of Estimated Total Covered Buildings by LL97 Article 320

Property Type	Estimated Number of Properties covered by LL97 Article 320 (subject to GHGI Limits and Penalties)
Residential	11,055
Office	2,250
All Other	3,700
Total	17,005

Data set used for analysis in this study

- Based on CY2019 LL84 Data Set
- Data Quality Cleaning by Urban Green
- Removed City Owned properties and <25,000 SF
- Scaled up to account for missing properties (see Appendix)
- Removed 33% of MF Residential properties (assumption for properties w/ 35% rent regulated units)

Buildings Over Limits

No Change in Energy Use from CY2019

Total # of Buildings Over GHG Limits if no change in energy use from CY2019 and no purchase of RECs



	2024-29	2030-34	2035-39	2040-49
Residential Over Limits	2,293	8,912	9,614	10,091
Office Over Limits	375	1,723	2,030	2,228
All Other Over Limits	1,117	2,909	3,205	3,513
Total # Over Limits	3,786	13,544	14,849	15,832
Floor Area Over Limits (SF)	370 M (17%)	1.7 B (78%)	1.8 B (87%)	2.0 B (93%)
Total Potential Penalty	\$213 M	\$902 M	\$1.1 B	\$1.3 B

Scenarios Modelled

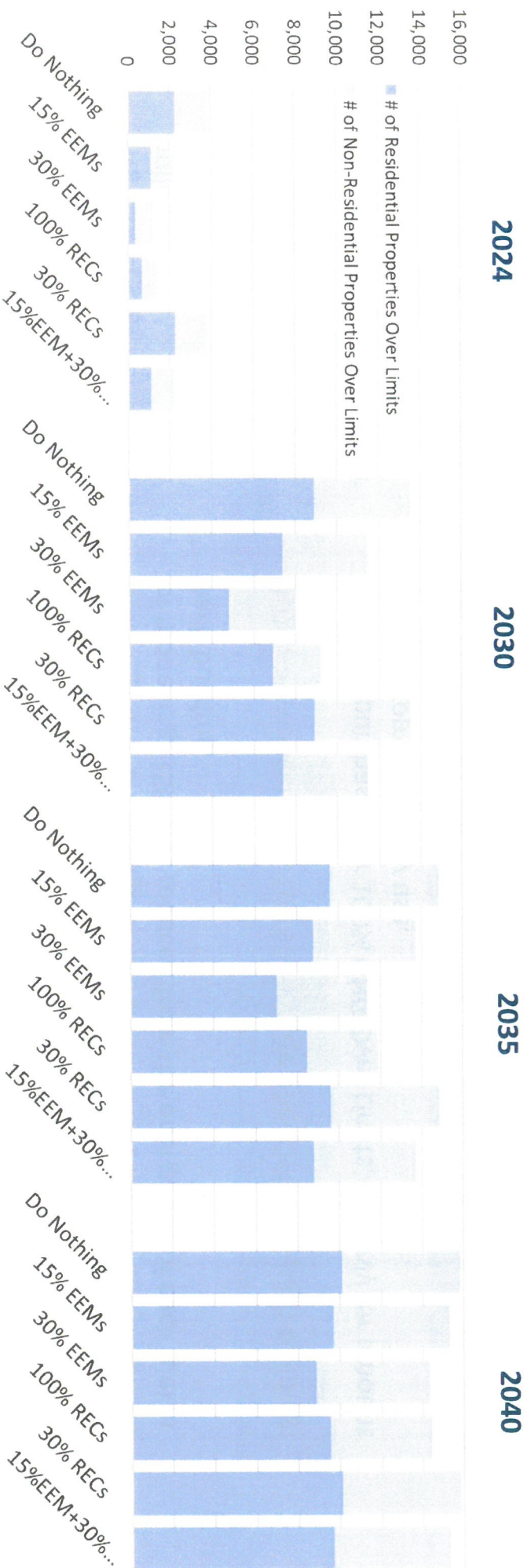
Summary

Scenario	Description
Do Nothing	No change in energy use from CY 2019
Avg 15% Energy Retrofit for all buildings	A range of energy efficiency improvements are completed for all buildings with an average across them all of 15%. For the purposes of modelling, 15% was reduced from the energy use of each fuel in each building.
Avg 30% Energy Retrofit for all buildings	30% was reduced from the energy use of each fuel in each building.
RECs for 100% of GHG Over (electricity only)	RECs are purchased for 100% GHG Over Limits, but only for amount of GHG from electricity use.
RECs for 30% of GHG Over (electricity only)	RECs are purchased for 30% GHG Over Limits, but only for amount of GHG from electricity use.
15% EEMs and 30% RECs for GHG Over	15% was reduced from the energy use of each fuel in each building, then RECs are purchased for 30% of remaining GHG Over Limits, but only for amount of GHG from electricity use.

Properties Over Limits

For 6 Scenarios

Number of Properties Over Limits

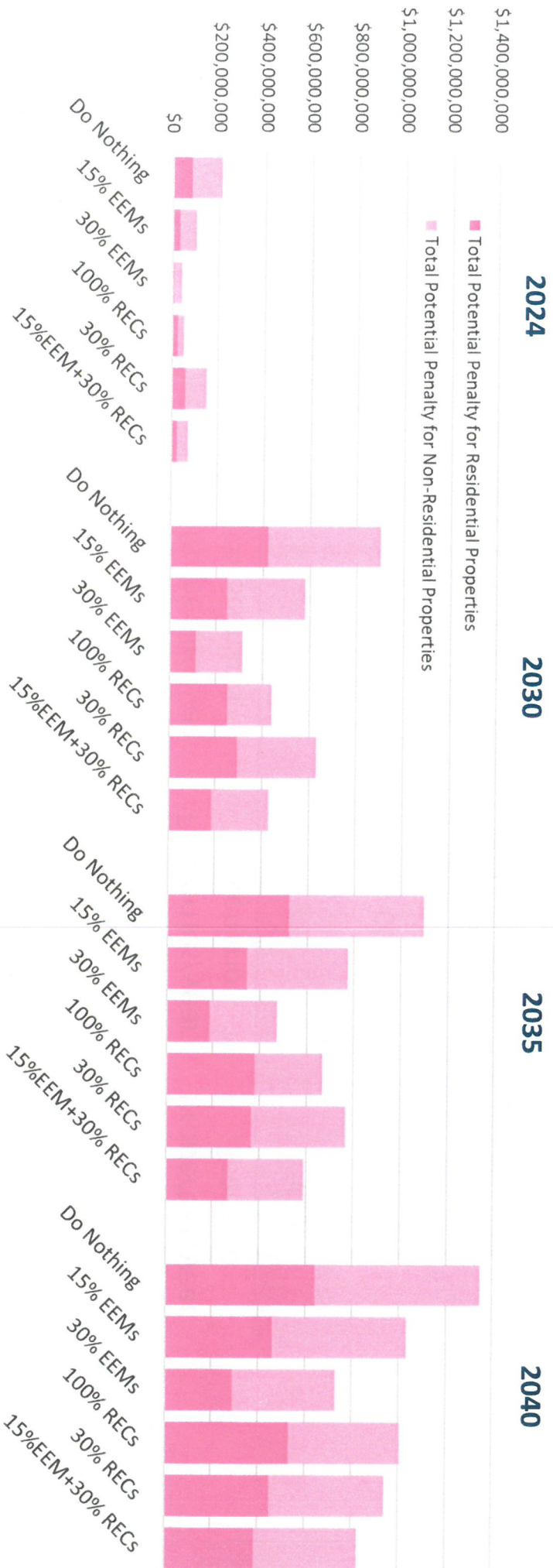


Scenarios Studied	2024		2030		2035		2040	
	Properties Over	Properties Over	Properties Over	Properties Over	Properties Over	Properties Over	Properties Over	
Do Nothing	3,780 (17%)	13,544 (78%)	14,850 (87%)	15,832 (92%)				
Avg 15% Energy Retrofit for all buildings	2,218 (8%)	11,474 (63%)	13,708 (78%)	15,331 (88%)				
Avg 30% Energy Retrofit for all buildings	1,240 (4%)	8,050 (41%)	11,393 (62%)	14,358 (82%)				
RECs for 100% of GHG Over (electricity only)	1,408 (4%)	9,224 (45%)	11,949 (64%)	14,423 (83%)				
RECs for 30% of GHG Over (electricity only)	3,780 (17%)	13,544 (78%)	14,850 (87%)	15,832 (92%)				
15% EEMs and 30% RECs for GHG Over	2,218 (8%)	11,474 (63%)	13,708 (78%)	15,331 (88%)				

Potential Penalties

For 6 Scenarios

Potential Penalties for all scenarios studied



Scenarios Studied	2024	2030	2035	2040
Do Nothing	\$213 M	\$902 M	\$1.1 B	\$1.3 B
Avg 15% Energy Retrofit for all properties	\$102 M	\$576 M	\$775 M	\$1.0 B
Avg 30% Energy Retrofit for all properties	\$40 M	\$315 M	\$476 M	\$730 M
RECs for 100% of GHG Over (electricity only)	\$53 M	\$440 M	\$670 M	\$1.0 B
RECs for 30% of GHG Over (electricity only)	\$149 M	\$631 M	\$769 M	\$942 M
15% EEMs and 30% RECs for GHG Over	\$73 M	\$430 M	\$590 M	\$825 M

Electrification Scenarios

of Properties Electrified

Three electrification implementation scenarios were studied to understand the impact if 100, 500, or 1,000 properties per year completed an electrification retrofit. Starting in 2026 properties complete a retrofit of all space heating, hot water, cooking gas, and other fossil fuel energy systems to electricity-based systems.

	100	500	1,000
	Properties/year	Properties/year	Properties/year
	Scenario	Scenario	Scenario
Residential	65	325	650
Office	13	66	130
All Others	22	109	220
Total per year	100	500	1,000
Total Properties Electrified by 2043	1,700 (10%)	8,500 (50%)	17,000 (100%)