

Empire Building  
Challenge

# High Rise / Low Carbon Join New York's Retrofit Revolution

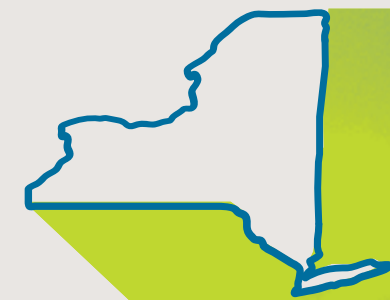


Empire Building Challenge  
High Rise / Low Carbon Series Launch  
February 3, 2022



# The Challenge

New York State  
has thousands of  
buildings that must  
decarbonize during  
this decade to achieve  
the State's ambitious  
goal of carbon  
neutrality by 2050



# NYC is home to over 5 billion square feet of iconic real estate





**New York's buildings  
will play a pivotal role in  
solving the climate crisis**

**70%**

**of NYC's GHG emissions come  
from buildings**

**40%**

**of the State's total emissions come from  
the building sector**

**Most buildings were  
constructed prior to current  
energy codes**



# New York has enacted ground-breaking climate policies and regulations



# These policies have ignited a low-carbon retrofit revolution

- NYS will decarbonize buildings statewide by 2050
- NYS will transition to a clean energy grid by 2040
- NYC building emissions limits go into effect in 2024
- NYC's ban on fossil-fuel burning equipment ramps up over the next 5 years



**The scale of action  
required is unprecedented  
– by 2030, NYC building  
owners must complete  
low-carbon retrofits in:**

**26,000+**

**buildings, representing**

**1.3B**

**square feet of residential real estate, and**

**335M**

**square feet of commercial space**



**Over 90%** of NYC's  
one million buildings  
will need to implement  
energy efficiency  
upgrades by 2050

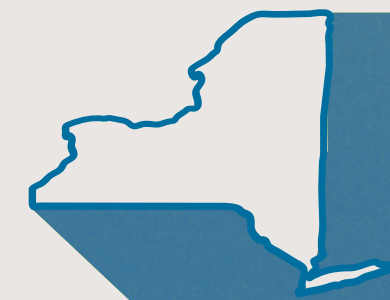




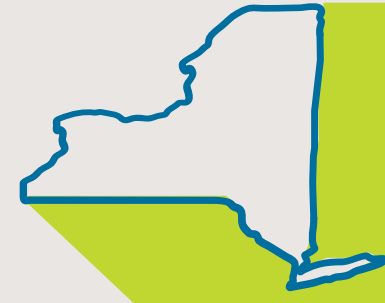
**The retrofit market is  
expected to reach**

**\$17–\$24  
billion**

**by 2030**



# New York's supply of low-carbon building retrofit solutions falls short of demand



# The Opportunity

New York's  
low-carbon retrofit  
market is poised  
to explode and the  
State is seeking  
innovative solution  
providers to help lead  
the way



# New York helps businesses thrive





**New York provides access to capital,  
world-class talent, innovative incubators,  
and cleantech hubs**

# New York offers the cleantech industry unparalleled financial support

- **\$6B Clean Energy Fund** to accelerate industry growth
- **\$1.6B NY Green Bank** for cleantech and green infrastructure investment
- **Low-cost PACE financing** for energy efficiency upgrades
- **\$3.6B in utility incentives** to stimulate customer demand
- **Tax credits and development incentives** for companies to settle and scale



# New York has one of the most skilled workforces in the world

**#3**

in the nation  
for high-tech  
employment

**#2**

for number of  
scientists  
and engineers

**#1**

for STEM graduates  
in the Northeast

Supported by a \$27.5 million State investment  
in the cleantech workforce

# Supportive landing pads reduce relocation risks for international vendors

- **Incubators** support early-stage growth
- **Industrial parks and cleantech clusters** help companies network and scale
- **World-class universities and research centers** foster public-private partnerships

# Thriving industry networks offer boots-on-the-ground assistance

- Manufacturing, distribution, and vendor rep networks support commercialization and customer acquisition
- Trade associations connect vendors to local partners and opportunities
- Industry-savvy nonprofits provide market and regulatory insights



# Spotlight:

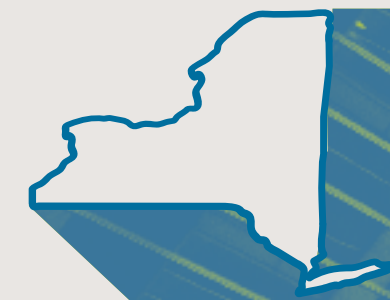
## rapid cleantech market adoption

New York's solar industry has grown rapidly in just 10 years:

- 2,100% market growth
- 12,000+ new solar industry jobs

...accelerated by the State's supportive business environment:

- \$1B in State incentives
- clean energy incubators
- public-private partnerships



# Demand for low-carbon building retrofits is taking off in New York



The  
Opportunity

**NYSERDA's Empire  
Building Challenge is  
demonstrating and scaling  
up low-carbon retrofits for  
tall buildings across NYS**

**10** portfolio owners

in the first cohort, representing

**700** buildings

across New York

**130M** sq ft

of real estate, and

**\$300M**

combined public-private investment



The  
Opportunity

# \$20M awarded to four EBC partners to implement industry-leading retrofits

EMPIRE STATE  
REALTY TRUST

HUDSON  
SQUARE  
PROPERTIES

**LM** Development  
Partners

  
Omni New York LLC

- Participating EBC buildings will achieve **carbon neutrality** within 10-15 years
- Partners will scale solutions across their portfolios, totalling **37M sq ft**

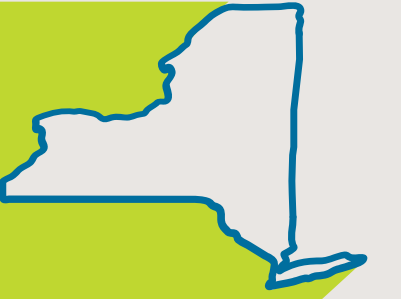


# **“If you can make it here, you can make it anywhere”**

- New York is set to become a **global hub** for low-carbon retrofits
- **Other cities follow** New York’s lead on climate policies and regulations
- Success in New York provides a **gateway to the North American market**

New York needs your  
help — join New York's  
retrofit revolution  
and contribute your  
solutions to this  
rapidly expanding  
market

Join Up



# Join local networks and attend knowledge-sharing events to stay current

Join  
Up



- Industry events like EBC's “High Rise / Low Carbon” series
- Networks & newsletters from local organizations like BE-Ex
- Hack-a-thons & charrettes for cross-sector collaboration
- Matchmaking events for industry partnerships

# Connect with supportive partners and professional communities

Join  
Up



- **Business commercialization support** from incubators, cleantech hubs, and trade associations
- **Technical support** from industry networks, research centers, and universities
- **Financial support** from agencies like NYSERDA, the NYC Economic Development Corporation, and NY Empire State Development

# Access opportunities in New York's low-carbon retrofit market

Join  
Up



- **Visit** the [NYSERDA Empire Building Challenge website](#)
- **Learn** about [NYSERDA's \\$10M Empire Technology Prize](#)
- **Apply** to [NYSERDA funding opportunities](#)
- **Leverage** [State, federal, and utility incentives](#)

# Join us and help build New York's low-carbon future!

Join  
Up



Connect with the Empire Building Challenge  
online and by email: [ebc@nyserda.ny.gov](mailto:ebc@nyserda.ny.gov)





# Appendix



## Appendix A

# Upcoming Events

**These events offer businesses a great way to stay current on developments in New York’s cleantech and low-carbon retrofit industries, and to network with partners and like-minded entrepreneurs.**

### **High Rise / Low Carbon Series**

The Building Energy Exchange and the NYSERDA Empire Building Challenge are partnering to present the “High Rise / Low Carbon Series,” highlighting the commitments of Challenge Partners. The series is designed to inspire action among New York’s building industry stakeholders and invite the world’s top solution providers to join New York on its journey toward a low-carbon future.

[Visit the webpage to learn about upcoming events in this series and to stay up-to-date on news from the Empire Building Challenge.](#)

**Hack-a-thons & Charettes** *-coming soon*

**Matchmaking Events-** *coming soon*



## Appendix B

# New York State Incentives

New York State offers a variety of tax incentives, business incentives, and tax credits to benefit small or expanding business. This list is just a sampling of current incentives on offer. [Learn more here](#) and [here](#).

### Special Tax Credits for Manufacturers

Zero percent corporate income tax rate for qualified New York manufacturers. Real Property Tax Credit for Manufacturers equal to 20% of the real property tax paid during the taxable year for real property owned and principally used in manufacturing.

### ESD Excelsior Jobs Tax Credits

Firms in the Excelsior Jobs Program may qualify for four, fully refundable tax credits. Businesses claim the credits over a 10-year period. To earn any of the following credits, firms must first meet and maintain the established job and investment thresholds outlined in Program Eligibility below:

- **Green Enhanced Excelsior**

To be eligible for enhanced green project tax credits, a company must be eligible for the Excelsior Jobs Program operating in strategic industries inclusive of agriculture, manufacturing, software development, and scientific research and development and engage in a “green project”. A “green project” means a project that makes products or develops technologies that are primarily aimed at reducing greenhouse gas emissions or supporting the use of clean energy.

- **The Excelsior Jobs Tax Credit**

A credit of up to 6.85% of wages per net new job. For a qualified green project, up to 7.5% of wages per net new job.

- **The Excelsior Investment Tax Credit**

Valued at 2% of qualified investments. For a qualified green project, 5% of qualified investments.



## Appendix C

# New York Cleantech Incubators & Economic Development Agencies

New York has an array of cleantech incubators and economic development agencies dedicated to advancing the growth of early-stage and established companies. These organizations provide a range of services, including commercialization, financial, and networking support.

### NYC Economic Development Corporation (NYCEDC)

NYCEDC promotes sustainable economic development in NYC. They advance the growth of startups and established companies, connecting them to everything they need to hit the ground running, from industry connections to competitive leases, finance solutions, and incentives.

### NYS Empire State Development (ESD)

ESD facilitates business growth and job creation across New York. They connect businesses with tax-based incentives, operational support, growth support, and innovation development support. Their Cleantech & Renewable Energy Division supports the State's commitment to clean energy solutions and cleantech manufacturing growth.

ESD's Division of Science, Technology, and Innovation (NYSTAR) funds 70+ facilities and tools, including 10 Innovation Hotspots, 13 Centers of Excellence for university-private technology research and development, and 15 Centers for Advanced Technology.

### NYSERDA-funded incubators

NYSERDA funds six clean energy incubators across New York State's regions, including NYC, Long Island, Central NY, Western NY, the Finger Lakes, and the Southern Tier:

- ACRE at Urban Future Lab
- CEBIP at Stony Brook University
- Clean Tech Center at the Tech Garden
- ECO & Launch NY
- SCI at Binghamton University
- Venture Creations at RIT

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## Appendix C

# New York Cleantech Incubators & Economic Development Agencies, *Continued*

### Urban Future Lab

Urban Future Lab is a center of cleantech innovation in New York, advancing market-ready solutions to address climate change. Their programs include ACRE, a business incubation program for pre-seeds to Series A startups. ACRE provides access to strategic advisement, introductions to industry stakeholders, marketing and branding support, investor networks, and access to a community of like-minded founders.

### URBAN-X

Urban-X is a tech accelerator for startups reimaging city life. Every six months, they invest \$150,000 each in up to ten companies and provide development support and guidance. URBAN-X has a broad network of investors, industry mentors, and 100+ global city partners.



## Appendix D

# New York Research Centers & Cleantech Clusters

**New York is home to world-leading research centers and universities dedicated to advancing innovative clean energy and energy efficiency technologies, and facilitating public-private partnerships.**

**Cleantech business clusters located across the state support re-location, growth, manufacturing, operations, and networking for diverse companies in the cleantech sector.**

### Brookhaven National Lab

Located on Long Island, Brookhaven National Lab is a federally-funded, multidisciplinary research center. The Lab's Clean Energy & Climate division aims to lead the nation towards a net-zero carbon economy.

### Brooklyn Army Terminal

Brooklyn Army Terminal (BAT) is an affordable hub for modern industrial businesses and entrepreneurs. Located on 4.1M+ sqft of Brooklyn waterfront, BAT provides 100+ businesses with the tools and space they need to grow and succeed. BAT offers secure, longer-term leases and more attractive rents than private property owners because of their commitment to creating jobs and retaining businesses in NYC.

### Brooklyn Navy Yard

The Brooklyn Navy Yard is a center of manufacturing and innovation located across 300-acres of Brooklyn waterfront. The Yard provides 500+ businesses with numerous benefits, including: competitive rents; no real estate taxes; access to a diverse and vibrant business community; an on-site property management team; a business support services team; and a team to assist businesses with employment needs.

### Eastman Business Park

Eastman Business Park is a 1,200-acre R&D and manufacturing campus with over 16 million square feet of multi-scale manufacturing, distribution, lab and office space. The Park is also home to the NY-BEST Center – a hub for development and production of advanced battery and energy storage technologies.

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## Appendix D

# New York Research Centers and Cleantech Clusters, *Continued*

### NY ESD Division of Science, Technology, and Innovation (NYSTAR)

NY Empire State Development funds 70+ facilities and tools, including 10 Innovation Hotspots, 13 Centers of Excellence for university-private sector technology research and development, and 15 Centers for Advanced Technology.

### Saratoga Tech + Energy Park (STEP)

Located in the heart of New York's Tech Valley, the 280-acre STEP campus is a NYSERDA-funded property ideal for clean-energy and environmental technology companies. NYSERDA staff and the site develop work with businesses to customize a build-to-suit facility according to their needs or to identify existing space in STEP's current facility.

### **SELECTION OF LEADING CLEANTECH RESEARCH UNIVERSITIES**

New York is home to world-class universities conducting innovative research and demonstration projects to advance cleantech solutions. Many of these universities seek offer competitive opportunities for private-sector technology providers to partner on R&D, demonstration projects, and more. Below is a sampling of some of the state's premier cleantech research institutions:

- Cornell University – CESI
- Rochester Institute of Technology (RIT)
- State University of NY Binghamton – S3IP
- SUNY Buffalo - UB RENEW
- SUNY Stony Brook - Advanced Energy Research and Technology Center



## Appendix E

# NYSERDA-funded programs & opportunities

The New York State Energy Research and Development Authority (NYSERDA) provides funding and incentives to support a broad range of activities aimed at accelerating growth of the low-carbon retrofit market in New York State. This list is just a sampling of programs on offer. [Visit their website to learn more.](#)

## COMPETITIVE FUNDING OPPORTUNITIES

NYSERDA has various programs related to buildings (including residential, multi-family, and commercial buildings) that outline broad energy and environmental challenges. NYSERDA publicly request proposals, from any private or institutional entity, to submit project plans addressing those issues. To see individual opportunities, visit:

- [Current Funding Opportunities](#)
- [Closed Funding Opportunities](#)

## NYSERDA-FUNDED PROGRAMS

NYSERDA has numerous programs that support clean energy and low-carbon retrofit businesses. Additionally, NYSERDA has programs to provide technical and financial support to homes and businesses to reduce their energy use and emissions, helping to stimulate market demand and lower barriers to project implementation. Below is a selection of NYSERDA programs; [learn about additional initiatives here.](#)

### Advanced Buildings Program

Develops energy-efficient, building-related technology and business models for residential and commercial buildings.

### Clean Energy Workforce Development

Supports renewable energy and energy efficiency training programs for new and existing staff.

### Contractor Delivery Channel

Works with contractors to offer solutions that reduce energy usage and costs for NY residents, businesses, institutions, municipalities, and nonprofits.

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## Appendix E

# NYSERDA-funded programs & opportunities, *Continued*

### **Empire Building Challenge**

A public-private partnership with portfolio owners and developers that supports replicable and scalable low-carbon retrofits in existing tall buildings.

### **Entrepreneurs-in-Residence**

Guides early-stage companies through issues like staffing, budgeting, resource planning, strategy, and partnerships.

### **Innovative Market Strategies**

Provides funding for emerging clean energy solutions to bring clean energy adoption to scale in New York State.

### **M-Corps Hardware Scale-up**

Helps startups overcome obstacles to manufacturing cleantech products in NYS.

### **RetrofitNY**

Supports scalable solutions to renovate multifamily buildings while achieving or approaching net-zero energy use.



## Industry Organizations & Networks

**New York has a vibrant network of industry-savvy organizations that provide useful resources and services for the real estate and low-carbon retrofit markets.**

**Additionally, many of the nation's leading professional associations have active membership networks and chapters in New York, which help businesses build partnerships and stay up-to-date on the latest industry developments.**

**This list is just a short selection of the many organizations that support the industry.**

### NEW YORK-BASED ORGANIZATIONS

#### Building Energy Exchange (BE-Ex)

BE-Ex, a nonprofit dedicated to improving the built environment and accelerating the transition to low-carbon and energy efficient buildings, serves as a resource and trusted expert to the building industry. Through [an active calendar](#) of virtual and in-person events at their NYC learning center, they provide education and trainings on best-in-class building projects and strategies, and convene diverse industry professionals for networking events and workshops. BE-Ex's resource library covers a wide variety of topics on high-performance building solutions, case studies, and New York City and State policies. Their newsletter and [membership opportunities](#) help industry stakeholders stay in the loop on new developments.

#### NYC Accelerator

NYC Accelerator, a program of the NYC Mayor's Office of Climate & Sustainability, works with thousands of buildings across the five boroughs to build a cleaner future by lowering pollution and carbon emissions. The Accelerator supports building owners in meeting NYC's mandated greenhouse gas emissions limits by providing technical and financial assistance. The program also partners with organizations like BE-Ex to offer trainings and resources that demystify NYC policies and regulations and showcase leading decarbonization solutions and building projects. [The Accelerator is currently seeking applications](#) from energy efficiency and building decarbonization service providers to work with the program.

#### Solar One

Solar One is a nonprofit organization that designs and delivers innovative education, training, and technical assistance to foster sustainability and resiliency in diverse urban environments. Solar One's Clean Energy Connections series— a partnership with Urban Future Labs— and weekly newsletter provide NYC's emerging cleantech sector with the resources it needs to grow and compete in the global economy.

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## Appendix F

# Industry Organizations & Networks, *Continued*

### Urban Green Council

Urban Green Council's mission is to transform buildings for a sustainable future in New York City and around the world. Urban Green organizes industry events, provides training on sustainable buildings, and publishes educational resources on building strategies and the latest New York green building policies.

## PROFESSIONAL ASSOCIATIONS

### AEE East Energy Conference & Expo

AEE East is annual event that brings together energy professionals from commercial, industrial, institutional, and governmental sectors to learn about the latest energy-saving strategies, products, services, and technologies.

### American Council for an Energy-Efficient Economy (ACEEE)

ACEEE is a nonprofit research organization that develops transformative policies to reduce energy waste and combat climate change. ACEEE organizes multiple national conferences each year, and produces newsletters and a wide array of resources on technical topics, industry updates, and policy insights.

### American Institute of Architects – NY Chapter (AIANY)

AIANY is the oldest and largest chapter of the AIA, with more than 5,000 practicing architects, allied professionals, students, and public members interested in architecture and design. AIANY is dedicated to three goals: design excellence, public outreach, and professional development. AIANY organizes an array of initiatives, programs and exhibitions that explore topics vital to the architecture profession. Their Center for Architecture is a gathering place and educational event space in NYC for all those interested in the built environment.

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## Appendix F

# Industry Organizations & Networks, *Continued*

### American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE)

ASHRAE is a professional association seeking to advance heating, ventilation, air conditioning and refrigeration systems design and construction. ASHRAE has more than 57,000 members in more than 132 countries worldwide. ASHRAE organizes industry conferences, puts on professional development and networking events, and provides a variety of technical resources.

### American Society of Mechanical Engineers (ASME)

ASME promotes the art, science, and practice of multidisciplinary engineering and allied sciences worldwide. ASME serves a wide-ranging community through learning, the development of codes and standards, certifications, research, conferences and publications, government relations, and other forms of outreach.

### Building Owners and Managers Association (BOMA)

BOMA is the leading trade association for real estate professionals of all commercial building types, representing owners, managers, service providers, and more. BOMA's mission is to advance a vibrant commercial real estate industry through advocacy, influence and knowledge. Their NY chapter provides programs, services and resources for professionals across the Greater NY Area.

### Building Trades Association (BTA)

BTA is made up of thousands of companies involved in all phases of the building and construction industries. BTA was formed to provide services for its members, saving them valuable time and money.

### National Electrical Manufacturers Association (NEMA)

NEMA is an ANSI-accredited Standards Developing Organization made up of business leaders, electrical experts, engineers, scientists, and technicians. NEMA convenes a neutral forum for members to discuss industry-wide concerns and objectives under a legal umbrella by trained NEMA Staff.

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## Appendix F

# Industry Organizations, Networks, & Conferences, *Continued*

### New Buildings Institute (NBI)

NBI works collaboratively with industry market players—governments, utilities, energy efficiency advocates and building professionals—to promote advanced design practices, innovative technologies, public policies and programs that improve energy efficiency and decarbonize the built environment. Their Getting to Zero Forum is a premier annual event dedicated to zero energy and zero carbon buildings, bringing together the world's leading experts.

### Northeast Sustainable Energy Association (NESEA)

NESEA advances the adoption of sustainable energy practices in the built environment by cultivating a community where practitioners share, collaborate and learn. NESEA Membership has helped thousands of high-performance building and renewable energy professionals and businesses improve their practices by learning from and networking with each other. NESEA also organizes two industry-leading conferences and trade shows each year.