

Clean Heating & Cooling

Conference on the Environment

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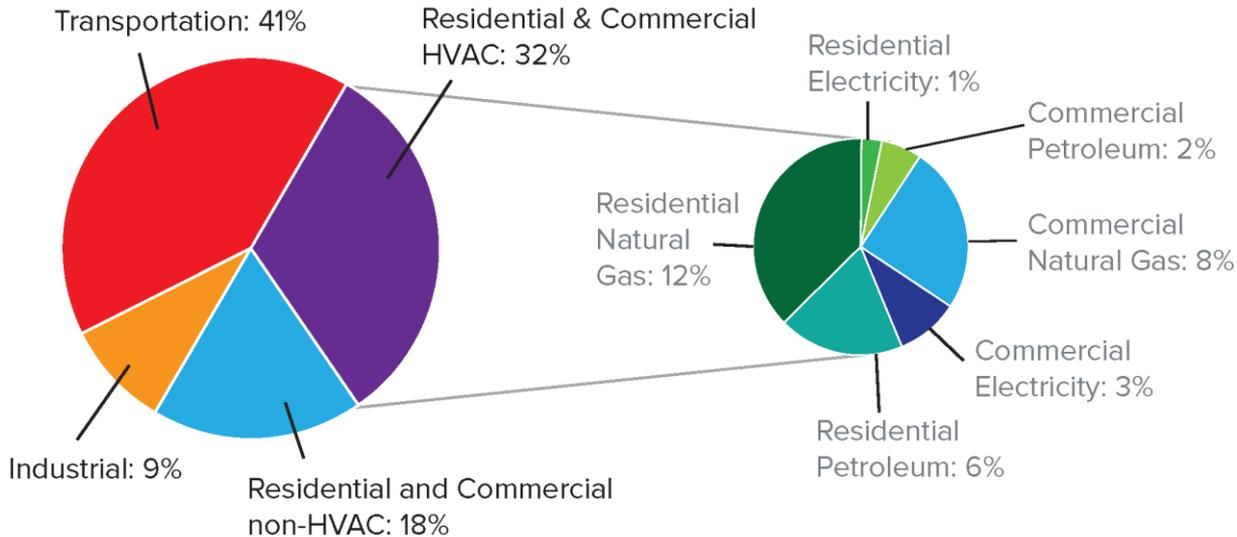


NEW YORK
STATE OF
OPPORTUNITY.

NYSERDA

Clean Heating & Cooling Benefits

Estimated 2014 NYS GHG Emissions from Fuel Combustion



Total 2014 New York State GHG Emissions from Fuel Combustion: 181 MMtCO₂e

Heating and cooling is responsible for about 1/3 of GHG emissions

- Role of RH&C in reducing GHG emissions 40% by 2030
- RH&C can also provide other benefits including: bill savings, improved comfort, electricity grid benefits

Renewable Heating & Cooling Policy Framework

(Options to Advance Industry Growth and Markets in New York)

- Published February 7, 2017
- Policy Framework's Three Pillars
 - Reducing Technology Costs and Lowering Barriers
 - Renewable Heating & Cooling Mandates
 - Incentives

Moving the Sector from Niche to Mainstream

- Renewable Heating & Cooling (RH&C) has a large technical potential in New York (~700 TBtu out of statewide HVAC annual load of ~1,000 TBtu);
- Today, RH&C occupies a niche position: current cost-effective RH&C resource of 41 TBtu
- Only 4% of the State's 1,000 TBtu load could be met cost effectively with RH&C today
- Combination of deep cost reductions and value monetization is needed to increase the RH&C potential to a level where mainstream adoption can occur

NYSERDA's Objectives and Strategies

(Reducing Costs and Lowering Barriers)

- **Air Source Heat Pumps (ASHP)**
 - Launched (PON 3635) a \$10.95 million incentive program for ASHP's (\$500 per unit)
 - Included in clean heating & cooling communities aggregation program
 - Coordinating with utilities to develop ASPH programs
 - Developing education & awareness initiatives with ASHP manufacturers
 - Establishing local co-op marketing program for contractors
 - Workforce training
- **Ground Source Heat Pumps (GSHP)**
 - Launched (PON 3620) \$15 Million incentive for GSHP market continuity through 2019
 - Included in clean heating & cooling communities aggregation program
 - NYSERDA partnering with NYPA to install geothermal heat pumps in state & local government buildings
 - Soft cost reduction and innovative business models
 - Engage with utilities and other interested parties to develop programs and explore new business opportunities
 - Provide technical assistance for the design of large geothermal systems
 - Explore Financing Solutions
 - Workforce training, continuing education, and mentoring programs
 - Engaging with manufacturers education & awareness initiatives
 - Local co-op marketing support for contractors

NYSERDA's Objectives and Strategies (Reducing Costs and Lowering Barriers)

Clean Heating & Cooling Communities Campaigns

- Proposed PON of \$1.3 million for locally organized community outreach efforts at the county, city, borough, or regional level aimed at getting groups of homes, buildings, and small businesses to install clean heating & cooling technologies. (Similar to NYSERDA's Solarized Program)
- Develop workforce training strategy
- NYSERDA will provide up to \$500K in technical assistance to run effective programs
- Encouraging proposals for installations in low-to-moderate income homes

Solar Thermal

- Re-evaluating current solar thermal strategy and exploring opportunities in targeted market segments
- Included in clean heating & cooling communities aggregation program

NextGen HVAC Challenge

- Up to \$1 million for technologies and applications that reduce cost and increase speed of geothermal heat exchange installation

NYSERDA's Objectives and Strategies

(Reducing Costs and Lowering Barriers)

Demonstration Projects and M&V

- Partnering with National Grid on Long Island with 10 residents on a shared loop field
- Geothermal demonstration project with 35 homes on Long Island
- Air source heat pump demonstration on 20 units in Brooklyn and Queens
- Air source heat pump demonstration (air to water) on 20 units in Hudson Valley
- M&V on 50 Water Furnace heat pumps with Symphony monitoring device

Heat Pump Value Analysis

- Conducting GSHP and ASHP unmonetized grid benefits analysis
- Conducting analysis on carbon value of clean heating & cooling technologies
- Looking to conduct analysis on the societal and health value of heat pumps

Financing Solutions

- Conduct financial solutions market research for clean heating & cooling technologies
- NYSERDA Partnering with Connecticut Green Bank

NYSERDA Clean Heating & Cooling Initiatives Summary

- Executing approved Clean Energy Fund Investment Plan Initiatives
- Implementing GSHP & ASHP incentive programs
- Conduct analysis on unmonetized value/benefits of heat pumps
- Engage with utilities (demonstration projects, joint marketing, REV pilots, rate reform, monetized heat pump benefits, incentives, non-wire & non-pipe alternatives, new business models/joint ventures)
- Launching “The Geothermal Challenge” with NYPA for State and local government buildings
- Launching Clean Heating & Cooling Communities Program
- Developing comprehensive workforce training & development programs
- Developing marketing strategies for clean heating & cooling technologies
- Open to new and innovative ideas