



Clean Heat

Rhode Island

Webinar

September 21, 2023



Clean Heat Rhode Island Team



**Christopher
Haringa**
Senior Program
Manager



**Shannon
Bellamy**
Program Manager



Justine Canna
Program Coordinator



**Justin
Bessette**
Heat Pump Specialist



Mike MacMillan
Incentive Processing
Manager



Agenda

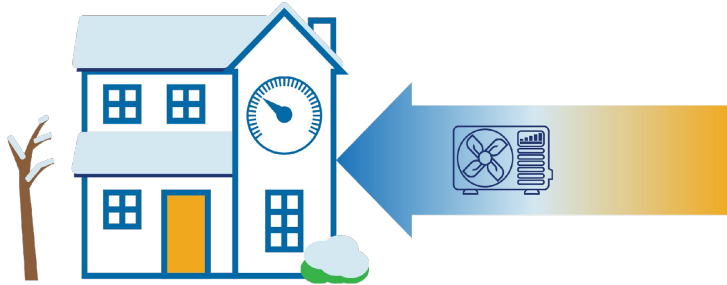
- Heat Pump Basics
- Program Overview
- Services
- Program incentives & requirements
- Website & program resources
- Q&A



Heat Pump Basics

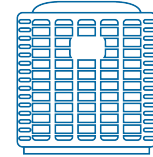


Summer: Pumps heat from the inside to the outside



Winter: Pumps heat from the outside to the inside

Same technology as:

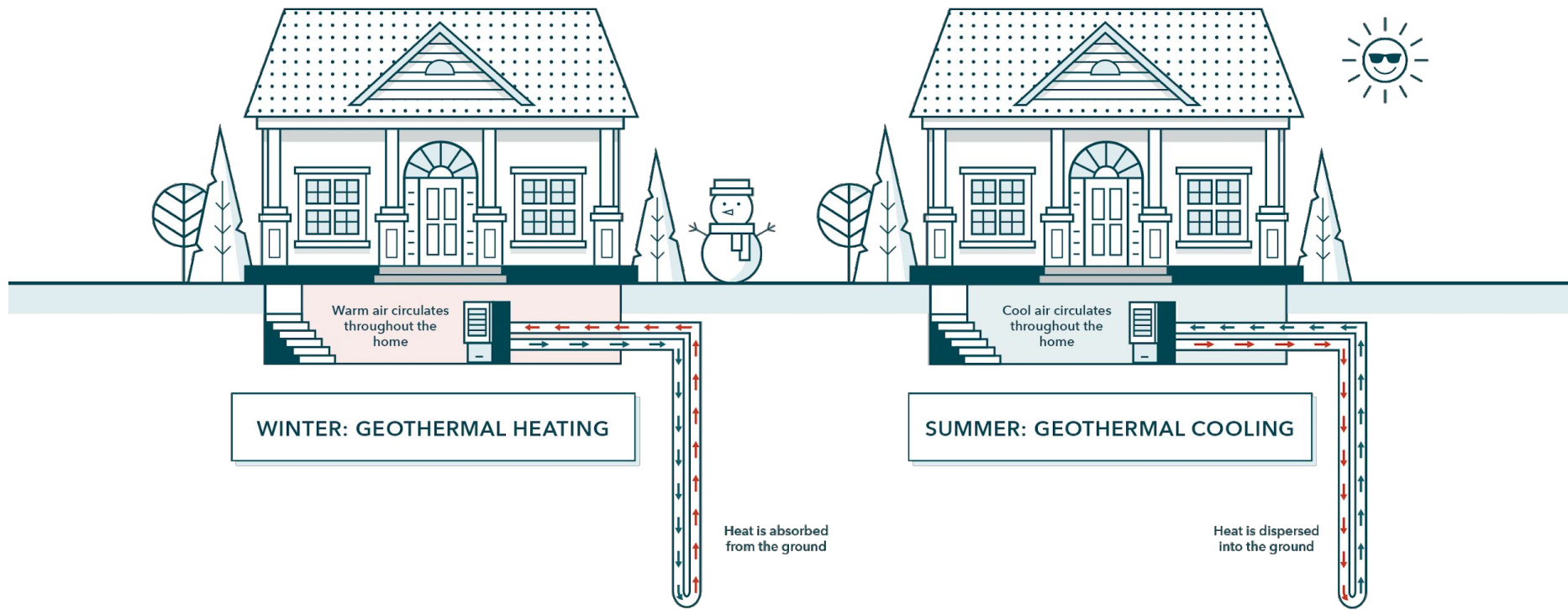


Air Conditioner



Refrigerator

Ground Source (Geothermal) Heat Pumps



Ductless



Ducted

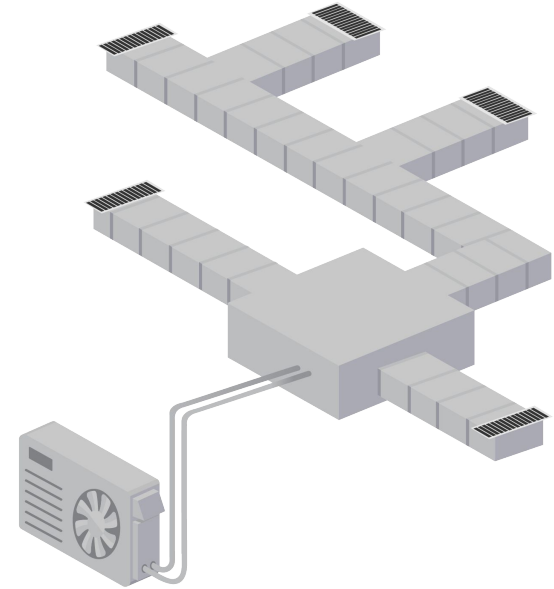
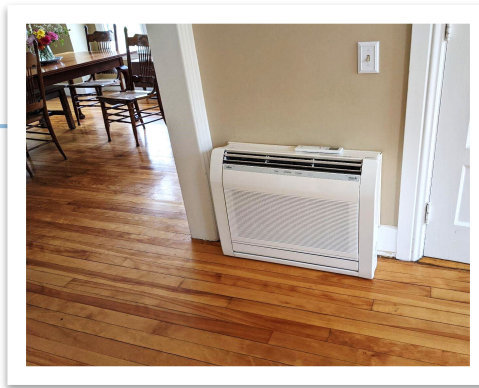


Image courtesy of New York State Energy Research and Development Authority (NYSERDA)

Wall Hung



Floor Mount

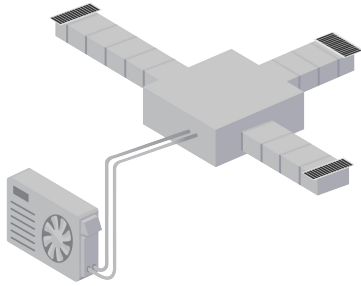


Ceiling Cassette



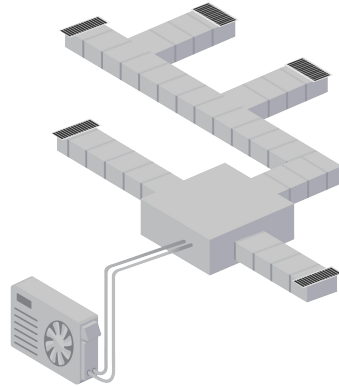
Ductless Indoor Units

Compact Ducted



Low Static: a few rooms
Medium Static: an entire floor

Centrally-Ducted



High Static: An entire floor or home
Can be paired in dual-fuel configurations



Image courtesy of New York State Energy Research and Development Authority (NYSERDA)

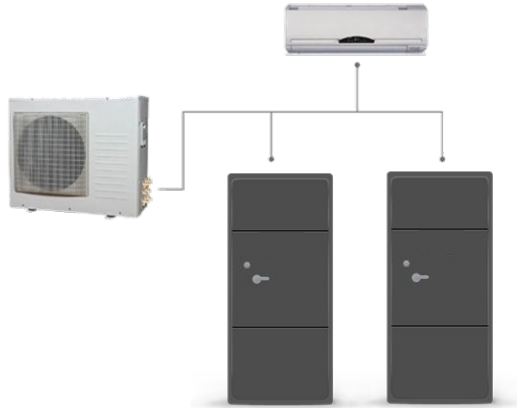
Single Zone (mini-split)

- 1 to 1



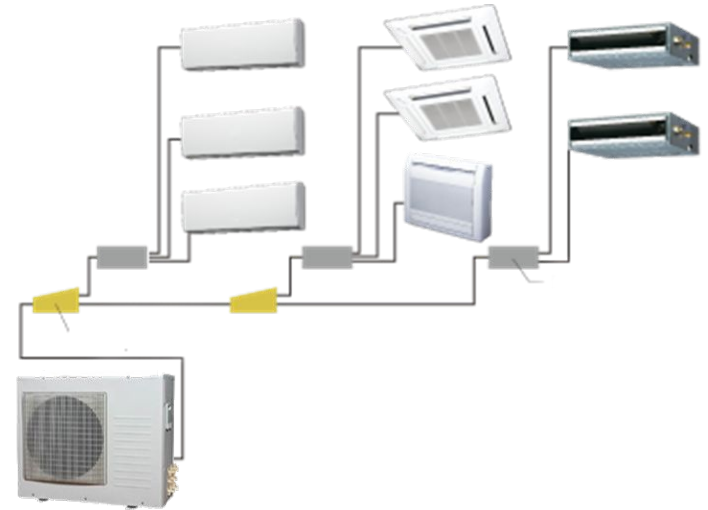
Multi-Zone (multi-split)

- 2-4 indoor units

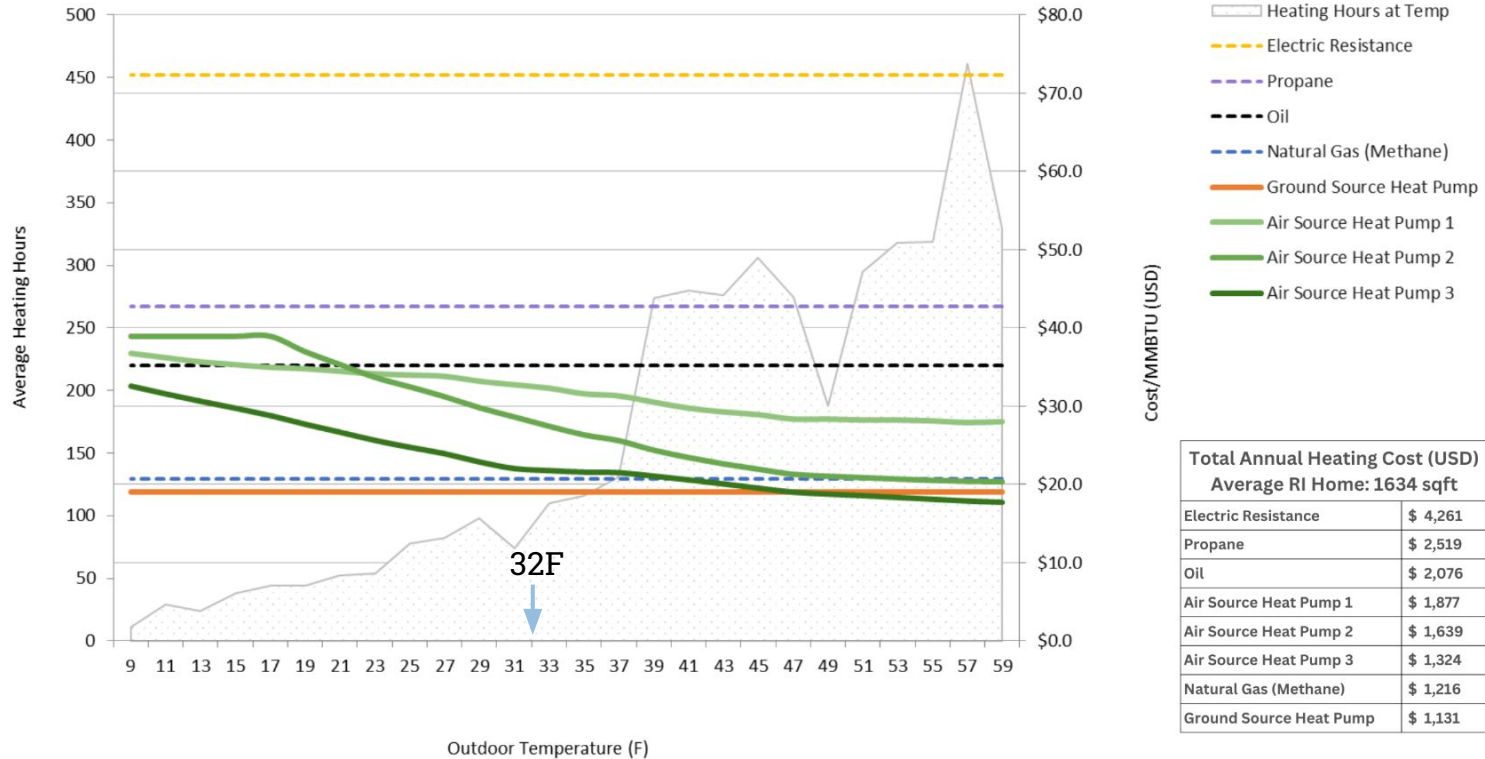


Multi-Zone (w/ branch box)

- 2-8 indoor units

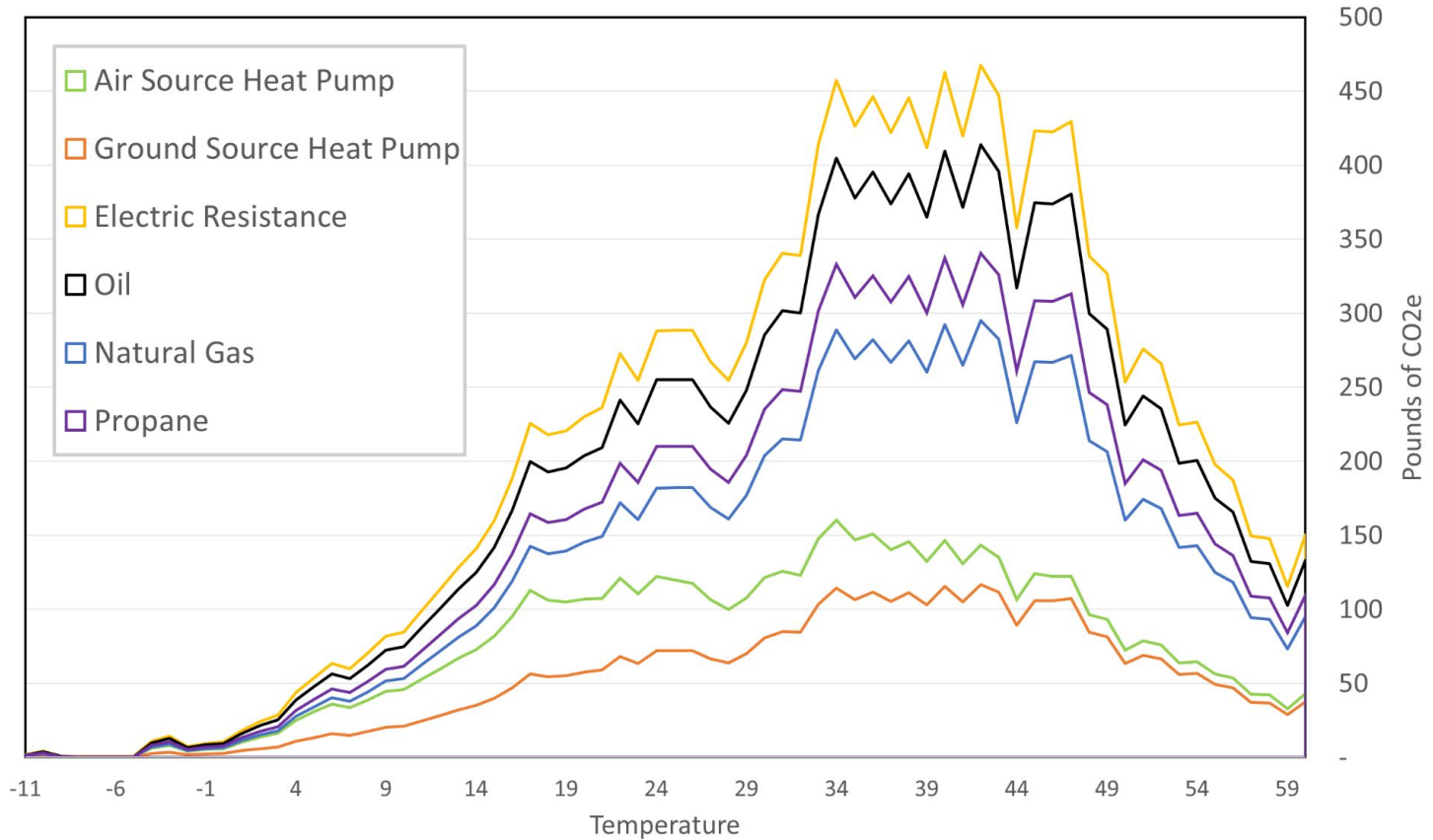


Air Source Heat Pump Operational Cost vs Temperature (RI)



Heat Pumps Are Highly Cost Competitive

Annual Average CO2e Emissions @ Temperature °F



Heat pumps are significantly less carbon intensive

Efficiency First

- Does your home have adequate insulation levels?
- Is your home well air sealed?
- Consider a home energy assessment



Program Overview

- Launched September 1, 2023
- \$25 Million in funding
- Available to all RI residents who do not currently heat with electricity
- Accepting applications now



Offers incentives to assist homeowners, non-profits, and small-to-mid-size business owners with the purchase and installation of **high-efficiency electric heat pumps**.

Program Overview



Customer Assistance

Connect with us to learn more about heat pumps



Participating Installers

Work with an installer on our Heat Pump Installer Network



Design Reviews

Get feedback on your proposed systems



Financial Incentives

Access incentives help to reduce installation costs

No-Cost Heat Pump Consultation Service

You can schedule a no-cost, **virtual** consultation with a Heat Pump Specialist to:

- Understand how heat pump systems work
- Learn about available rebates and incentives
- Receive guidance on the best solution for your home or business
- Learn how to work with contractors

A consultation is only required to access income eligible incentives.



Justin (5 stars) answered all our questions, even the ones we did not know to ask. We went from minimal knowledge to well-informed in 45 minutes. He was both informative and personable. We will be exploring all the links and tools. This is a great service that we will recommend!

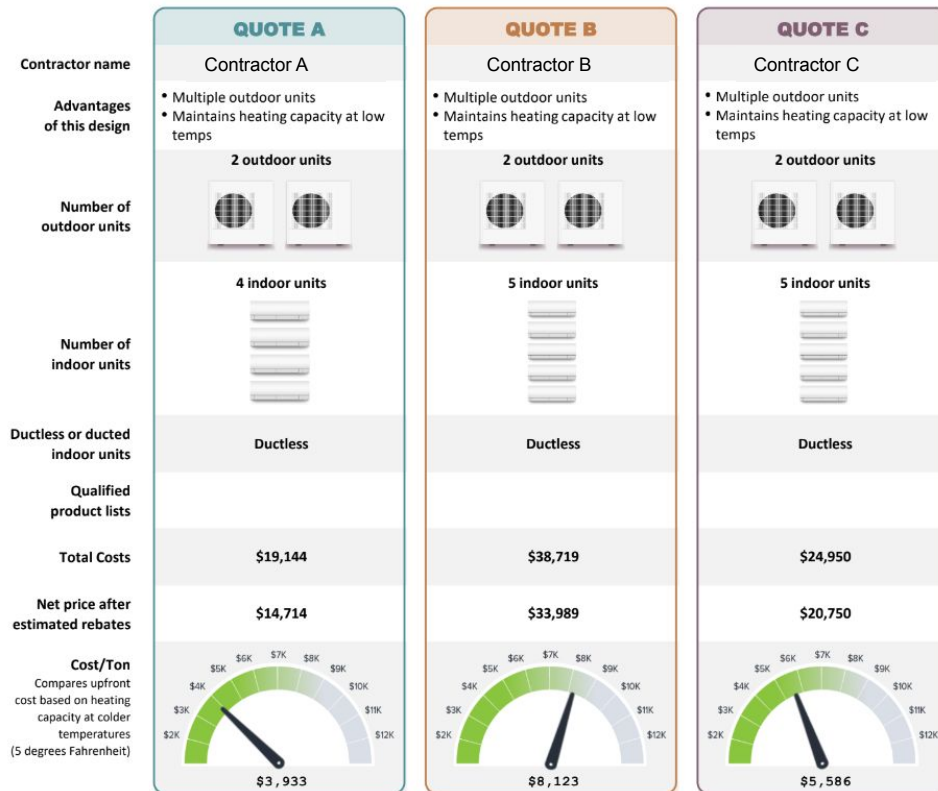
-RI resident 9/12/2023

No-Cost Quote Reviews (Residential)

Submit up to 3 quotes to our Quote Review tool
(optional)

You receive:

- A detailed report summarizing our findings
- Key considerations for each quote
- Guidance on next-steps



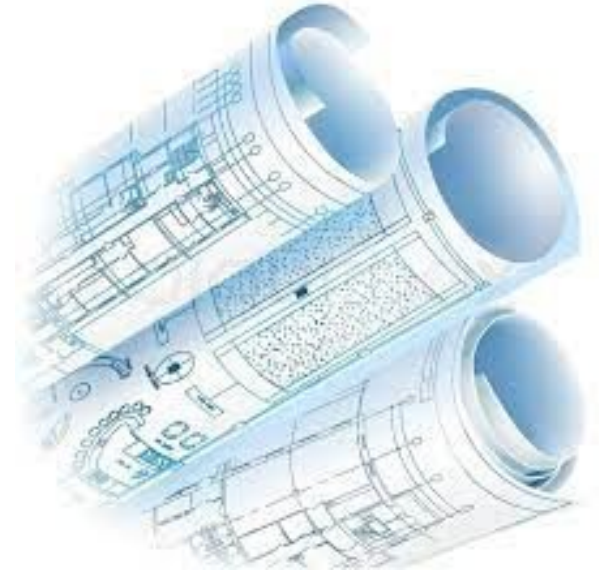
Design Reviews - Commercial

Submit your design plans and building information to receive a detailed design review.

Clean Heat RI can review your contractor's Manual N calculations along with the specified heat pump equipment and provide feedback on up to three designs.

The following information is required for a design review:

- Make, model and quantity of outdoor units
- Make, model and locations of indoor units
- Which indoor units connect to which outdoor unit
- Controls equipment and strategies
- Manual N reports



Clean Heat Rhode Island

Incentives & Requirements

Clean Heat Rhode Island Programs

Residential

Incentivizes:

- Air Source Heat Pumps
- Ground Source Heat Pumps
- Heat Pump Water Heaters
- Split-System HP Water Heaters
- Electrical Service Upgrades

Available to:

Single family or multifamily owners of individually metered & individually heated units

Income Eligible

Incentivizes 100%:

- Air Source Heat Pumps
 - Heat Pump Water Heaters
- Including cost of electrical service upgrade up to \$3,000

Available to:

Recipients of SNAP, LIHEAP, or Rhode Island Energy Discount Rate

Gas is not eligible

Commercial

Incentivizes:

- Air Source Heat Pumps
- VRF Heat Pumps
- Ground Source Heat Pumps
- Heat Pump Water Heaters
- Central Heat Pump Water Heaters

Available to:

Small to medium businesses with annual revenue of < \$30 million and nonprofit organizations

Projects installed on or after 9/1/2023 may be eligible for Clean Heat Rhode Island incentives.

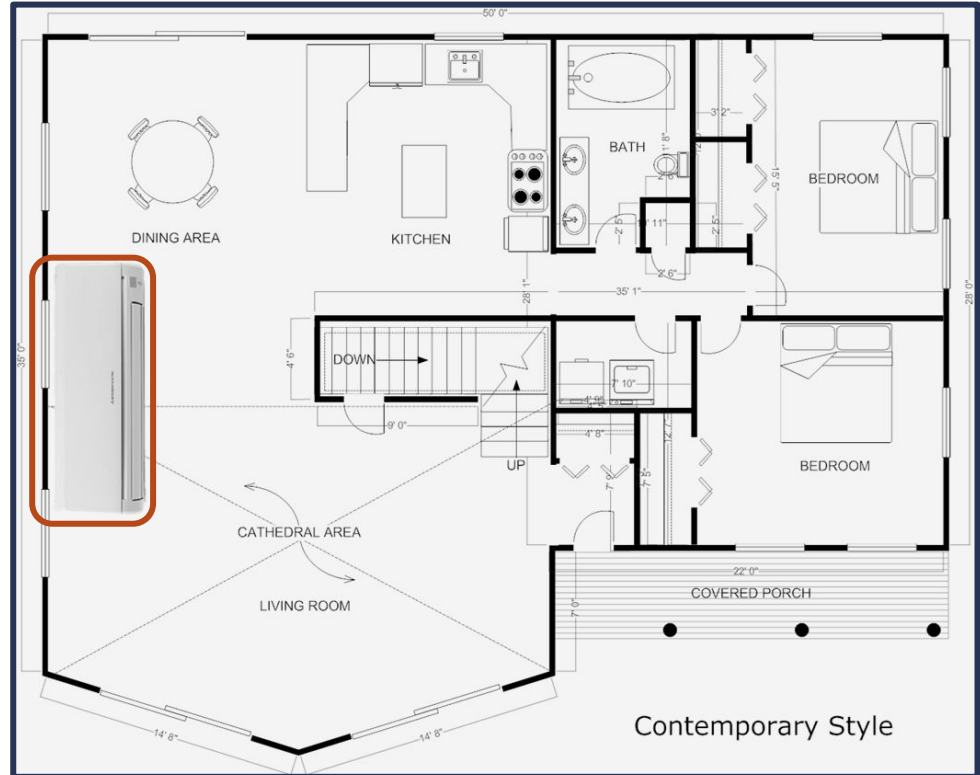
Program Requirements

- Incentives are available to all Rhode Island utility customers including Block Island Power Company, Pascoag Utility District, or Rhode Island Energy.
- All equipment must be installed by a contractor participating in the Heat Pump Installer Network
- Some projects will require additional quality assurance processing before incentives are processed.
- Must displace oil, propane, or natural gas heating. Partial fuel displacement is allowed, whole-building displacement is not required.

These incentives and requirements are subject to change at any time at the sole discretion of the Rhode Island Office of Energy Resources.

Program Requirements - Partial Displacement

- Use your heat pump year round
- Compared to heating with oil, propane, or electric resistance (baseboard), heat pumps can allow you to save money on energy expenses
- **An attestation is required that the heat pump will be used for primary heating in the zone(s) it will heat and cool.**



Residential Incentives & Requirements

Clean Heat Rhode Island Residential Incentive

Equipment Type		Efficiency Requirement	Incentive Amount
Air Source Heat Pump	Central Ducted	AHRI: SEER \geq 15, HSPF \geq 9; OR SEER2 \geq 14.3, HSPF2 \geq 7.7	\$1,000/ton
	Multizone Mix of Ducted and Non-Ducted	AHRI: SEER \geq 15, HSPF \geq 9; OR SEER2 \geq 14.3, HSPF2 \geq 7.7	
	Non-Ducted	NEEP's Cold Climate Heat Pump List	
Ground Source (Geothermal) Heat Pump		ENERGY STAR & AHRI Matched Equipment	\$1,250/ton
Heat Pump Water Heater		ENERGY STAR certified UEF 3.30	\$750
Heat Pump Water Heater (120volt/15amp circuit)		ENERGY STAR certified UEF 2.20	\$750
Split-System Heat Pump Water Heater		ENERGY STAR certified UEF 2.20	\$1,500
Electrical Service Upgrade		Minimum upgrade to 150 amp service	\$500

Residential New Construction & Renovations Incentives & Requirements

Residential New Construction Incentive

Equipment Type		Efficiency Requirement	Incentive Amount
Air Source Heat Pump	Central Ducted	AHRI: SEER \geq 15, HSPF \geq 9; OR SEER2 \geq 14.3, HSPF2 \geq 7.7	\$750/ton
	Multizone Mix of Ducted and Non-Ducted	AHRI: SEER \geq 15, HSPF \geq 9; OR SEER2 \geq 14.3, HSPF2 \geq 7.7	
	Non-Ducted	NEEP's Cold Climate Heat Pump List	
Ground Source (Geothermal) Heat Pump		ENERGY STAR & AHRI Matched Equipment	\$750/ton

Residential New Construction Customer Eligibility

Available to all Rhode Island utility customers including Block Island Power Company, Pascoag Utility District, and Rhode Island Energy.

Must be a new construction home or renovation/addition totaling \geq 400 new sq. ft. of conditioned space.

- An attestation is required to confirm renovation/addition size.

- An attestation is required that the heat pump will be used for primary heating in the zone(s) it will heat and cool.

These incentives and requirements are subject to change at any time at the sole discretion of the Rhode Island Office of Energy Resources.

Income-Eligible Incentives & Requirements

Residential Income-Eligible Incentive		
Equipment Type	Efficiency Requirement	Incentive Amount
Air Source Heat Pump	NEEP's Cold Climate Heat Pump List & Weatherization	100% of cost including electrical service upgrade
Heat Pump Water Heater	ENERGY STAR certified UEF 3.30	100% of cost including electrical service upgrade
Heat Pump Water Heater (120volt/15amp circuit)	ENERGY STAR certified UEF 2.20	100% of cost including electrical service upgrade

Pre-approval for income-eligible incentives is required prior to installation.

Commercial Incentives

Commercial Heat Pump Incentives

Equipment Type	Equipment Capacity	EER	IEER	COP	Incentive	16 Tons Max Amount	
Air Source Heat Pumps	<5.4 tons	See Residential Requirements			\$2,500/ton	\$40,000	
	≥ 5.4 Tons and < 11.3 Tons	11.8	15.4	3.5			
	≥ 11.3 Tons and < 16 Tons	10.9	14.6	3.4			
Variable Refrigerant Flow (VRF) Heat Pumps	≥ 5.4 Tons and < 11.3 Tons	11.3	18.9	3.4 @ 47F	\$3,500/ton	\$56,000	
	≥ 11.3 Tons and < 16 Tons	10.9	18	3.3 @ 47F			
Ground Source Heat Pumps (Closed Loop)	Brine to Air	< 11.3 Tons	17.1	-	3.6	\$4,500/ton	\$72,000
	Brine to Water	< 5.4 Tons	16.1	-	3.1		
		≥ 5.4 Tons and < 11.3 Tons	16.1	-	3		
Heat Pump Water Heater	≤ 80 Gallon	UEF ≥ 3.2			\$1,000	N/A	
	81-120 Gallon	COP ≥ 3.6			\$2,200		
Central Heat Pump Water Heater	≥120 Gallon	COP ≥ 3.5			\$2,500/ton	\$40,000	

Website

CleanHeatRI.com

Clean Heat Rhode Island
Program Resources

Clean Heat
Rhode Island

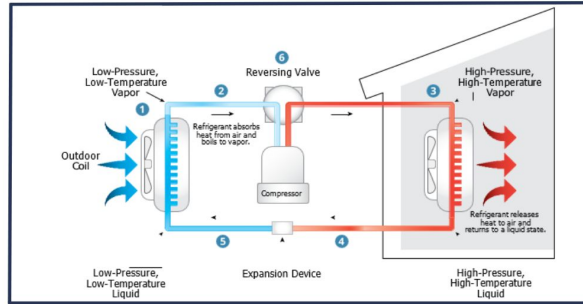
RESIDENTIAL
GUIDE TO
Heat Pumps



Air Source Heat Pumps

How They Work

The graphic below represents an ASHP process in heating mode. The process is simply reversed when in cooling mode. This process uses a refrigerant, which is a type of liquid that absorbs and releases heat quickly, similar to refrigerants that you add to your car's AC system or the coil behind your refrigerator.



- 1 A fan blows air over a system of coils with very cold, low pressure refrigerant which absorbs heat from the outside air. Heat can be drawn from the air even when it's very cold out.
- 2 The refrigerant flows to the compressor which mechanically increases the pressure of the refrigerant, causing the captured heat to warm up even more.
- 3 The refrigerant moves to the indoor unit and releases heat.
- 4 The refrigerant then moves to the expansion device, lowering the pressure of the refrigerant, which makes it very cold again.
- 5 The refrigerant returns to the outdoor unit to begin the cycle again.
- 6 The reversing valve is responsible for directing the flow of the refrigerant when switching between heating and cooling mode.

Heat Pump Water Heaters

Heat Pump Water Heaters provide efficient water heating. They are two to three times more efficient than most fossil fuel heating systems and one of the most cost-effective water heating methods on the market. This is because they move heat, rather than burn fossil fuels to create it. Heat pump water heaters have a small heat pump on top of the storage tank that uses heat in the ambient air to warm up the water.



EQUIPMENT TYPES:

There are a few different types of heat pump water heaters. The most commonly available is a 240-volt hybrid heat pump water heater that features an electric resistance backup. Less common are 120-volt heat pump water heaters and split-system heat pump water heaters. 120-volt systems do not include electric resistance backup and a split-system's heat pumps are outside.

TANK SIZES:

There are multiple sizes of heat pump water heaters available. Based on your home size, speak with your contractor about the right size for you. Sometimes when installing a 240-volt hybrid system, going one size up can actually increase efficiency and reduce operating cost since the electric resistance backup is less likely to be used. You can also set the water heater to heat pump only mode.

CONSIDERATIONS

DEHUMIDIFICATION & COOLING:

Heat pump water heaters will cool and dehumidify the space they are in. It usually isn't enough to replace a dehumidifier in your basement, and the space won't get much cooler than a few degrees during high usage.

ELECTRICAL USAGE:

A heat pump water heater is an electrical system, so running one will add to your electrical use. In many cases, that additional electrical use is offset by savings elsewhere, such as a propane or oil heating fuel bill.

QUALITY INSTALLATION:

Heat pump water heaters need air space around them to operate efficiently and shouldn't be confined. Usually 700 cubic feet or more provides plenty of air space, or, one can add louvers to closet doors or ductwork to the air intake.

Questions To Ask Your Installer



CONFIGURATION

- Where and how will the outdoor unit(s) be mounted?
- Will exterior piping be visible? If so, what type of covering will be used?
- What type of indoor units do you recommend, where will they be located, and why?
- Can a heat pump work effectively with my existing ductwork?
- How will the controls and thermostat be set up?



COST

- What is the installation price and what incentives may be available?
- How will I receive these incentives?
- What should I expect to pay for regular maintenance?
- Will I need to upgrade my electrical panel, and if so, how much will that cost?



QUALITY ASSURANCE

- Are you participating in the Clean Heat Rhode Island Heat Pump Installer Network?
- Will you install in accordance with the Clean Heat Rhode Island Air Source Heat Pump Quality Installation Check-list?
- Do you provide a warranty for the systems you install?
- Have you participated in manufacturer training for the systems you would install?
- Can you provide references from previous customers with similar systems?
- Will you use subcontractors in the process? If so, who are they and what work will they perform?
- Will you show me how to properly operate and maintain the system (e.g., thermostat settings, cleaning air filters)?



TIMING

- How long will it take for the system to be installed?
- What should I do to prepare for the installation?
- When is the best time to install if I'm replacing or supplementing my existing system with a heat pump?



Contact Us



401-341-6183
M-Th 9-5pm



CleanHeatRI@AbodeEM.com



Questions



Clean Heat

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