



DASNY

Accelerating the Clean Energy Transition on your Campus

Charting a Path Forward

November 28, 2023

Charting a Path Forward

New York State's Climate Act, Executive Orders, and Local Law 97 examined.



STATE & LOCAL CLIMATE LAWS

CLIMATE LEADERSHIP & COMMUNITY PROTECTION ACT
(CLCPA)

Executive Order 22 (EO22)

Local Law 92 & 94 (LL92 & 94)

All-Electric Buildings Act

Local Law 97 (LL97)

Future Legislation

Local Law 154 (LL154)

Campus Goals & Requirements

CLIMATE LEADERSHIP & COMMUNITY PROTECTION ACT (CLCPA)

Executive Order 22 (EO22)

Local Law 92 & 94 (LL92 & 94)

All-Electric Buildings Act

Local Law 97 (LL97)

Future Legislation

Local Law 154 (LL154)

Campus Goals & Requirements

CLIMATE LEADERSHIP & COMMUNITY PROTECTION ACT (CLCPA)

Carbon neutral economy, mandating at least an
85% reduction in emissions below 1990 levels

40% reduction in emissions by 2030

100% zero-carbon electricity by 2040

70% renewable electricity by 2030

9,000 MW of offshore wind by 2035

6,000 MW of distributed solar by 2025

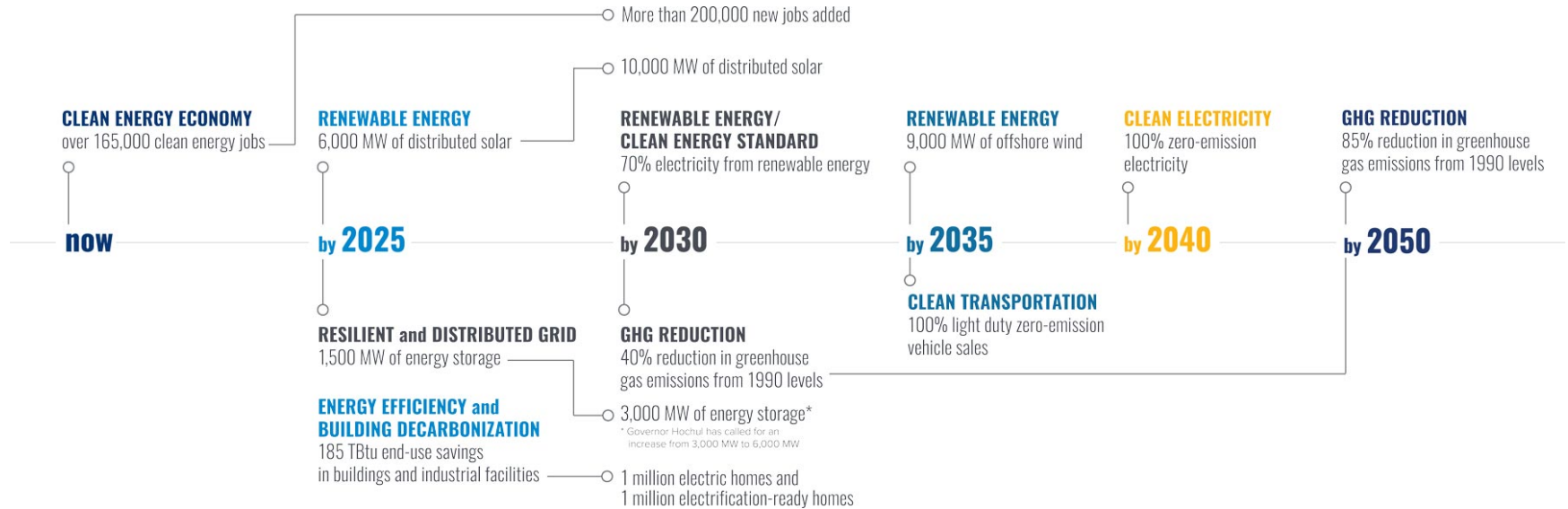
3,000 MW of energy storage by 2030

185 TBtu on-site energy savings by 2025

Commitments to climate justice and just transition



CLCPA: IMPLEMENTATION TIMELINE

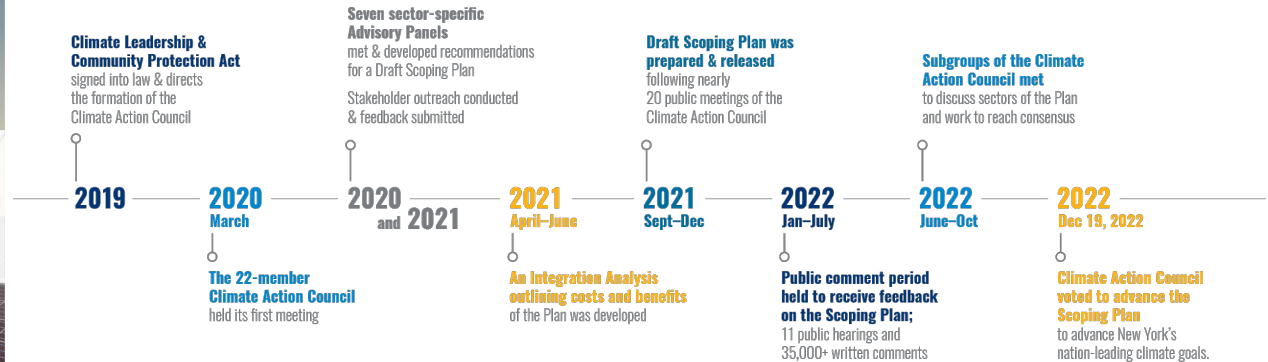


CLCPA: SCOPING PLAN

CLCPA called for issuance of a Scoping Plan under the direction of a 22-member Climate Action Council, to be completed by January 1, 2023.

- Scoping Plan includes recommendations to meet the Climate Act's nation-leading goals and requirements, including actions to achieve a reduction in economywide GHG emissions of 40% by 2030 and 85% by 2050 from 1990 levels.
- Scoping Plan provides recommendations for both sector-specific and economywide actions to achieve the Climate Act's goals and requirements.
 - Sectors: transportation, buildings, electricity, industry, agriculture, forestry, and waste

CLCPA: SCOPING PLAN



****Climate Action Council held a total of 32 public meetings to develop and finalize the Scoping Plan.**

<https://climate.ny.gov/resources/scoping-plan/>

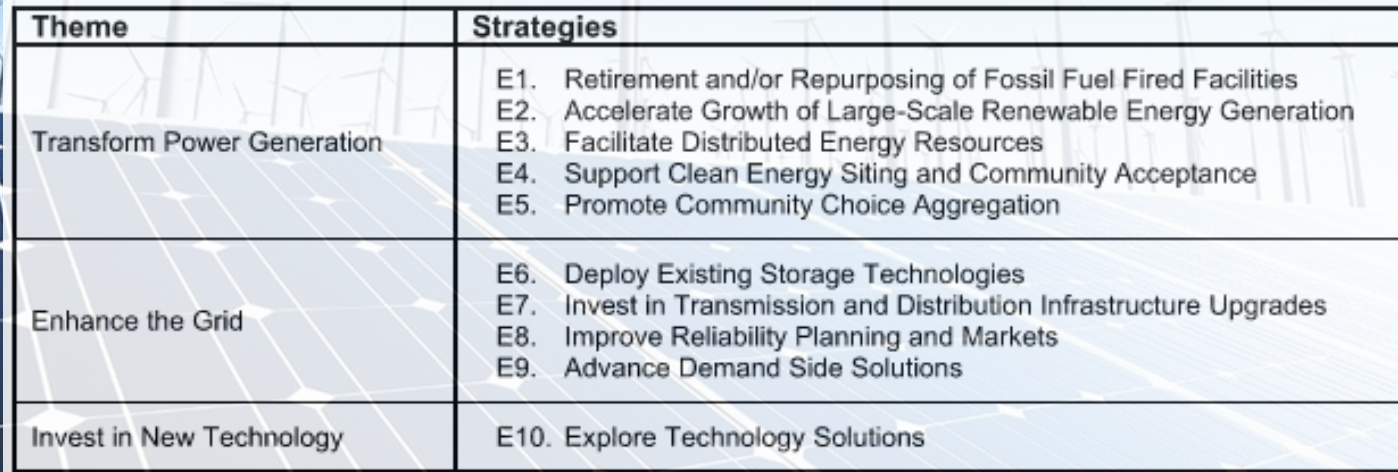
CLCPA SCOPING PLAN: TRANSPORTATION

Theme	Strategies
Transition to ZEVs and Equipment	T1. Light-Duty ZEV Adoption T2. Adoption of Zero-Emission Trucks, Buses, and Non-Road Equipment
Enhance Public Transportation and Mobility Alternatives	T3. Community-Based Service Enhancements T4. Customer Convenience and Service Connectivity T5. Fleet Modernization and Electrification
Promote Smart Growth and Mobility-Oriented Development	T6. Mobility-Oriented Development T7. Smart Growth Public Education and Awareness T8. Expanding the Availability of Low-Carbon Active Transportation Alternatives T9. New Technology Integration
Facilitate Market-Based Solutions and Financing	T10. Transportation Sector Market-Based Policies T11. Unlock Private Financing T12. Market-Based Fuel Policy

CLCPA SCOPING PLAN: BUILDINGS

Theme	Strategies
Adopt Zero-Emission Codes and Standards and Require Energy Benchmarking for Buildings	<ul style="list-style-type: none"> B1. Adopt Advanced Codes for Highly Efficient, Zero-Emission, and Resilient New Construction B2. Adopt Standards for Zero-Emission Equipment and the Energy Performance of Existing Buildings B3. Require Energy Benchmarking and Disclosure
Scale Up Public Financial Incentives and Expand Access to Public and Private Low-Cost Financing for Building Decarbonization	<ul style="list-style-type: none"> B4. Scale Up Public Financial Incentives B5. Expand Access to Public and Private Low-Cost Financing B6. Support Development of Thermal Energy Networks B7. Align Energy Price Signals with Policy Goals
Expand New York's Commitment to Market Development, Innovation, and Leading-by-Example in State Projects	<ul style="list-style-type: none"> B8. Invest in Workforce Development B9. Scale Up Public Awareness and Consumer Education B10. Support Innovation B11. Reduce Embodied Carbon from Building Construction
Transition from Hydrofluorocarbons	<ul style="list-style-type: none"> B12. Advance a Managed and Just Transition from Reliance on Hydrofluorocarbon Use

CLCPA SCOPING PLAN: ELECTRICITY



Theme	Strategies
Transform Power Generation	E1. Retirement and/or Repurposing of Fossil Fuel Fired Facilities E2. Accelerate Growth of Large-Scale Renewable Energy Generation E3. Facilitate Distributed Energy Resources E4. Support Clean Energy Siting and Community Acceptance E5. Promote Community Choice Aggregation
Enhance the Grid	E6. Deploy Existing Storage Technologies E7. Invest in Transmission and Distribution Infrastructure Upgrades E8. Improve Reliability Planning and Markets E9. Advance Demand Side Solutions
Invest in New Technology	E10. Explore Technology Solutions

CLCPA SCOPING PLAN: **INDUSTRY**

Incentive-based strategies for mitigating direct GHG emissions attributable to industrial (manufacturing, mining, quarrying) activities within the State.

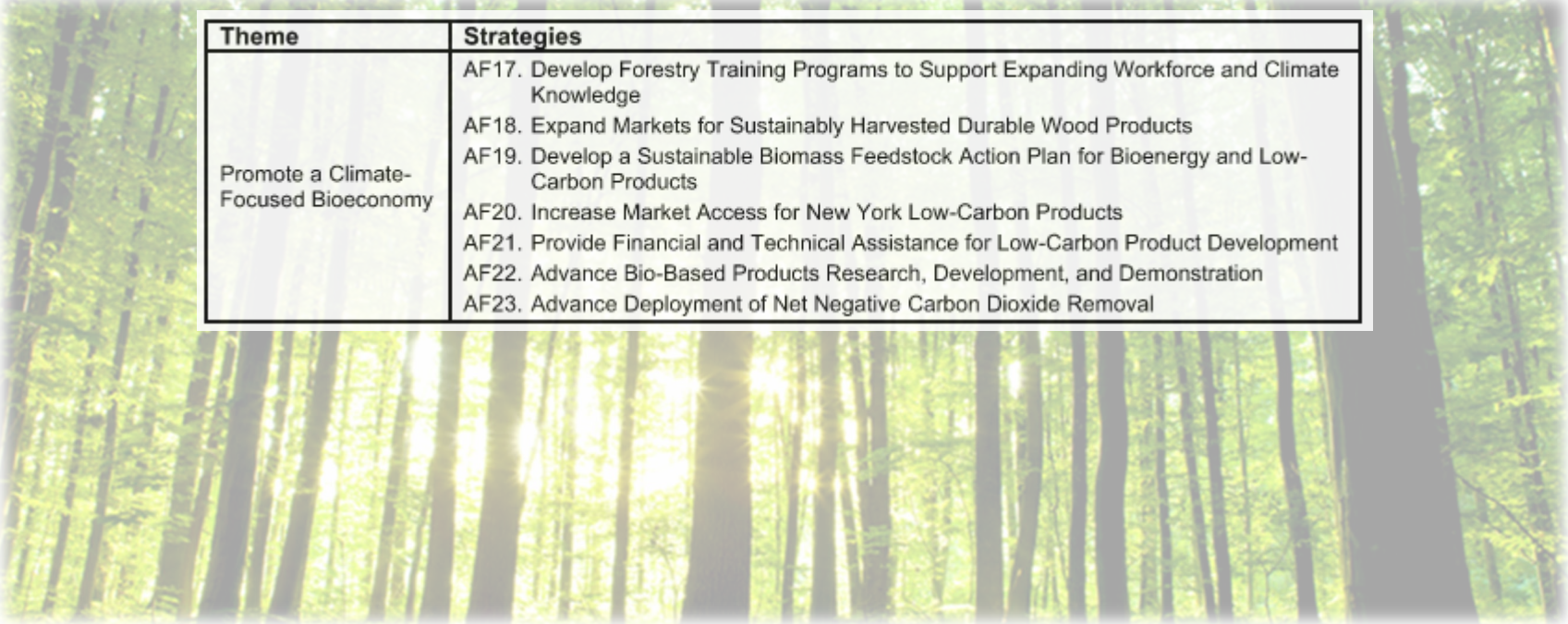
Strategies	
I1.	Provide Financial and Technical Assistance
I2.	Incentivize Procurement of Low-Carbon Products
I3.	Support Workforce Development
I4.	Facilitate Research, Development, and Demonstration
I5.	Establish Greenhouse Gas Registry and Reporting System
I6.	Provide Economic Incentives

CLCPA SCOPING PLAN: FORESTRY & AGRICULTURE



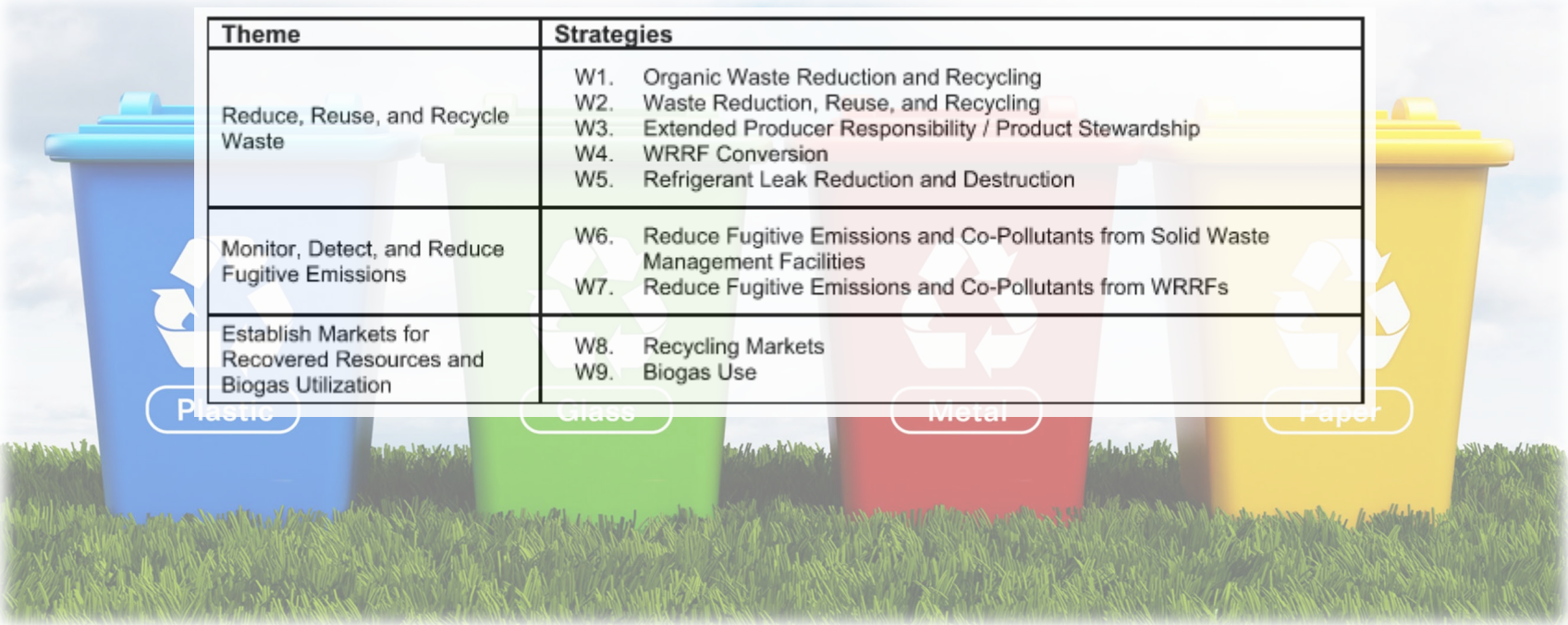
Theme	Strategies
Promote Sustainable Forest Management	<p>AF1. Identify Where Forest Management Provides the Greatest Benefits</p> <p>AF2. Prevent Forest Pests, Diseases, and Invasive Species and Restore Degraded Forests</p> <p>AF3. Maintain and Improve Sustainable Forest Management Practices and Mitigation Strategies</p> <p>AF4. Assist Landowners in Implementation of Sustainable Forest Management and Mitigation Strategies</p> <p>AF5. Support Local Communities in Forest Protection and Management</p> <p>AF6. Monitor Progress and Advance Forestry Science and Technology</p> <p>AF7. Conduct Education and Outreach on Forest Management</p>
Advance Livestock Management Strategies	<p>AF8. Advance Alternative Manure Management</p> <p>AF9. Advance Precision Feed, Forage, and Herd Management</p>
Improve Soil Health, Nutrient Management, and Agroforestry	<p>AF10. Advance Agricultural Nutrient Management</p> <p>AF11. Adopt Soil Health Practice Systems</p> <p>AF12. Increase Adoption of Agroforestry</p> <p>AF13. Develop Agricultural Environmental Management Planning for Climate Mitigation and Adaptation</p> <p>AF14. Monitor and Benchmark Agricultural Greenhouse Gas Emissions</p> <p>AF15. Establish a Payment for Ecosystem Services Program</p> <p>AF16. Bolster Local Agricultural Economies</p>

CLCPA SCOPING PLAN: FORESTRY & AGRICULTURE



Theme	Strategies
Promote a Climate-Focused Bioeconomy	AF17. Develop Forestry Training Programs to Support Expanding Workforce and Climate Knowledge AF18. Expand Markets for Sustainably Harvested Durable Wood Products AF19. Develop a Sustainable Biomass Feedstock Action Plan for Bioenergy and Low-Carbon Products AF20. Increase Market Access for New York Low-Carbon Products AF21. Provide Financial and Technical Assistance for Low-Carbon Product Development AF22. Advance Bio-Based Products Research, Development, and Demonstration AF23. Advance Deployment of Net Negative Carbon Dioxide Removal

CLCPA SCOPING PLAN: WASTE



Theme	Strategies
Reduce, Reuse, and Recycle Waste	<ul style="list-style-type: none">W1. Organic Waste Reduction and RecyclingW2. Waste Reduction, Reuse, and RecyclingW3. Extended Producer Responsibility / Product StewardshipW4. WRRF ConversionW5. Refrigerant Leak Reduction and Destruction
Monitor, Detect, and Reduce Fugitive Emissions	<ul style="list-style-type: none">W6. Reduce Fugitive Emissions and Co-Pollutants from Solid Waste Management FacilitiesW7. Reduce Fugitive Emissions and Co-Pollutants from WRRFs
Establish Markets for Recovered Resources and Biogas Utilization	<ul style="list-style-type: none">W8. Recycling MarketsW9. Biogas Use

CLCPA SCOPING PLAN: **ECONOMYWIDE**

Cap-and-Invest Program

- DEC and NYSERDA are designing a program that sets an annual cap on the amount of greenhouse gas pollution that is permitted to be emitted in New York.
- Large-scale greenhouse gas emissions sources and distributors of heating and transportation fuels will be required to purchase or obtain allowances for the emissions associated with their activities.

CLCPA SCOPING PLAN: ECONOMYWIDE

Revenue raised by Cap-and-Invest auctions will be invested to bolster carbon reductions and help ensure the Program is affordable for all New Yorkers.

- Potential project include:

Buildings

- Further support the 2 million electrified homes goal
- Support buildout of thermal energy networks
- Reduce retrofit costs
- Support affordable housing in transit-oriented districts
- Further invest in Clean Green Schools

Vehicles

- EV incentives
- Zero-emission truck incentives
- Electric school bus deployment
- Transit expansion and electrification
- Infrastructure support for bike and pedestrian facilities

Industrial

- Efficiency and electrification investments

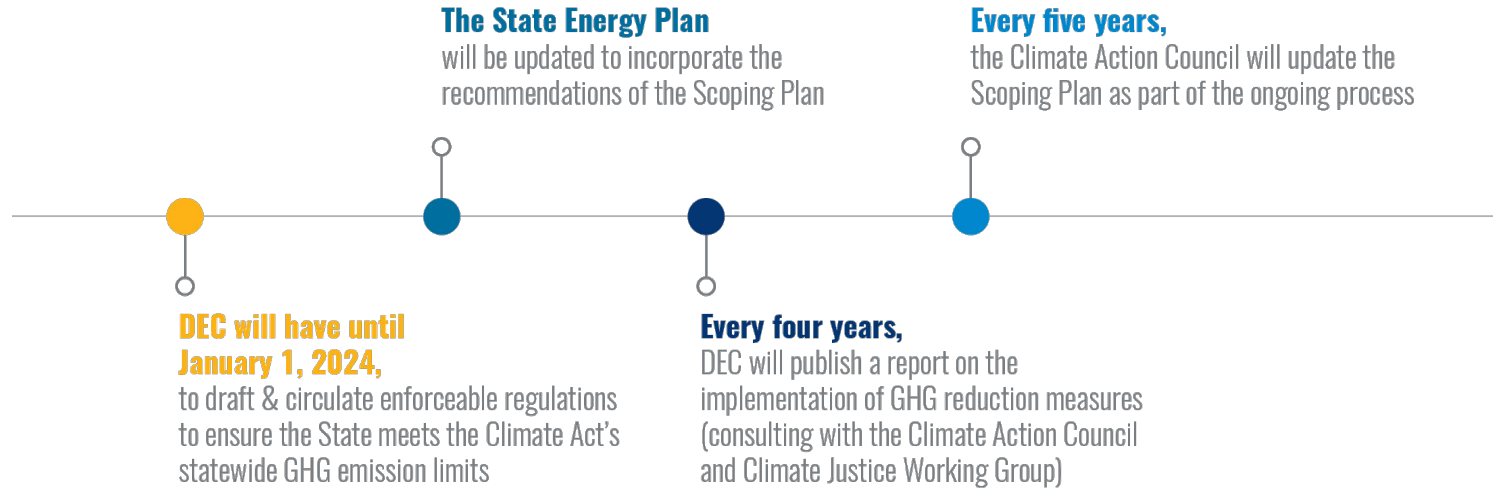
Research & Development

- Research and deployment of zero-emission dispatchable generation

Just Transition Fund

- Energy-related workforce development
- Energy-related displaced worker benefits

CLCPA: NEXT STEPS





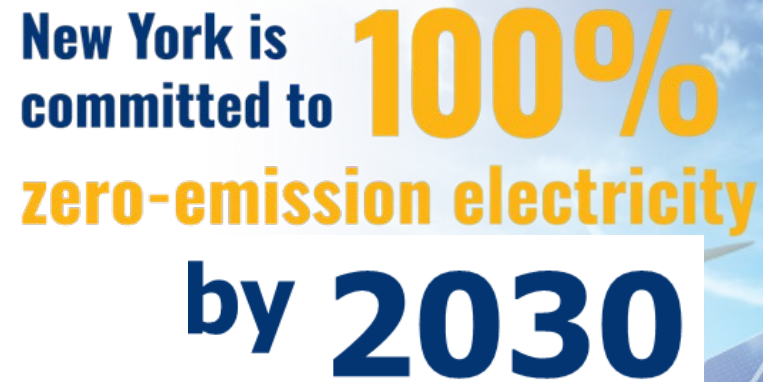
EXECUTIVE ORDER 22 (EO22)

EO 22 streamlines and strengthens climate and sustainability initiatives across state agencies

- Supersedes prior EOs: EO 4 (2008), EO 18 (2009), EO 88 (2012), and EO 166 (2017)
- Creates goals and targets for sustainable operations by **75 Affected Entities** comprising New York State Government.
- Establishes and empowers the GreenNY Council as the body primarily responsible to implement the EO.

EO22: ELECTRICITY

New requirement for 100% renewable electricity for agency operations to align with The Climate Act



**New York is
committed to 100%
zero-emission electricity
by 2030**

most aggressive goal in the nation

EO22: ENERGY EFFICIENCY

Affected Entities shall achieve 11 trillion BTUs of energy savings at their facilities by 2025 as outlined in the BuildSmart 2025 program.

- Prior to 2025, the GreenNY Council shall issue a 2030 energy savings goal based on an evaluation of progress towards the 2025 goal and the additional opportunities that remain for cost-effective energy savings.
 - Goal to be aligned with the most recent version of the State's Scoping Plan developed pursuant the Climate Act.

EO22: FLEET ELECTRIFICATION

100% of light-duty non-emergency vehicle fleets will be Zero Emission Vehicles (ZEVs) by **2035** and 100 percent of medium- and heavy-duty vehicle fleets will be ZEVs by **2040**.

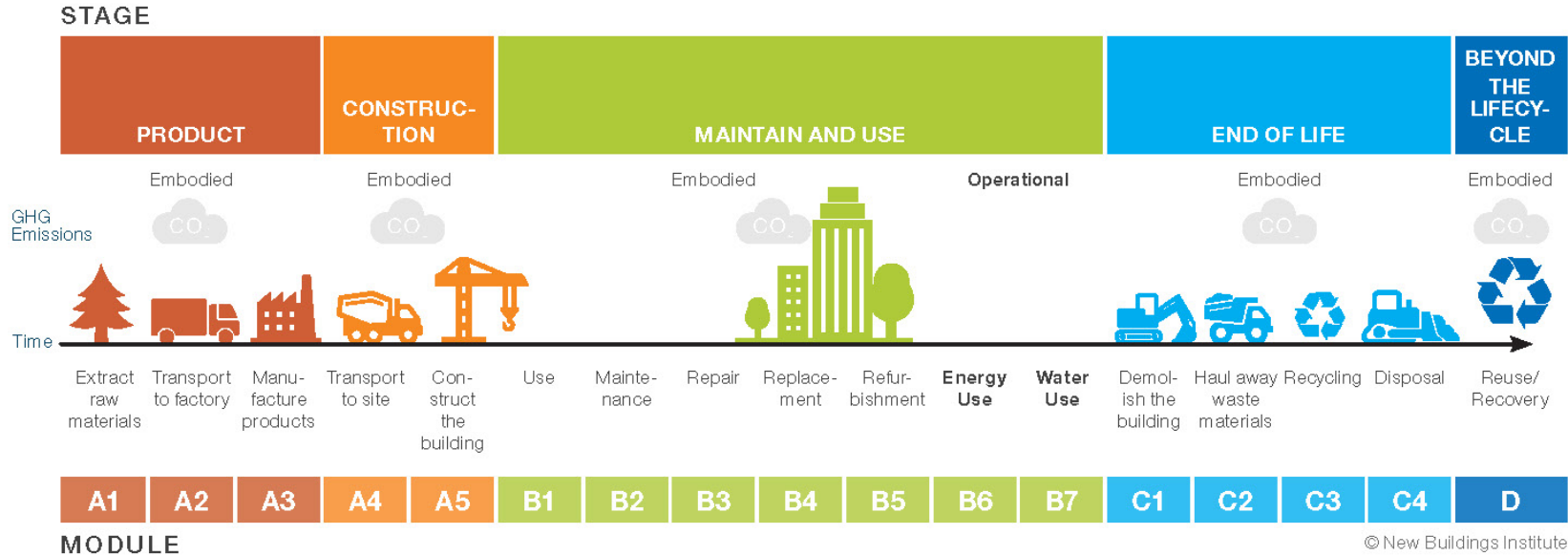
- Agencies required to file plans for conversion of light-duty within a year and medium/heavy duty within three years. Both require updates every three years.
- Entities with emergency vehicles must annually evaluate and test various ZEV technologies to determine if they can meet the use cases for these vehicles.

EO22: EMBODIED CARBON & BUILDING CONSTRUCTION

Starting in **January 2024** all new construction submitted for permitting by Affected Entities shall avoid infrastructure, building systems, or equipment that can be used for the combustion of fossil fuels.

- Exclusion for necessary back up diesel generators for emergency and process loads
 - Provided that the affected entity attempts to avoid these as practicable
- Does NOT affect continued operation and maintenance of Affected Entity owned or operated electric generating facilities

EO22: EMBODIED CARBON & BUILDING CONSTRUCTION



EO22: EMBODIED CARBON & BUILDING CONSTRUCTION

Starting **January 2023**, Affected Entities shall seek to reduce embodied carbon in the following that are submitted for permitting:

- New construction projects
- Construction projects consisting of adaptive reuse or significant renovations that cost greater than 50% of the cost of new construction

For more information, check out the [EO22 Embodied Carbon Guidance](#)

EO22: WASTE REDUCTION

10% decrease in waste disposal every five years from a FY 18-19 baseline until reaching a goal of 75%



EO22: REDUCING TOXIC CHEMICAL USE

Affected entities shall evaluate and incorporate toxics use reduction strategies into their operations, to the extent practicable, to achieve pollution prevention.

EO22: LOW IMPACT DEVELOPMENT

Affected entities shall incorporate green infrastructure to reduce stormwater runoff and improve water quality in new construction or redevelopment projects

- New infrastructure and building projects shall incorporate climate risk
- Include climate projections and adaptation strategies into upfront design
- Preserve open space
- Harden infrastructure and mitigate climate impacts through resilience practices like nature-based solutions and modular infrastructure

EO22: BIODIVERSITY & HABITAT PROTECTION

- Affected entities shall seek opportunities to:
 - Support native biodiversity and the NYS Pollinator Protection Plan
 - Protect threatened and endangered species
 - Increase climate resilience and natural carbon storage
- Affected Entities shall give priority to the use of integrated pest management techniques for controlling invasive species
- Affected Entities shall evaluate opportunities to Co-locate new projects with landscaping or habitat to meet above opportunities

EO22: DISADVANTAGED COMMUNITIES

Each Affected Entity shall, to the maximum extent practicable, lower the impact of its operations on Disadvantaged Communities, and shall incorporate lowered environmental impact in these communities into the plans developed by Affected Entities pursuant to this Order.

- Affected Entities shall prioritize facilities over which the Affected Entity has jurisdiction that are located within Disadvantaged Communities for efficiency and other environmental upgrades, such as electrifying heating and cooling systems, which will lower the Affected Entity's environmental impacts on these communities.

EO22: DISADVANTAGED COMMUNITIES

- “Disadvantaged Communities” means communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate- income households.” (ECL § 75-0101(5))
- “Disadvantaged communities shall be identified based on geographic, public health, environmental hazard, and socioeconomic criteria, which shall include but are not limited to (ECL § 75-0111(1)(c):
 - Areas burdened by cumulate environmental pollution and other hazards that can lead to negative public health effects
 - Areas with concentrations of people that are of low income, high unemployment, high rent burden, low levels of home ownership, low levels of educational attainment, or members of groups that have historically experienced discrimination based on race and ethnicity
 - Areas vulnerable to the impacts of climate change, such as flooding, storm surges, and urban heat island effects



ALL-ELECTRIC BUILDINGS ACT

- Starting in **2026**, most new construction of buildings in New York that are seven stories or shorter must be built to use electric heat and appliances. This will also apply to larger commercial buildings with 100,000 square feet or more of conditioned floor area (bigger businesses).
- Taller residential buildings and smaller commercial buildings will be rolled into the program in **2029**.

ALL-ELECTRIC BUILDINGS ACT: EXEMPTIONS

- Some industries, like restaurants, hospitals and doctors' offices, factories, and agricultural buildings will be automatically exempt from these requirements.
- Existing buildings will not be impacted by these new requirements, even if they're being repaired or renovated.
 - If you build an addition on your house, **you can still use gas if you want!**
- Existing gas appliances can also be replaced with new gas appliances.
- Waivers will be available for new construction projects if the local electric corporation or municipality can't provide reliable service within a reasonable timeframe.
- People can still use fuel-generated power sources, like emergency generators, as backup and standby power systems.



LOCAL LAW 92 & 94

Together, the laws require solar panels or green roofs on all new construction as well as buildings undertaking major roof renovations.

- Requires a “sustainable roofing zone” on all available roof area, which means either solar photovoltaic (PV) systems, a vegetated green roof, or both
- Requirements are subject to several exceptions based on the many competing priorities for NYC roof space, including fire code setbacks, mechanical equipment and recreational spaces.
- Applies to projects approved on or after **November 15, 2019**.

LL92 & 94: SUSTAINABLE ROOFING ZONE

For new construction and major roof renovations, building owners must install a sustainable roofing zone on 100 percent of available roof area. Specific requirements depend on roof slope, connected area and solar capacity.

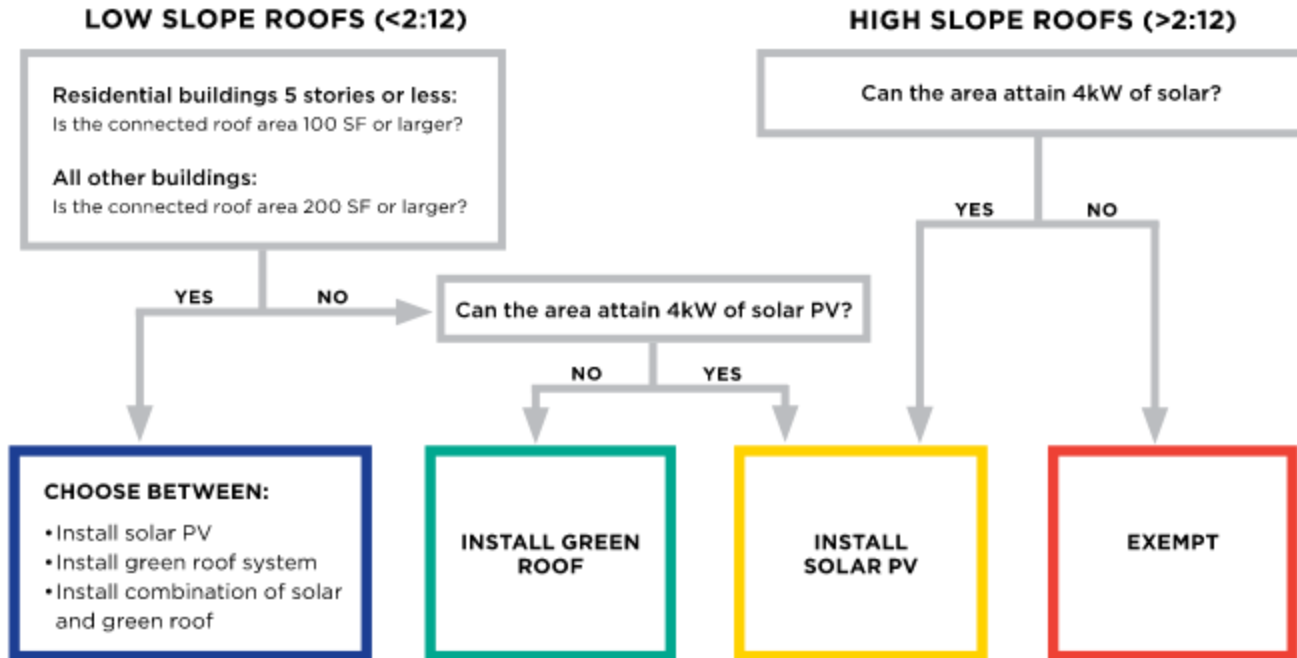
On **low-slope (<2:12)** roofs:

- For each connected area smaller than 200 square feet, solar PV is required if 4kW of capacity is feasible (green roof is required if not)
- For each connected area 200 square feet or larger, building owners can choose to install either solar or a green roof, or both
- The area threshold drops to 100 square feet for residential buildings under six stories

On **high-slope (>2:12)** roofs:

- Solar PV is required if 4kW of capacity is feasible (the roof is exempt if not)

LL92 & 94: SUSTAINABLE ROOFING ZONE



LL92 & 94: EXCEPTIONS

NYC rooftops have many overlapping uses, and solar and green roofs are **not required** in areas used for:

- Access or setbacks required by codes or zoning laws
- Rooftop structures and mechanical equipment
- Stormwater management
- Terraces (up to a size threshold)
- Recreational space
- Any other area DOB determines is not feasible



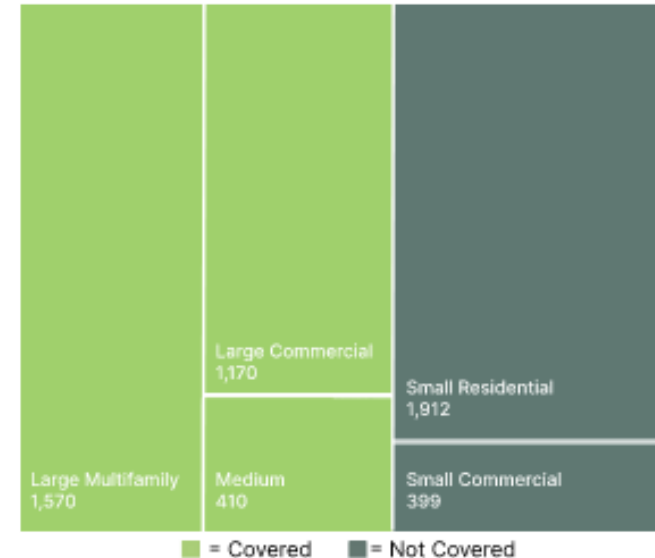
LOCAL LAW 97 (LL97)

Groundbreaking climate legislation sets carbon emissions caps for energy use in NYC's large buildings starting in **2024**

- Affects building greater than 25,000 square feet
- Sets increasingly stringent limits on carbon emissions per square foot
- Covers ~50,000 buildings and nearly 60 percent of the city's building area

Citywide Building Areas

Nearly 60 percent (3.15 billion SF) of NYC building area is covered by the emissions law. Medium buildings are between 25,000 SF and 50,000 SF.

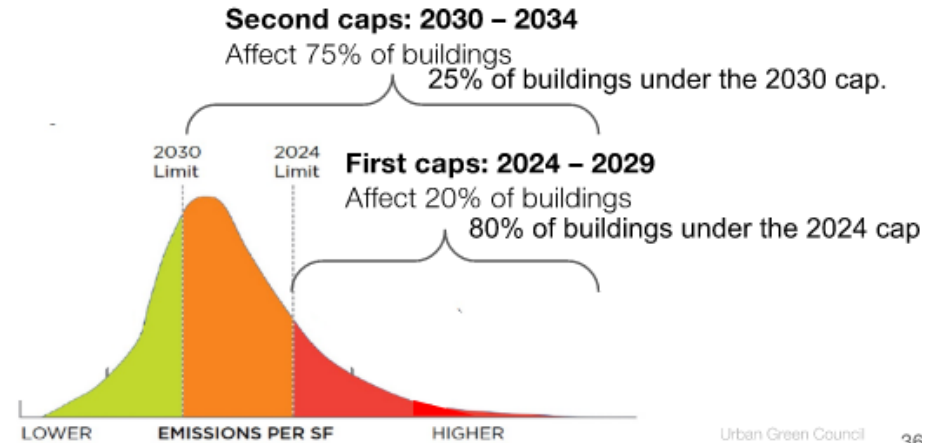


*Millions of square feet

Source: NYC Department of Planning PLUTO Dataset 2017

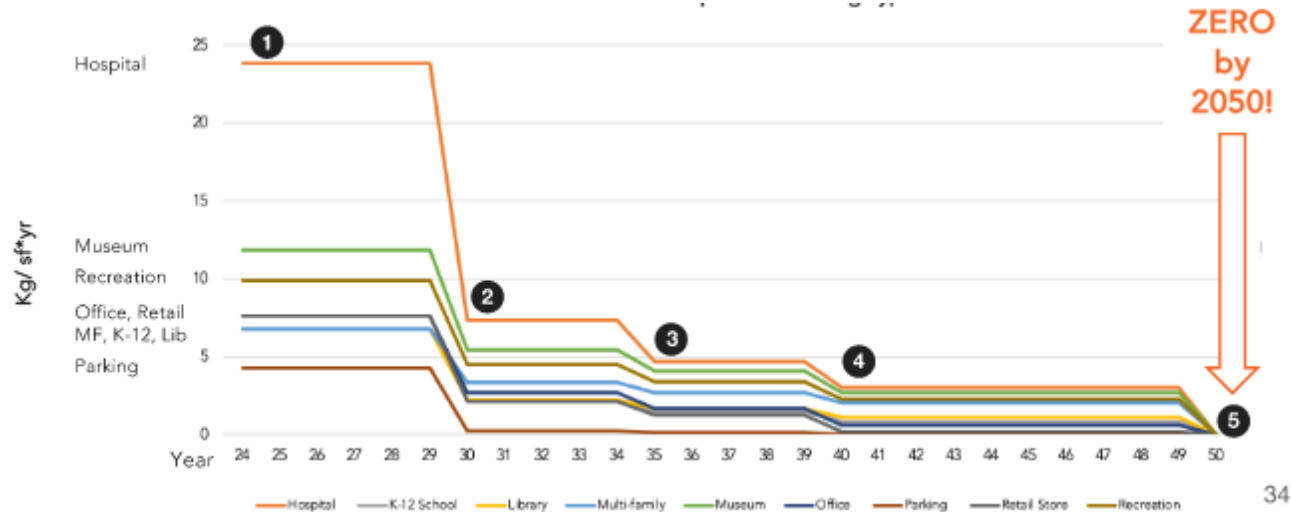
LL97: BUILDING CARBON EMISSIONS LIMITS

- Carbon limits become more stringent over a series of compliance periods: 2024-29, 2030-34, 2035-39, 2040-49, and 2050 onwards.
- Limits from 2030-2034 are set to affect the most carbon-intensive 75 percent of buildings, with ~25 percent under the cap.



LL97: BUILDING CARBON EMISSIONS LIMITS

- Law sets emissions intensity limits (metric tons of CO₂e per square foot) for **60** building categories based on Building Code occupancy groups.
- A building's annual emissions limit equals its emissions intensity limit multiplied by its gross floor area.



LL97: ALTERNATIVE REQUIREMENTS

- Earlier timeline for NYC government buildings: 40 percent emissions reductions by 2025 and 50 percent by 2030.
- In 2024, buildings with more than 35 percent rent-regulated units, houses of worship and some subsidized housing must either implement prescriptive energy-saving measures or meet their 2030 cap.

LL97: PRESCRIPTIVE ENERGY-SAVING MEASURES

1. Adjust temperature set points for heat & hot water
2. Repair all heating system leaks
3. Maintain heating systems
4. Install temperature controls on radiators
5. Insulate all heat & hot water pipes
6. Insulate steam system tanks
7. Install heating sensors & boiler controls as required for proper set points
8. Ensure steam traps in good working order
9. Install or upgrade steam master venting
10. Upgrade lighting to meet 2024 code
11. Weatherizing and air sealing
12. Install timers on exhaust fans
13. Install radiant barrier behind radiators

LL97: FINES & COMPLIANCE

- Maximum annual penalty is the difference between a building's annual emissions limit and its actual emissions multiplied by **\$268**.
 - Applies each year building is out of compliance
- First compliance report due May 1, 2025 (and every May thereafter).

LL97 & NEW BUILDINGS

THE LAW DOES NOT EXEMPT NEW BUILDINGS!

- All buildings > 25k sf captured once they start paying property taxes and benchmarking
- Meeting the energy code will not ensure that buildings meet the 2024 or 2030 caps

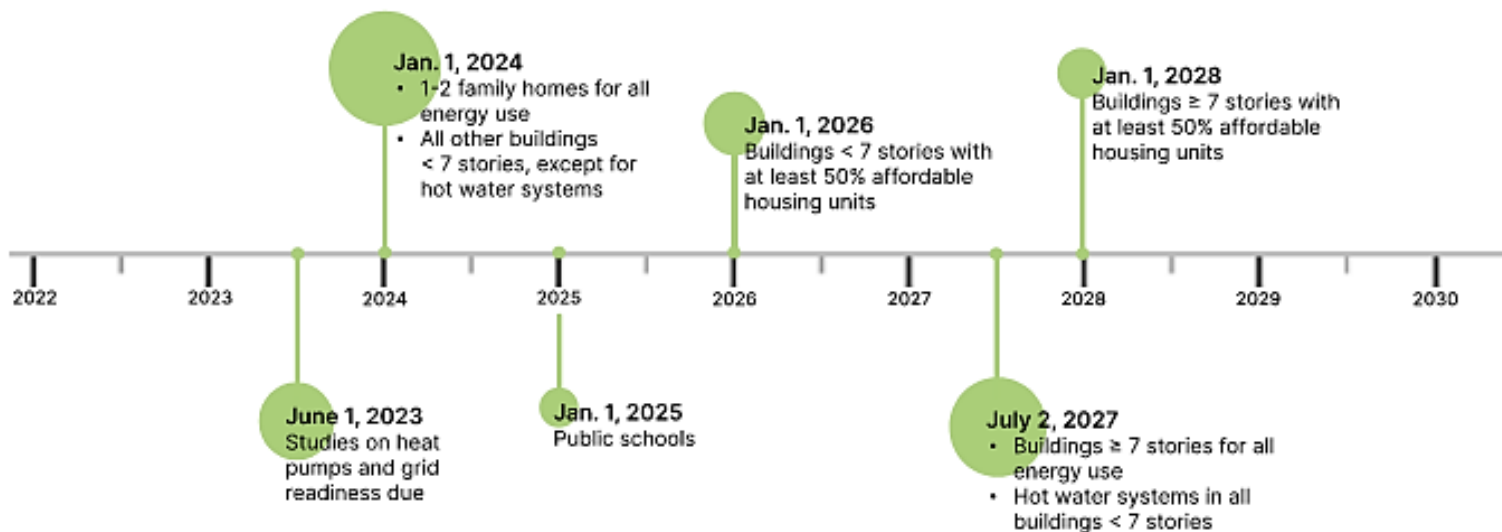


LOCAL LAW 154 (LL154)

Groundbreaking legislation phases fossil fuels out of new construction starting in **2024**.

- Sets CO2 limits that effectively prohibit fossil fuel systems in new buildings and gut renovations
- Phases in requirements starting with lower-rise buildings in 2024 and taller buildings in mid-2027
- Includes exceptions where required for select uses like manufacturing, hospitals and restaurants

LL154: IMPLEMENTATION TIMELINE



LL154: REQUIREMENTS

- Prohibits combustion emitting more than 25 kg of CO₂ per million British thermal units (MMBtu) of energy within a building, well below emissions for natural gas (~53 kg) and fuel oil (~74kg)
- Applies when buildings submit an application for approval of construction documents
- Expressly covers new buildings but also covers any gut renovations that meet the Department of Buildings threshold for alterations that need to comply with new building requirements

LL154: EXCEPTIONS

The law provides exceptions for:

- Spaces where combustion is required for manufacturing or laboratories, laundromats, hospitals, crematoriums or commercial kitchens—but only to the extent necessary and in the space used for that purpose;
- Fuels occasionally burned in appliances not connected to gas lines or fuel oil piping and not used for heating or hot water (e.g. propane grill);
- Buildings used by utilities to generate electricity or steam; and
- Buildings used to treat sewage or food waste.