High Rise / Low Carbon
Join New York’s Retrofit Revolution

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

source: Guarini Center on Environmental, Energy & Land Use Law, "Carbon Trading for NYC’s Building Sector,” 2021
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

source: NYC Mayor’s Office of Sustainability and NYSERDA, accessed 2021
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**

*source: NYC Climate Action Alliance analysis of 2020 LL84 data; completed Dec. 2021*
Over 90% of NYC’s one million buildings will need to implement energy efficiency upgrades by 2050

source: NYC Mayor’s Office of Sustainability, “Pathways to Carbon-Neutral NYC: Modernize, Reimagine, Reach,” April 2021
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
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

Sources: NYSERDA; NY Green Bank; NY DPS; and NYC DCAS accessed 2021
The Opportunity

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

source: NY ESD, accessed 2021
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.
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
$20M awarded to four EBC partners to implement industry-leading retrofits

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

- **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

- **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

- **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!

Connect with the Empire Building Challenge online and by email: ebc@nyserda.ny.gov
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

source: NY ESD, “Invest in New York State,” presentation
New York State Incentives

New York State offers a variety of tax incentives, business incentives, and tax credits to benefit small or expanding businesses. 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.

source: NY ESD, “Invest in New York State,” presentation
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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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 reimagining 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.
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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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
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.

NYSERDA-funded programs & opportunities

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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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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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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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 Manufactures 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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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.