

Clean Heat Connect

Program Manual

July 2024



NYS Clean Heat
Supported

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1 Initiative Background

The New York State Energy Research and Development Authority's (NYSERDA) Clean Heat Connect Initiative is part of a larger NYSERDA supply chain initiative. The initiative aims to support increased sales and proper installations of cold-climate air source heat pumps (ASHP) by providing additional resources and training opportunities to contractors through their existing supply chains and flow of work. Clean Heat Connect will leverage existing trusted sources, distributors, and manufacturers to implement a wide range of market interventions outlined in this manual. Resources and trainings will be delivered or disseminated by partnering distributors and manufacturers with support from NYSERDA, via its implementation contractor TRC, an environmentally focused engineering firm. The initiative will share information and data concerning the outcomes and results from a series of interventions with NYSERDA to assess changing market needs and the intervention success. In addition to partnering with manufacturers and distributors, the initiative will also receive support and coordination from other entities, such as the Joint Utilities of New York's NYS Clean Heat incentive program, industry trainers, trade associations, and the Northeast Energy Efficiency Partnership (NEEP).

2 Roles and Responsibilities

2.1 Partner (Distributor, Manufacturer)

2.1.1 Expectations

The initiative will host quarterly meetings with all partners and ad hoc meetings between NYSERDA and individual partners approximately once per month. There will be less formal engagement via email, phone, or other platforms with higher frequency. Meetings will discuss new or ongoing interventions, challenges and successes, and market trends and developments. Partners are expected to:

- Provide an individual who will act as a champion for the initiative and be NYSERDA's primary point of contact.
- Attend all partner meetings and ad hoc meetings as reasonably requested by NYSERDA and its affiliates.
- Make a good-faith effort to implement initiative interventions.
- Share successes and challenges in implementation.
- Share key data, such as trainee attendance data, to be established in coordination with NYSERDA and reported in a mutually agreed-upon format.
- Follow mutually established qualification requirements for trainees and training commitments for each instructor trained at any train-the-trainer event.

2.1.2 Benefits

As part of the Clean Heat Connect Initiative, partners will be market leaders and able to differentiate themselves from competitors. By participating in the initiative partners receive:

- exclusive access to NYSERDA content, tools, and resources
- access to new training interventions, including train-the-trainer opportunities
- prominent listing and logo-display on the online toolkit portal (CleanHeatConnect.ny.gov), where NYSERDA and NYS Clean Heat—a collaborative effort between New York State electric utilities and NYSERDA to help achieve NYS heat pump goals and build the market infrastructure for a low-carbon future—will direct new contractors for resources
- potential for higher sale volumes, shorter stock turnover, and fewer warranty claims
- potential to add new contractor customers
- support with the NYS Clean Heat incentive program

2.2 NYSERDA

NYSERDA, via its implementation contractor TRC, is responsible for the following activities:

- Provide existing and develop new resources for the Clean Heat Connect network.
- Coordinate and manage the Clean Heat Connect network's members, member meetings, intervention tracking, participation tracking, and data collection relevant to assessing the success of the initiative and its specific interventions.
- Coordinate and manage interventions and resources with other entities such as the joint utilities, trainers, trade associations, and NEEP.
- Coordinate access to other related NYSERDA resources, such as cooperative advertising, customer targeting, technical trainings, etc.
- Support statewide deployment of market-enabling resources promoting energy efficiency.

3 Online Resources Portal (CleanHeatConnect.ny.gov)

Partners and installation contractors will be provided access to an online platform to serve as a central source for content, resources, and events. Partners will be able to post scheduled trainings and promote their businesses. Installation contractors will have the opportunity to use the platform as a central source for training content and other materials.

4 Interventions

There are currently fourteen market interventions planned as part of this initiative. The interventions are scheduled to launch over the course of two years, through 2023. See Table 1 for a tentative timeline and intervention descriptions. As Clean Heat Connect continues to receive market feedback, planned interventions may be updated, including the addition of further interventions.

Table 1. Timeline and Intervention Descriptions

#	Intervention	2022				2023				2024		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1	Short Videos											
2	Sizing and Design training push											
3	NEEP Data visualization exposure/training											
4	Sales-skills - Drip Marketing Campaign											
5	Home Archetype Maps											
6	Project Pricing Checklist											
7	Flare fitting trainings/tools											
8	Faraday Support											
9	Adding Heat Pumps to Your Business											
10	NYS Clean Heat/PSEG-LI collateral											
11	Training Calendar											
12	Workforce Development											
13	ASHP Commissioning Checklist											
14	Snow Protection Supply Support											
15	Regulatory Information Support											
16	Green Jobs – Green New York Fact Sheet											
17	Counter Days											
18	Counter Rack											
19	Why Air Source Heat Pump Field Assessment Matter											
20	Don't Oversize											
21	Installer's Guide to Assessing Residential Electrical Service											
22	Air Source Heat Pump Efficiency Ratings Explained: DOE Appendix M1											
23	Air Source Heat Pump: Cold-Climate Duct Evaluation Guide											

#	Intervention	2022				2023				2024		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
24	Heat Pump Protection: Protecting From Surges											
25	Refrigerant Regulations: The Transition to Low Global Warming Potential Refrigerants											

4.1 Short Videos

Short business-to-business targeted videos that feature local heating, ventilation, and air conditioning (HVAC) contractors. Videos are mostly two to five minutes in length. They cover a wide range of topics including:

- marketing and sales
- customer testimonials
- design/sizing, sizing application
- installation, failures/lessons learned
- comfort of new system versus old (replaced oil or natural gas system)
- dispelling common myths or beliefs

A professional production company filmed the videos, which are available on various platforms such as YouTube and the NYSERDA website.

4.1.1 Clean Heat Connect Network Dissemination Plan

Partners are asked to distribute and/or display the videos within their existing communication channels: social media, websites, newsletters, word of mouth, etc. Partners are urged to display the videos at or near distribution counters. The same videos are cross purposed in the Sales Skills: Drip Marketing Campaign intervention.

4.1.2 Schedule

The videos initially deployed starting Q2 2022, with all videos released as of Q1 2024.

4.2 Sizing and Design Training

As of January 1, 2022, the NYS Clean Heat program requires all new ASHP installers to show proof of completing an ASHP manufacturer-sponsored, cold-climate ASHP size-and-design training as part of their application to be a participating contractor.

4.2.1 Clean Heat Connect Network Dissemination Plan

The intervention will:

- Coordinate with manufacturers to develop and refine trainings.
- Coordinate network-participating distributors with non-network manufacturers to advance the creation and offering of trainings.
- Review and provide feedback on related training materials.
- Offer train-the-trainer services to network members and their affiliated trainers.

- List offered trainings on the CleanHeatConnect.ny.gov events calendar.
- Promote trainings offered by partners through NYS Clean Heat incentive program and other channels as identified.

4.2.2 Schedule

The training deployed in Q1 2022, with ongoing support continuously.

4.3 Northeast Energy Efficiency Partnership Data Visualization Exposure/Training

Clean Heat Connect supported Northeast Energy Efficiency Partnership (NEEP) to develop a new visualization tool for NEEP-qualified, cold-climate ASHPs. The tool assists contractors in sizing and selecting heat pumps relative to a home-load line and climate. The user enters the location and design load of the system. With this information, the tool allows a user to compare multiple heat pumps within the NEEP database across sizing-related metrics such as:

- percent design load served
- percent annual load served
- percent annual load while modulating
- hours and Btus requiring backup heat
- balance point
- minimum capacity threshold

The tool also allows the user to view an individual heat pump to see how its heating capacity curve relates to the home-load line and the climate's load-hours histogram.

The tool allows users to quickly assess and compare appropriate heat pump selection for a given situation. It is intended to be complementary to other more advanced sizing and product selection tools contractors already use.

4.3.1 Clean Heat Connect Network Dissemination Plan

Clean Heat Connect network partners support bringing this tool to the attention of their contractor customers through counter-interactions, sizing/selection support services, email blasts, newsletters, social media, and any other identified channels.

4.3.2 Schedule

The tool deployed in Q2 2022 with updates to the visualization tool deployed in Q4 2023.

4.4 Sales Skills: Drip Marketing Campaign

This market intervention is to implement a drip marketing strategy, in which heat pump sales/marketing support materials and resources are steadily distributed to a pool of contractors over time. The intent is to cultivate engagement and integration of effective heat pump marketing into their existing business models. Content ranges in type such as short videos, pamphlets, guides, and checklists, covering topics including:

- business skills (pricing, high-efficiency up-sale tactics, marketing, and consumer financing)
- soft skills education
- technical aspects of heat pumps such as operations, etc.
- overcoming initial hurdles of heat pump familiarity
- the benefits of heat pump products for homeowners and contractors

4.4.1 Clean Heat Connect Network Dissemination Plan

The initiative supports partners in embedding drip campaign content into existing communication channels: email blasts, social media, websites, newsletters, etc. Partners may contribute additional resources or messages to the drip marketing campaign catalogue. Partners, as willing and as available, supply anonymized data on campaign success metrics, such as open/read rates, to the initiative.

4.4.2 Schedule

Drip marketing deployed starting Q3 2022, with ongoing and updated campaign messages available.

4.5 Home Archetype Maps (Heat Pump Home Runs)

Clean Heat Connect created a series of simple-to-use decision maps to determine the best heat pump solution for common home archetypes (e.g., current heating and distribution systems, home layout, etc.). The initiative calls these “Heat Pump Home Runs.” The decision map includes items that the contractor should consider based on the archetype, such as condition, location, and size of existing ducts, etc. This resource is for contractor sales staff to have quick go-to heat pump solutions for customers with the most common home archetypes in New York State. This complements NYSEDA’s consumer facing [Heat Pump Planner](#), which provides heat pump illustrations for various home types. Additionally, it provides heat pump configurations and can be customized with logos and contact information for NYS Clean Heat contractors.

4.5.1 Clean Heat Connect Network Dissemination Plan

The initiative offered branding support for the series of Heat Pump Home Runs as requested. Members provide them to their customer contractors at the counter or through other professional service interactions.

4.5.2 Schedule

The decision map deployed starting Q2 2022.

4.6 Project Pricing Checklist

Contractors with less heat pump experience may lack the knowledge to properly estimate an ASHP job, including properly determining installation time and ancillary equipment considerations. This can lead to reduced profits, lost work, or the foregoing of ASHP recommendation over a natural gas system replacement. To improve bid accuracy and reduce bid turnaround time, Clean Heat Connect created a pricing checklist and how-to guide for contractors. The checklist included key pricing points such as ancillary equipment considerations, multi-head systems, electrical upgrade requirements, and ease of access considerations.

The initiative offers branding support and line-item customization for Pricing Checklist as requested. Members provide them to their customer contractors at the counter or through other professional service interactions.

4.6.1 Schedule

The pricing checklist deployed starting Q3 2022.

4.7 Flare Fitting Trainings/Tools

Creating properly fitted refrigerant tube connections can reduce maintenance call-backs, making for fewer leads and better installations. To improve installations, this intervention will work with partners to provide more hands-on trainings and field tools to installation contractors. Specifically, Clean Heat Connect will:

- Work with partners to determine the best-suited format(s) for flaring/crimping training.
- Provide partners ongoing support to offer flaring/crimping trainings to increase installer confidence.
- Work with stakeholders to determine a pathway for rebates or discounts for crimping tools.

See details for program participation in the Procedures—Clean Heat Connect Discounts and Rewards Guidelines section.

4.7.1 Clean Heat Connect Network Dissemination Plan

Partners will host and maintain a hands-on training kiosk at the distribution facility. They will provide general feedback on the use rates of experienced kiosk installers. Partners will exclusively provide point-of-sale coupon rebates for specific flaring tools for installers who have taken an online flare skill knowledge quiz.

4.7.2 Schedule

The Flare Fitting Trainings/Tools deployed starting Q1 2023.

4.8 Faraday Support

Faraday is a lead-generation tool commissioned by NYSERDA for targeting heat pump sales that can assess 250 attributes and find patterns among purchasers of heat pumps. The tool uses public and private data sources to find individuals who are likely to buy/want a heat pump. It can then target this group through social media ads using an integrated Facebook Manger feature and mailers through downloadable CSV files.

4.8.1 Clean Heat Connect Network Dissemination Plan

Partners were given the opportunity to use Faraday, for free, to generate leads for their contractors. NYSERDA worked with partners and contractors to determine the continued value of Faraday and considered the benefit of pivoting to a paid model.

4.8.2 Schedule

Faraday deployed in Q2 2022. This intervention is closed as the value add was not sufficient to support continued funding.

4.9 Adding Heat Pumps to Your Business

This intervention will engage adjacent trades and those new to the HVAC industry to expand their service offerings to include cold-climate ASHP installation. Adjacent trades include insulation contractors, solar contractors, heat pump water heater installers, electricians, plumbers, and any other trades that install equipment into residential buildings. Clean Heat Connect will:

- Develop training-content tracks appropriate for each type of adjacent trade installer at various levels of existing heat pump knowledge. Training tracks will include topics ranging from an introduction to cold climate ASHPs, the intersection between this technology and the respective trade, sizing and design training, installation training, and the sales opportunity. Training tracks will leverage existing trainings already offered by partners whenever possible (specifically manufacturer sponsored heat pump installation training and ccASHP sizing and design training) as well as include a combination of online resources available only at CleanHeatConnect.ny.gov.
- Engage with partners, NYSERDA program implementers, NYSERDA's Workforce Development team, training providers, and trade associations to reach the target audience.
- Work with partners to schedule and promote trainings for adjacent trade installers to explore their overlapping skills and sales goals for heat pumps.

- Develop a roadmap(s) for the integration of heat pumps to existing business models of adjacent trade installers.
- Host the specific training resources on the initiative’s online resource hub and offer to track training progress with the online hub’s learning management platform.

Through these efforts, the initiative will compile and make accessible resources that are easily shared or duplicated to broaden the involvement of market partners, creating a pathway for continued engagement into the future. This includes developing case studies from willing participants to diversify skill sets within their trade by means of heat pumps.

The specifics of this intervention are still under development.

4.9.1 Clean Heat Connect Network Dissemination Plan

The initiative will steer interested adjacent trade installers toward network partners to fulfill critical components of the training, thus establishing a long-term, distributor-contractor relationship. Partners will support participating contractors in leveraging the CleanHeatConnect.ny.gov learning management platform in combination with offering their existing trainings.

4.9.2 Schedule

Starting in Q1 2024, TRC will have partners test and provide feedback to a draft version of the training tool. Engagement of adjacent trades and those new to the HVAC industry will deploy starting Q3 2024.

4.10 NYS Clean Heat/PSEG-LI Collateral

The NYS Clean Heat incentive program—offered by the Joint Utilities of New York and supported by NYSEDA—and the PSEG-LI Home Comfort program are key drivers of cold-climate ASHP sales. The initiative coordinated with NYS Clean Heat and PSEG-LI Home Comfort to create program sell sheets, a program enrollment poster, and a field-assessment infographic. The resources target contractors who are interested but have not yet leveraged the incentives. They are visually enticing, easy to read, to the point, and include a call to action. The initiative developed resources for the following three topics:

1. Sell sheets for incentive levels in each utility territory, plus equipment eligibility requirements; there are separate sell sheets for ASHP and GSHP products, each with a simple reference to incentives for residential HPWS. The sheets do not address custom heat pump categories or commercial scale products in order to reduce confusion and simplify the message.
2. A poster describing how to sign up as a participating contractor, which includes QR codes to the program’s online enrollment portal.
3. An infographic covering installation expectations of the program’s quality control component, which includes a guide on the most frequently failed items within the quality control checklist.

4.10.1 Clean Heat Connect Network Dissemination Plan

The initiative printed an initial run of each collateral item and delivered them to partners for display at their distribution counters. Additional printouts are the responsibility of the partner. The initiative also hosts digital versions of the resources at CleanHeatConnect.ny.gov

4.10.2 Schedule

Members introduced this intervention concept during the intervention's Q1 2022 quarterly meeting. Most were made available by Q2 2022. The PSEG-LI sell sheets along with updates to the NY Clean Heat sell sheets were made available in Q4 2022. Updated sell sheets are made available at least annually and will always be updated after any major NYS Clean Heat program changes.

4.11 Workforce Development Liaison

The initiative developed common use case scenarios on how NYSERDA's current Workforce Development (WFD) offerings can assist Clean Heat Connect partners and their installation contractors. These represent common scenarios and/or best use cases with the current WFD offerings. The initiative promotes and guides partners to the appropriate resources and programs based on their needs.

1. Hiring Support Information Sheet: Describes NYSERDA's On the Job Training (OJT) program and Clean Energy Internship program, which each provide wage subsidies and job-candidate search support. The Sheet describes the concrete actions a heat pump installation contractor or a distributor must take to leverage the program.
2. Hiring Support Poster: Links to the more detailed Hiring Support information sheet with a QR code, includes a call-to-action, and is designed for display at a partner's training center or distribution counter.
3. Cooperative Advertising and Cooperative Training Incentives Information Sheet: Describes two connected cost subsidy programs, eligibility requirements, program offering, and application process.

4.11.1 Clean Heat Connect Dissemination Plan

Clean Heat Connect Partners provide the information sheets to their installation contractor customers and hang the Hiring Support poster. Digital versions of resources are hosted at CleanHeatConnect.ny.gov by the initiative.

4.11.2 Schedule

The Workforce Development Liaison intervention launched Q3 2022.

4.12 Air Source Heat Pump Commissioning Checklist

The initiative updated an air source heat pump post-installation commissioning checklist, originally created by National Grid for the NYS Clean Heat program. The checklist aligns with the NYS Clean Heat field-assessment program and includes other elements. It will help ensure a quality installation and adequate customer education.

4.12.1 Clean Heat Connect Dissemination Plan

The initiative is offering customized branding for Clean Heat Connect partners as well as printing and delivery of the resource (custom branded or native). A version of the checklist is hosted at CleanHeatConnect.ny.gov by the initiative.

4.12.2 Schedule

The Air Source Heat Pump Commissioning Checklist launched Q4 2022.

4.13 Snow Protection Supply Support

Heat pumps must be protected from excess snow and ice accumulation to provide heating throughout the winter. This means installing the heat pumps above the region's typical maximum snow line and protecting them from excess snow or ice from above (typically if installed under a drip-eave, or a deck with openings between deck-boards).

Some installers have found it difficult to find the snow stands and snow deflector products used to provide these protections. Snow deflectors in particular are difficult to source. This intervention will help reduce supply constraints for these products. Some initial concepts include:

- Identifying manufacturers of snow-protection products that will sell into the New York State market.
- Identifying sheet metal fabricators in the State that could provide snow-deflectors if given specifications and a consistent and large-enough purchase commitment.
- Connecting manufacturers and fabricators with Clean Heat Connect partners to facilitate supply directly through the distributors.
- Providing information to contractors on independent supply options for these products.

4.13.1 Clean Heat Connect Dissemination Plan

The initiative will help connect manufacturers and fabricators of snow protection products with the New York State market, either by partner distributors buying in bulk directly and then reselling to installation contractors, or by providing contact information to manufacturers and fabricators directly to contractors.

4.13.2 Schedule

This intervention deployed in Q1 2023.

4.14 Regulatory Information Support

There are multiple changes in federal heat pump regulation and market support that will impact the New York State market. These changes can be difficult to understand and distill to gauge the impact to distributors and installation contractors. These changes include the Inflation Reduction Act (IRA), changes to the “Department of Energy’s (DOE) Test Procedures for Heat Pumps (Appendix M1)”, and changes to the Environmental Protection Agency’s (EPA) regulation of refrigerant global warming potential (GWP). The initiative will provide simplified and direct information sheets regarding these regulatory changes and consider similar support for future changes.

4.14.1 Clean Heat Connect Dissemination Plan

The initiative will provide regulatory information sheets to Clean Heat Connect partners and encourage them to distribute the resources to their contractor customers. Digital resources at CleanHeatConnect.ny.gov will be hosted by the initiative.

4.14.2 Schedule

This intervention will deploy starting Q1 2023 with information regarding the IRA’s 25c tax rebate provisions. Other information sheets are tentatively planned for the following release schedule:

- IRA – 25C Tax Credit Guide – deployed Q1 2023
- IRA: low- to moderate-income incentives – estimated Q4 2024
- DOE: M1 test standard impacts – deployed Q1 2024
- EPA: low-GWP refrigerant requirement impacts – deployed Q3 2024

4.15 Green Jobs - Green New York Fact Sheet

With rising interest rates and inflation, customers are looking for ways to help lower the costs of upgrading their homes. The Green Jobs – Green New York initiative helps the distributor provide additional options to their contractors, that will make them more competitive without the additional burden of hiring another staff to handle loan processing. The initiative will provide a simplified information sheet regarding NYSERDA’s Green Jobs – Green New York Financing program, benefits for the contractor and the customer, and how to become a loan-offering contractor.

4.15.1 Clean Heat Connect Dissemination Plan

The initiative will provide Green Jobs – Green New York Financing information sheets to Clean Heat Connect partners and encourage them to distribute the resource to their contractors.

4.15.2 Schedule

This intervention deployed in Q2 2023 with information regarding Green Jobs – Green New York loans, benefits, and how to become a loan-offering contractor.

4.16 Counter Days

A Clean Heat Connect representative will attend participating partner events, such as counter days, to discuss all available interventions with various stakeholders. TRC will also use the opportunity to gather information and market intelligence from contractors and the distributor partner. TRC will consider events throughout the year and will aim to attend 20 events per year, per participating distributor partner. This intervention will help build rapport with participating partners, collect better data for Clean Heat Connect evaluations, improve the reach of collateral-based interventions, and gain deeper understanding of the market needs from both the distributor and contractor's points of view.

4.16.1 Clean Heat Connect Dissemination Plan

The initiative will provide a Clean Heat Connect representative to attend twenty Clean Heat Connect partner events per year per participating distributor partner, to discuss current and future program interventions and discuss market needs with partners and their contractors in attendance.

4.16.2 Schedule

This intervention deployed in Q3 2023 and updated Q2 2024.

4.17 Counter Rack

The counter rack initiative will place stocked collateral racks (floor or counter) to house printed Clean Heat Connect materials. This will allow better access to the materials and content tracking based on restocking rates.

4.17.1 Clean Heat Connect Dissemination Plan

The initiative will provide up to three counter or floor racks, stocked with Clean Heat Connect intervention material, to each participating Clean Heat Connect partner. The partners will place them at or near points of sale or at a location that has high customer visibility. NYSERDA's Clean Heat Connect program will provide the racks and collateral and support for initial setup. The participating partner will maintain them using a combination of collateral mailed to them by TRC or printed by the partner. The partner will be responsible for informing TRC of collateral that is low on volume, and TRC will check collateral volume when on site for counter days or other events.

4.17.2 Schedule

This intervention deployed in Q3 2023.

4.18 Why Air Source Heat Pump Field Assessments Matter

This intervention will highlight the NYS Clean Heat quality assurance/quality control (QA/QC) process and the air source heat pump QA/QC checklist specifically. It will help contractors better understand what makes a heat pump installation high quality by describing what each ASHP checklist item is, why each check matters, and what the potential implications are if checklist items are not met in terms of energy efficiency, operational performance, and occupant comfort.

4.18.1 Clean Heat Connect Dissemination Plan

The initiative will provide a detailed fact sheet that explains each NYS Clean Heat QA/QC checklist line item to Clean Heat Connect partners and encourage them to distribute the resource to their contractors. The initiative will coordinate with NYS Clean Heat to encourage program implementers to leverage the same resource for contractor onboarding, contractor retraining, and when communicating with contractors regarding checklist non-conformances indicated on their Site Assessment Reports.

4.18.2 Schedule

This intervention deployed in Q3 2023 with updates for new checklist items deployed in Q1 2024.

4.19 Don't Oversize

It is important to ensure that installed heat pumps are properly sized for the space that it is intended to heat and cool. Practitioners commonly make data entry errors and/or include conservative or *padded* data points when conducting a Manual J calculation. As per subject matter experts, even when completed correctly, a Manual J calculation will typically be at least 5% - 10% higher than actual building heating and cooling design loads. Many installers will then also intentionally select a heat pump with a significantly larger capacity than the calculated heat load in fear of under sizing the system which they see as a bigger direct concern as it can lead to call-backs and unhappy customers. While slight oversizing may have little impact on the heat pump's efficiency, coupling this with an already inflated building load calculation can lead to severe energy, cost, and comfort penalties.

4.19.1 Clean Heat Connect Dissemination Plan

The initiative will provide a fact sheet to Clean Heat Connect partners describing the impacts of oversizing and how to avoid it. The initiative encourages partners to distribute the resource to their contractors. The fact sheet educates and informs contractors about the following topics:

1. Oversizing as a greater problem than they may currently understand or account for.
2. The levels at which oversizing tips into particularly problematic outcomes.
3. The impacts of oversizing and the mechanisms that cause them.
4. Identifying the effects of oversizing.
5. Methods to avoiding oversizing.
6. Terms to know so they can understand and discuss oversizing.

4.19.2 Schedule

This intervention deployed in Q3 2023.

4.20 Installer's Guide to Assessing Residential Electrical Service

It is important when installing a new heat pump system, to make sure the home has sufficient electric system capacity to provide the heat pump's power. Underserviced homes may require an amperage upgrade from the utility. In many cases the homeowner can avoid this cost by installing technology alternatives that reduce peak amperage, efficiently utilizing breaker space in the electric panel, adding subpanels, or some combination thereof. The moment of decision on how to adapt or update a home's electrical capacity is a prime opportunity for heat pump contractors to discuss long-term plans with the homeowner and gain momentum toward full electrification, preventing homeowners from having to make additional expensive electrical changes down the line.

4.20.1 Clean Heat Connect Dissemination Plan

The initiative will provide a booklet and an online training course to Clean Heat Connect partners to assist heat pump installers in assessing a home's electrical system before engaging with an electrician or

starting the heat pump installation process. The initiative encourages partners to distribute the resource to their contractors. The fact sheet educates and informs contractors about the following topics:

1. Determine the home's electrical service capacity
2. Discuss long-term plans for the home
3. Estimate existing and future peak electrical loads
4. Provide options to install clean heat in electric-system-constrained homes
5. Anticipate the electrical work

4.20.2 Schedule

This intervention fact sheet deployed in Q1 2024, and the training course is estimated to be released in Q4 2024.

4.21 Air Source Heat Pump: Cold-Climate Duct Evaluation Guide

Adequate duct sizing, -sealing, and insulation are essential for a heat pump to operate efficiently and maintain comfort. Heat pumps supply warm air as opposed to the hot air that comes from a fuel-fired furnace. When repurposing existing ducts, it may be necessary to size the trunk and/or branches larger to provide the heat load of each room. In many cases the existing ducts were oversized initially and therefore will still work for the heat pump. To optimize the heat pump performance and customer satisfaction, installers must inspect and test the existing ductwork to determine if it can be repurposed as-is, need to be modified, or need to be replaced entirely by new ductwork.

4.21.1 Clean Heat Connect Dissemination Plan

The initiative will provide a fact sheet and a training course to Clean Heat Connect partners describing the impacts of improperly evaluating existing ductwork for a heat pump system, steps to properly determine if existing ducts can be used, and duct retrofit best practices. The initiative encourages partners to distribute the resource to their contractors. The fact sheet educates and informs contractors about the following topics:

- How to evaluate existing ductwork before installing a ducted heat pump
- Steps to ensure proper air flow requirements are met
- Steps to ensure proper balancing of ducts
- Required duct testing after installing a ducted heat pump
- Duct retrofit best practices
- Factors that affect cost of duct replacement
- National Comfort Institute's standardized duct sizing charts

4.21.2 Schedule

This intervention fact sheet deployed in Q2 2024, and the training course is estimated to be released in Q1 2025.

4.22 Heat Pump Protection: Protecting from Surges

Every heat pump is susceptible to, and need to be protected from, electrical surges. New heat pump technology relies on advanced and sophisticated electronics to convert the home's alternating current (AC) to direct current (DC) signals, enable compressors to adjust their speed according to demand, and other functions needed to maintain a home comfortable. Sensors and microprocessors orchestrate these behaviors to optimize system performance. Protecting sensitive microprocessors inside the heat pump is needed to ensure their longevity, continued homeowner comfort, and to prevent thousands of dollars in damage and time spent on call backs repairing a heat pump. The most effective way to protect a heat pump from electrical surges is to install a component surge protector inline with the heat pump.

4.22.1 Clean Heat Connect Dissemination Plan

The initiative will provide a fact sheet to Clean Heat Connect partners describing the impacts of electrical surges and how to protect against them. The initiative encourages partners to distribute the resource to their contractors. The fact sheet educates and informs contractors about the following topics:

- What are electrical surges
- Where electrical surges are generated from
- What are surge protectors
- Types of surge protectors
- Why a component surge protector needs to be installed on a heat pump

4.22.2 Schedule

This intervention deployed in Q3 2024.

4.23 Other Interventions and Ad-Hoc Support

The initiative will add to, and revise, the list of planned interventions on an ongoing basis using feedback from the network, other coordination partners, and contractors. The initiative encourages network members to request specific support. Clean Heat Connect will either develop full interventions or provide support directly as is deemed most appropriate and viable.

5 Procedures - Clean Heat Connect Discounts and Rewards Guidelines

This section communicates procedures for discounts and rewards provided to contractors for tools, trainings, or other resources through Clean Heat Connect Network Members to support adoption of these tools, resources, and best practices. As the initiative develops, additional procedures for discounts and awards may be added to this attachment on a voluntary basis with each partner.

5.1.1 Flare Fitting Tools Discount Vouchers

To participate in this program, participating Clean Heat Connect members agree to utilize the following procedures:

1. Participants will collaborate with NYSERDA's implementation contractor, TRC, to establish retail locations that will provide discounts for vouchers and stock flare tools and torque wrenches meeting the program's required specifications. Two brands with tools meeting these specifications are Hilmor and Yellow Jacket. Alternative tools from brands sold by the participating distributor meeting the program specifications may be approved by TRC for use in the program.
2. Participants read, sign, and return the Participation Agreement Addendum.
3. Provide TRC with branch locations that will provide the tool discounts. Branches operating under the same parent company federal tax ID number require only one Participation Agreement Addendum to be signed. Branches with separate tax ID numbers will need to individually sign the addendum.
4. Participants complete and return the vendor information form provided by TRC and provide a copy of a Form W-9 to become a vendor in NYSERDA's payment system. Branches under a parent company may be paid reimbursements to separate bank accounts or under single payments to the parent company as they choose. Individual branches that need to be paid separately must provide their information on the contact form, and will then be set up as a separate NYSERDA vendor. Single payments made to a parent company bank account may have reference information included for accounting to separate branches in the payment memo section.
5. Once participants are approved as a NYSERDA vendor, they will receive a letter requesting bank account information for electronic payments to reimburse the discounts. NYSERDA will send a confirmation once banking information is received.
6. Distributors will allow NYSERDA or a Program Representative to seek material donations such as refrigerant piping or simple parts for demonstration kiosks. It is understood that participants are not obligated to make any donations.

7. Distributors will send promotional materials and advertisements to their networks of HVAC contractors with links to a short survey that provides access to the discount vouchers. Other marketing will also promote the materials. Provided marketing content may be adapted to the partner's own graphic design requirements. However, if using the program materials provided by NYSERDA with a New York State Clean Heat or NYSERDA logo, materials will be used unaltered and as provided through the Clean Heat Connect Network. Participants may not develop their own materials using the NYSERDA or New York State Clean Heat Logos.
8. Distributors may sign up with TRC to use rotating table kiosks to promote the tools in their stores based on scheduled availability.
9. HVAC contractors will access the vouchers by completing an online survey and obtaining the voucher from TRC after completing the survey.
10. Distributors will provide point of purchase discounts to HVAC contractors when they redeem vouchers, providing a \$100 discount for both the cutting tool and/or the torque wrench, one voucher per person (applicable to both tools). Multiple employees from the same contractor may use the voucher with unique voucher ID numbers. TRC will track and review voucher numbers to ensure vouchers are not being misused. Vouchers are valid through the end of the year they were obtained.
11. Distributors will collect voucher redemption information and send monthly invoices to TRC using the provided form or data requirements by the 7th of each month or the closest Friday.
12. TRC will organize vouchers and submit invoices to NYSERDA by the 15th of each month or the closest Friday.
13. NYSERDA will send payments to participants designated vendor addresses through the next bi-weekly payment cycle after invoices are received.



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