A Roadmap for Carbon Neutral Buildings and the Green New Deal

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NYSERDA Mission and Vision

**Mission:** Advance innovative energy solutions in ways that improve New York’s economy and environment

**Vision:** Serve as a catalyst – advancing energy innovation, technology, and investment; transforming New York’s economy; and empowering people to choose clean and efficient energy as part of their everyday lives
Climate Leadership and Community Protection Act (CLCPA)

35% - 40% of the benefits of state CLCPA investments must flow to disadvantaged communities

New York City Climate Mobilization Act (CMA)

- Local Law 97 - places emissions limits on New York City's large buildings (> 25,000 sq. ft.), both commercial and residential, starting in 2024.
  - Alternative prescriptive path for rent regulated buildings

CMA also includes:
- Local Laws 92 & 94 – Green Roofs & Solar PV
- Local Law 95 – Building Labeling
- Local Law 96 – PACE
- Local Law 98 – Wind Energy
Greenhouse Gas Emissions Reduction Target

85 by 50

New York’s 85x50 emissions reduction target will require a carbon neutral statewide building stock

Vision: Carbon Neutral Buildings

A Roadmap to Achieve a Fully Carbon Neutral Building Stock Statewide by Mid-Century
Defining a “Carbon Neutral Building”

- Reduce energy demand (efficiency)
- Decarbonize onsite energy services
- Balance from clean energy (onsite/community/grid)
- Real time response to grid conditions

Roadmap Scope: Buildings, Grid, Transport
Carbon Neutral Buildings Roadmap

• Explore pathways necessary to achieve a carbon neutral building stock
• Research critical building decarbonization issues
• Engage stakeholders
• Send long-term market signal & mobilize different sectors
• Raise awareness of the benefits of carbon neutrality
  • Energy savings
  • Health, comfort, and productivity
  • Resilience
• Provide guidance for other state agencies and local governments
• Living document

Roadmap Scope

New Construction
• Design and deliver economic, emission-free buildings
• Driving Energy Codes to Zero

Existing Buildings
• Comprehensive vs Phased Capital Plan

Multiple Sectors
• Multifamily, Office, Single-Family Residential, Higher Education
• Additional sectors in future Roadmap updates

“All new SUNY buildings will be designed to achieve net zero carbon emissions... We will work to educate and expand the clean energy workforce of New York State.”
– Kristina M. Johnson, SUNY Chancellor

“It’s less about cost and more about cash flow. My netZero Village cost more at construction but is delivering net positive income.”
– David Bruns, Developer
Components of the Roadmap

- Definitions & Metrics
- New York's Building Stock Today
- Business Case / Value Proposition
- Technology Landscape
- Building Electrification
- Limits to Electrification Secondary Paths
- Policy and Regulatory Options
- Resilience Implications
- What's Next? Future Research Needs

NYSERDA Programs Informing the Roadmap

- RetrofitNY
- Buildings of Excellence
- Codes to Zero
- Lead by Example
- Net Zero Energy for Economic Development
- Net Zero Manufactured Housing
- Net Zero in New Construction: All Sectors & Portfolio Support
- Single Family Net Zero Market Segmentation
Advancing Building Energy Codes & Metrics

Energy code allows New York to harness new construction activity & the cycle of building upgrades to drive long term energy performance.

Process of developing carbon-focused, performance-based metrics to support deeper carbon savings

REV principle: engage private sector capital

Cost reduction

Net Zero Carbon at business-as-usual cost
Revolutionizing the way multifamily buildings are renovated, keeping residents in their homes.

Nyserda.ny.gov/RetrofitNY
Key Achievements of the Energiesprong program

- Net zero energy buildings at 40% of the cost of initial pilots
- The market is scaling up
  - ✓ 4,500 retrofits completed
  - ✓ 4,000 n/c projects completed
  - ✓ 20,000 projects in the pipeline

Conventional Process
Prefabricated High Performance Components

Conventional Configuration
Integrated Mechanical Systems

RetrofitNY Round 1 Design Pilots

Location: Troy, NY
Project: Two-stories (18 Units)
Owner: Beacon Communities
Team: ICAST

Location: Phoenix, NY
Project: Two-stories (40 units)
Owner: Rock Property
Team: King + King Architects

Location: Portville, NY
Project: Two-stories (24 units)
Owner: Conifer Reality
Team: SWBR
RetrofitNY Round 1 Design Pilots

- **Location:** Bronx, NY  
  **Project:** Five-stories (42 Units)  
  **Owner:** Volmar  
  **Team:** Bright Power

- **Location:** New York, NY  
  **Project:** Six-stories (21 units)  
  **Owner:** Joe NYC  
  **Team:** Levy Partnership

- **Location:** Brooklyn, NY  
  **Project:** Four-stories (46 units)  
  **Owner:** RiseBoro  
  **Team:** Chris Benedict RA

Buildings of Excellence (BoE)

**Intent**

Stimulates the design, construction, and operation of very low, or zero carbon emitting buildings

**Elements**

- Use design and construction methods that are replicable and achieve broad-based adoption
- Provide superior financial benefits
- Beautiful buildings and health living environments
Net Zero Energy for Economic Development (NZEED)

Intent

• Encourages the design and construction of commercial, industrial, government and mixed-use facilities to achieve Net Zero Energy performance in economic development projects

Elements

• One stop service for incentives
• Streamlined program requirements
• Multi-year program

Community Scale (Category B)

Desired Outcomes

1. Increase investments in energy efficiency and distributed energy
2. Economic development and just transition to clean energy economy
   • Local component manufacturing facilities
   • Construction/retrofit activities
3. Construction industry productivity gains
4. Optimized electrification and deep carbon emissions reduction
5. Improved air quality and reduction of toxic pollutants
6. Improved productivity & indoor health
Thank you for your participation.