



Adam Flint, Director of Clean Energy Programs
Hailley Delisle, Campaign Director, Heat Smart Southern Tier

A Program of



Register today at NYNEST.ORG

- **Thursday, December 3, 12-12:50pm**
Clean Heat Beneath your Feet with Dailey Geothermal
- **Wednesday, December 9, 12-12:50pm**
Energy Efficiency Virtual Home Tour (Binghamton) with The Insulation Man
- **Wednesday, January 13, 2021, 7-7:50pm**
Clean Heating & Cooling with Heat Pumps & Energy Efficiency
- **Thursday, January 21, 2021, 12-12:50pm**
Air Source Heat Pump Virtual Home Tour (Oxford)

NEST's HeatSmart Southern Tier (HSST) Virtual Webinar Series Schedule



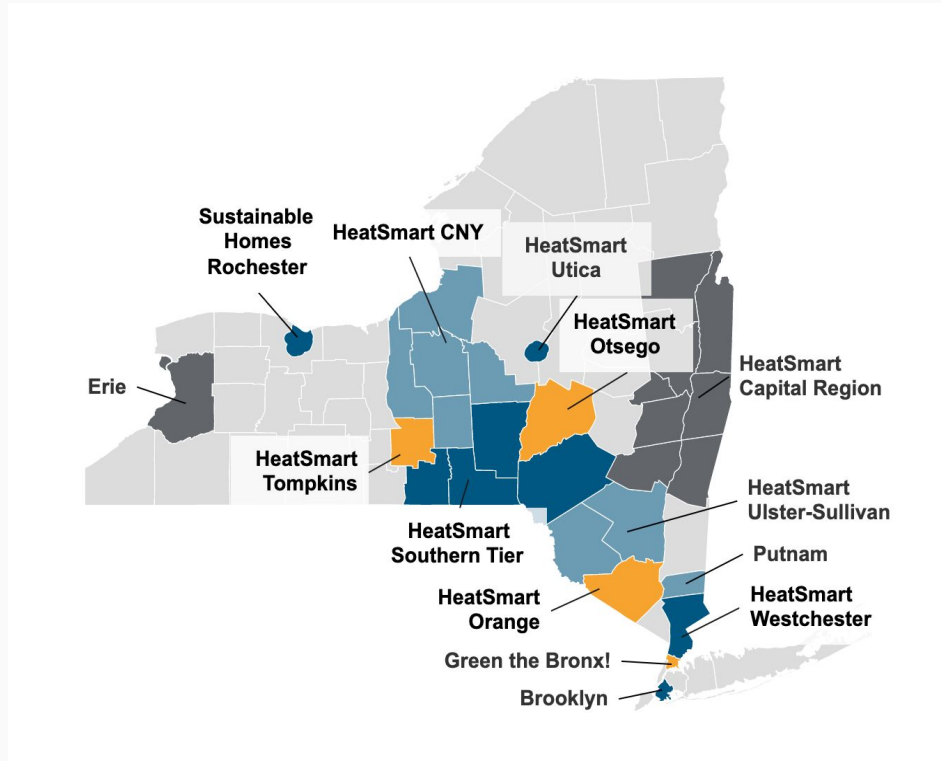
The Network for a Sustainable Tomorrow is a non-profit community-based network of programs working towards social, environmental, and economic justice and equity in our region. NEST catalyzes and convenes new initiatives and partnerships, and does outreach and education to build a stronger and more resilient Southern Tier.



Overview

- **What is Heat Smart Southern Tier?**
- **Why HeatSmart?**
- **Air Source Heat Pumps (ASHP)**
 - ASHP Technology
 - Air Source LLC - process to install clean heating & cooling
- **Incentives & financing**
- **How to participate**
- **Q&A**

What is HeatSmart Southern Tier?



- HeatSmart Southern Tier (HSST) is a NYSERDA-funded community outreach program that connects you to local heating and cooling and energy efficiency experts who offer the latest clean energy technologies.
- We work to educate the public about sustainable heating and cooling systems through our workshops, webinars and tabling events.

Benefits of Heat Smart Southern Tier

- Reduce energy costs
- Home comfort & safety
- Greenhouse gas emissions
- Community awareness



Where Are We Now?



Heat Smart Southern Tier Program Covers:



- Weatherization
- Heat Pumps
 - Ground Source
 - Air Source
 - Water Heater

HeatSmart Southern Tier's Competitively Selected Partners

Air Source Heat Pumps



D & D

Refrigeration

(Delaware county)

Ground Source Heat Pumps

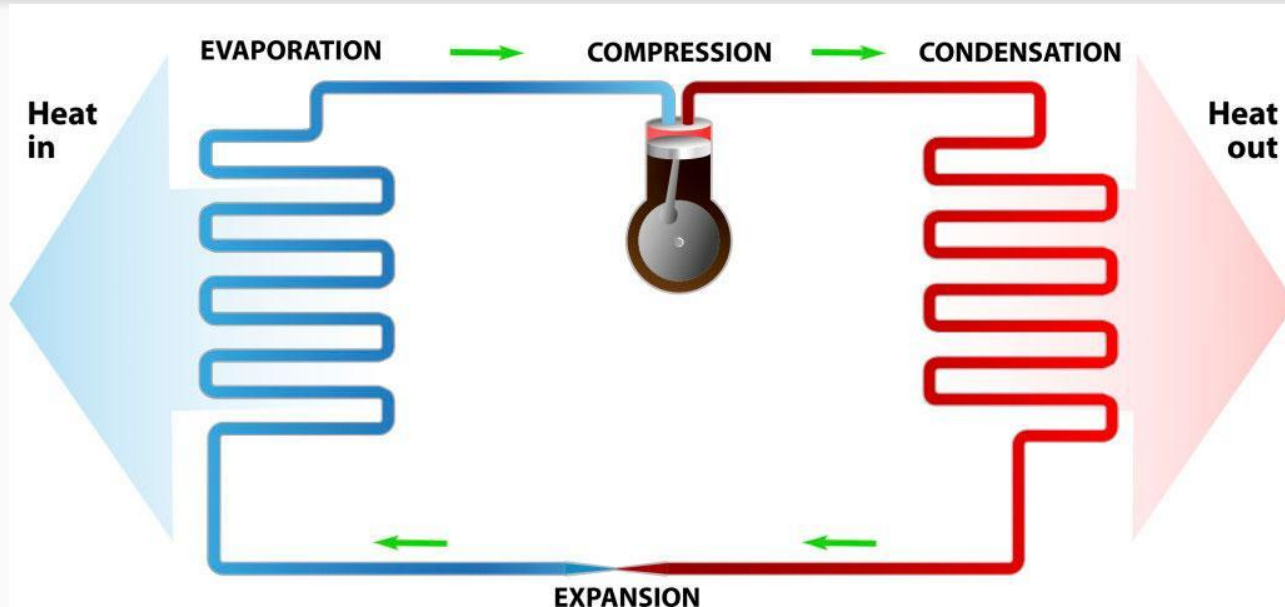
Dailey Geothermal

Home Performance and Efficiency



Heat Pump Technologies

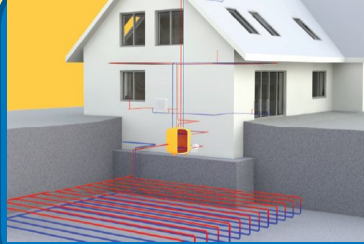
What is a heat pump?



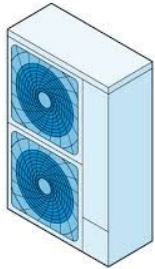
Types of Heat Pumps

Space Heating & Cooling

Hot Water Heating



Ground Source
Heat Pump



Air Source
Heat Pump



Heat pump
Water Heater

Air Source Heat Pumps

Ductless Heat Pumps

Outdoor Units



Indoor Units



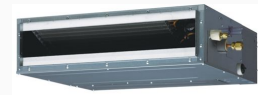
Wall Mount



Ceiling Cassette



Floor Mount



Mini Duct

Air Source Heat Pumps Benefits

- Energy savings
- Air conditioning without ductwork
- Full heating replacement not required
- Flexible
- Zone control
- Quiet



How a project is executed

- **Customer inquiry**
- **Preliminary discussion about the home and the goals**
 - When built
 - Insulation situation
 - Electricity source - NYSEG or Muni
- **Does a site assessment make sense?**
- **If yes, assessment is scheduled and carried out**
- **Ballpark Quote provided & Preliminary Financing discussed**

How a project is executed

- **System designed**
 - Full quote based on load calculation
- **Homeowner decision**
- **Schedule work**
- **The work gets done**
 - Time frame to start varies (4-8 weeks)
- **Tutorial on system operation, performance and maintenance**

Indoor Units: 5 / 2 to 8
Capacity: 51 / 24 to 62
* Connectable capacity is not actual capacity.
Total Pipe Length: 246.6 / 492.0 feet
Furthest Actual: 85.0 / 262.0 feet
Furthest Equiv.: 92.9 / 262.0 feet

Correction Factors

Outdoor Unit Capacity: 1.00 1.00
Temperature: 1.01 0.84
Piping Length: 0.93 0.98
Defrosting: - 0.95
User Derate: 1.00 1.00

Total Derate: 0.93 0.78
Additional Refrigerant: 9.3 lb
Total Refrigerant Amount: 19.9 lb

Conditions (°F)

Cooling

Indoor DB 80.0 Humidity 51.8% Indoor WB 67.0
Outdoor DB 91.0

Heating

Indoor DB 70.0
Outdoor DB -6.0 Humidity 72.8% Outdoor WB -6.5

MXZ-8C48NAHZ2-U1



System 1

3/8 / 5/8
40.0ft (4)

PAC-MKA52BC



| Pipe Dia. Liquid / Gas | Model Number | Clg.Total (Sens.) |
|------------------------|--------------------------------|-------------------|
| Pipe Length (Elbows) | Address/Group / Room / Tag Ref | Htg.Total |

44,864 BTU/h (41,231 BTU/h)
42,208 BTU/h

1/4 / 1/2
15.0ft (3)

PEAD-A15AA7

N/A / 1 / Walkout

13,629 BTU/h (13,042 BTU/h)
12,362 BTU/h

Est. Cooling Discharge Air Temp: 59.5
Est. Heating Discharge Air Temp: 89.1

1/4 / 3/8
40.0ft (4)

MLZ-KP09NA-U1

N/A / 2 / Kitchen/Dining

8,025 BTU/h (7,030 BTU/h)
8,200 BTU/h

Est. Cooling Discharge Air Temp: 59.6
Est. Heating Discharge Air Temp: 93.4

1/4 / 3/8
45.0ft (4)

MSZ-FH12NA

N/A / 3 / Great Room

10,661 BTU/h (9,490 BTU/h)
9,284 BTU/h

Est. Cooling Discharge Air Temp: 60.3
Est. Heating Discharge Air Temp: 89.0

1/4 / 3/8
45.0ft (4)

SEZ-KD09NA4R1.TH

N/A / 4 / Master

7,196 BTU/h (6,315 BTU/h)
7,441 BTU/h

Est. Cooling Discharge Air Temp: 61.2
Est. Heating Discharge Air Temp: 91.8

1/4 / 3/8
40.0ft (3)

MSZ-GL06NA-U1

N/A / 5 / Mudroom

5,354 BTU/h (5,354 BTU/h)
4,921 BTU/h

Est. Cooling Discharge Air Temp: 67.5
Est. Heating Discharge Air Temp: 81.2

Air Source LLC. Installations



Outdoor unit

Air Source LLC. Installations



Wall-mounted Air
Handler

Air Source LLC. Installations



Outdoor units

Air Source LLC. Installations



Distribution Center

Air Source LLC. Installations

Outdoor unit



Air Source LLC. Installations



Distribution Center

AirSource Llc. Installations



Ceiling-Cassette Air Handler

Air Source LLC.Installations



Ceiling-Cassette Air Handler

Air Source LLC. Installations



Wall-mounted Air Handler

Air Source LLC. Installations



Wall-mounted Air Handler

Air Source LLC. Installations



Single Zone Mini-duct

Air Source LLC. Installations



Combined deep energy retrofit & high efficiency heat pump system.

Installed by the
Insulation Man & Air
Source LLC.

Economics, Incentives, and Financing

NYSEG & RGE Incentives (Residential)

| Technology | Description | | Eligibility Requirements |
|-----------------------------------|-----------------------------|---|--|
| Cold Climate Air Source Heat Pump | Partial Load Heating Rebate | \$500 per outdoor unit <i>(-\$100 per outdoor unit to contractor)</i> | All ASHPs must be NEEP-listed Cold Climate Air Source Heat Pumps |
| | Full Load Heating Rebate | \$1,000 per 10,000 Btu/h of maximum capacity at 5°F <i>(-\$500 per project to contractor)</i> | Partial Load: Must be mini-split heat pump Full Load: Can be central or mini-split heat pump, must be sized to 90-120% of building heat load |
| Ground Source Heat Pump | Full Load Heating Rebate | \$1,500 per 10,000 Btu/h of heating capacity (certified by AHRI) <i>(-\$500 per project to contractor)</i> | GSHP must be ENERGY STAR certified and meet ENERGY STAR Tier 3 requirements and be sized to 90-120% of building heat load. This incentive only covers closed-loop systems. Speak with your installer for more information about incentives for open-loop systems. |
| Water Heating | Heat Pump Water Heater | \$700 per unit | Must be ENERGY STAR certified and under 120 gallons in capacity |
| | GSHP Desuperheater | \$100 per unit | Desuperheaters are installed as an optional component to eligible GSHP systems to offset some of your hot water load. Speak with your installer to learn more about desuperheater integration. |
| | Ground-Source Water Heater | \$900 per unit | This incentive is for ground source heat pump systems dedicated to providing 100% of domestic hot water load. The GSHP must be ENERGY STAR Tier 3 Certified. |

****Custom incentives and incentives for commercial-scale systems are also available based on the expected annual energy savings (\$80/MMBtu). Speak with your installer to learn more.**

Financing

| Provider | Loan Product Name | Description |
|--|-----------------------|---|
| NYSERDA* | Smart Energy Loan | Up to \$25,000; terms of 5, 10, and 15 years; 3.49 <u>or</u> 6.99% interest |
| | On-Bill Recovery Loan | Up to \$25,000; terms of 5, 10, and 15 years; 3.49 <u>or</u> 6.99% interest; paid on utility bill |
| ASHP/GSHP Manufacturer Financing (E.g. Synchrony, EnerBank) | | Unsecured loans with dealer fees (can be terms of up to 20 years) |
| Local Banks (e.g. Home Equity, consumer loans) | | Dependent on bank |
| Property Assessed Clean Energy (PACE) – Commercial/Non-profit only | | Repaid through property tax and tied to the property; Up to 100% of cost, 4%-5.75%, terms of 5-20 years |

Enabling LMI Participation: Income-eligible programs

Assisted Home Performance with Energy Star Energy Efficiency/Weatherization

Provides those who apply with a discount of **50% of project costs**

- Limit of **\$5,000** for single-family
- Limit of **\$10,000** for 2-4 unit multi-family
- Eligibility expanded up to 120% AMI through Dec. 31
- Includes heat pumps as of Mid Nov.

| Household Size | Income Limit |
|----------------|--------------|
| 1 | \$39,904 |
| 2 | \$52,192 |
| 3 | \$64,480 |
| 4 | \$76,752 |
| 5 | \$89,040 |
| 6 | \$101,312 |

(Income levels subject to change)

Enabling LMI participation: Income-eligible programs

EmPower NY

Energy Efficiency/Weatherization

- Available to homeowners that are under 60% of state median (HEAP/low-income utility rate code eligible) that pay utility bills
- FREE assessment and efficiency improvements
- Max award increased to \$10k until Dec 31.
- Includes heat pumps as of Mid Nov.

| Household Size | Income Limit |
|----------------|--------------|
| 1 | \$29,928 |
| 2 | \$39,144 |
| 3 | \$48,360 |
| 4 | \$57,564 |
| 5 | \$66,780 |
| 6 | \$75,984 |

(Income levels subject to change)

LMI Adder Incentive

- Will cover project up to 60,000 btu/heating
- Available to homeowners with under 80% of area median income
- 1-4 unit residential only
- Only **non-natural gas** homes are eligible and must be insulated already
- Only includes heat pumps

| Description | Incentive Type | EmPower | AHP |
|---|----------------|----------------|---------------------------|
| Air Source Heat Pump | \$/10,000 btu | \$3,000 | \$1,500 |
| Ground Source Heat Pump | \$/10,000 btu | \$3,800 | \$3,800 |
| Heat Pump Water Heater | \$/unit | Normal EmPower | \$975 |
| Panel Box Upgrade/ Distribution Improvements | ≤ 100 amps | Up to \$2,000 | 50% of cost up to \$1,000 |

What's the Process For Participating?

1. Sign up for site assessment from HSST installer(s)
2. Receive a quote
3. Decide if you want to sign a contract
4. Apply for incentives/financing (if applicable)
5. Complete installation work

Questions?

Thank You!



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