New York’s Paths to New Technology Deployment in the Buildings Sector

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Buildings Sector in New York

Some statistics on buildings in New York...

> 8.2 million housing units
> 5.2 million single family homes
  • About 2/3 of all home in New York State are single-family homes
  • Close to one-quarter are 75 years old or more
> Approximately 100 million square feet of new construction built each year

In 2016

> Residential energy use per housing unit: 126 MMBtu (44th nationally)
> Commercial energy use per non-manufacturing employee: 124 MMBtu (39th nationally)
> Industrial energy use: 247 MMBtu (50th nationally)
Buildings Sector Greenhouse Gases

Total CO2e from Fuel Combustion: 167 Million Metric Tons
(81% of Total GHGs)

Percent of CO2e Emissions from Fuel Combustion
- Industrial: 8%
- Commercial: 22%
- Residential: 25%
- Transportation: 45%

Million Metric Tons of CO2e
- Transportation Combustion
- On-Site Combustion
- Electricity Generation
- Net Imports of Electricity
Puts New York on the path to carbon neutrality with nation’s most aggressive GHG reduction goals: 40x30, 85x50

> Codifies clean energy targets
  • 70 percent renewable energy by 2030
  • 100 percent clean electricity by 2040
  • 9,000 megawatts of offshore wind by 2035
  • 6,000 megawatts of distributed solar by 2025
  • 3,000 megawatts of energy storage by 2030
  • 185 trillion British thermal units of on-site energy savings by 2025

> Commitments to disadvantaged communities and just transition
New York Buildings Initiatives

 Programs
 - RetrofitNY
 - C&I Carbon Challenge
 - Heat Pump Initiative
 - Buildings of Excellence
 - Net Zero Energy Pilots

 Analysis
 - Carbon Neutral Buildings Roadmap
 - Building Electrification Roadmap
RetrofitNY

> Purpose:
  - Renovate affordable multifamily buildings while achieving or approaching net-zero energy use
  - Creating standardized and scalable processes that will improve residents’ comfort and buildings’ energy performance

> Design-build teams are participating in the first series of pilot projects

> Initial designs completed for the net-zero or near net-zero retrofits listed below

<table>
<thead>
<tr>
<th>Team Lead</th>
<th>Building Owner</th>
<th>Size</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAST</td>
<td>Beacon Communities</td>
<td>Two stories (18 units)</td>
<td>Troy, NY</td>
</tr>
<tr>
<td>The Levy Partnership</td>
<td>JOE NYC</td>
<td>Six stories (21 units)</td>
<td>New York, NY</td>
</tr>
<tr>
<td>Bright Power</td>
<td>Volmar</td>
<td>Five stories (42 units)</td>
<td>Bronx, NY</td>
</tr>
<tr>
<td>SWBR</td>
<td>Conifer Real Estate</td>
<td>Two stories (24 units)</td>
<td>Portville, NY</td>
</tr>
<tr>
<td>King + King Architects</td>
<td>Rock PMC</td>
<td>Two stories (40 units)</td>
<td>Phoenix, NY</td>
</tr>
<tr>
<td>Chris Benedict, RA</td>
<td>RiseBoro</td>
<td>Four stories (46 units)</td>
<td>Brooklyn, NY</td>
</tr>
</tbody>
</table>
Commercial and Industrial Carbon Challenge

> Purpose: Provide a dedicated expert to large energy users to plan and implement energy-saving, carbon-reduction projects

> Winners work one-on-one with a dedicated NYSERDA resource to implement proposed projects, rather than navigating multiple different NYSERDA or utility initiatives

> Created based on market feedback

> Up to $15 million available, ranging from $500,000 to $5 million per successful proposal

> New Empire Building Retrofit Challenge: $30 million for high-profile commercial and large multi-family buildings
Heat Pump Initiative

- New Public Service Commission initiative: Commitment for new $2 billion for Energy Efficiency activities through 2025
- Includes over $450 million for utility program heat pump incentives; focus on retail market incentives/approaches
- NYSERDA to invest $200 million for market development, including supply chain expansion, workforce training, and consumer awareness
Buildings of Excellence

> Purpose: To support the design, construction, and operation of low-carbon emitting multifamily buildings

> Selected projects provide comprehensive data on design, construction, and cost that can be analyzed and shared to increase the number of low- to zero-carbon buildings

> Launched in March 2019 as a $40 million competition with three rounds of awards

> Round 1:
  • Originally earmarked for $10 million in funding
  • Response so strong (53 proposals), awarded an additional $8 million
  • Total of $18 million for 28 projects

> Round 2: Open now
Net Zero Energy Pilots

- Purpose: Support for developing energy performance standards and institutional mechanisms to enable design, construction, and operation of net zero buildings within a portfolio type
- $1 million annually, with awards of up to $250,000 for technical guidance
- Available to large real estate portfolio owners – real estate developers, colleges and universities, retailers
- Approved applicants also receive help with identifying other NSYERDA programs that can offer additional financial and technical assistance
Analysis
Carbon Neutral Buildings Roadmap

> Identify potential pathways to a carbon neutral building stock
  • Taking into account differences in building type, geography, timeframe
> Establish insights that will help align NYSERDA strategy & programs with 85x50
> Research critical decarbonization issues & identify further research needs
> Engage Stakeholders, including technical experts and market heavyweights
> Send long-term market signal
> Raise awareness of the benefits of carbon neutrality
> Create a living document with regularly scheduled updates
  • Phase 1 focused on single family residential, multifamily residential, offices, and higher education
Building Electrification Roadmap

> 10-year Roadmap outlining market-development milestones and public policies and investments to advance building electrification in New York State

> Chart the course for transforming the way in which New Yorkers heat and cool our buildings

> Key outputs:
  • “State of the market” vision for 2030, by market segment and building typology
  • 2030 building electrification goal for NYS
  • Assessment of the current market
  • Recommendations for public policies and programs
  • Engaged constituency for market advancement
  • Identification of high potential partnering opportunities with other jurisdictions & organizations
Thank You!

Questions?