

# Efficiency Maine

## Heat Pump Insights

**HEAT PUMPS IN ALASKA**

**May 6<sup>th</sup>, 2017**

# What is Efficiency Maine Trust?

**Formed by the Maine Legislature in 2010 as an independent administrator of statewide renewable and energy efficiency programs.**

**9 member Board of Directors, appointed by the Governor and approved by the Legislature Energy and Utility Committee.**

**Regulated by the Public Utilities Commission similarly to a utility.**

**The Trust mission and authority is part of state statute.**

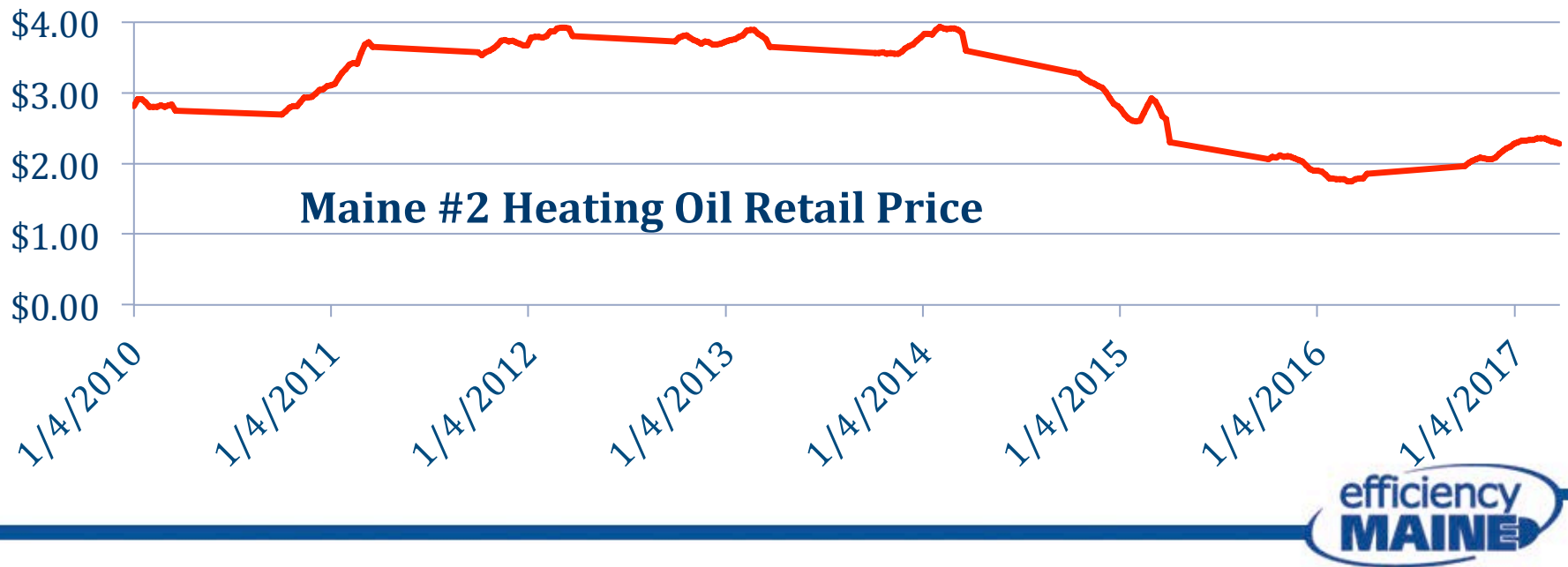


1. Rebates
2. Financing
3. Vendor Locator
4. Trusted Information



Maine remains the most dependent state on oil per capita with zero production.

The price of heating fuel has declined significantly since 2014, yet per capita Maine has one of the highest rates of installation of ductless heat pumps.



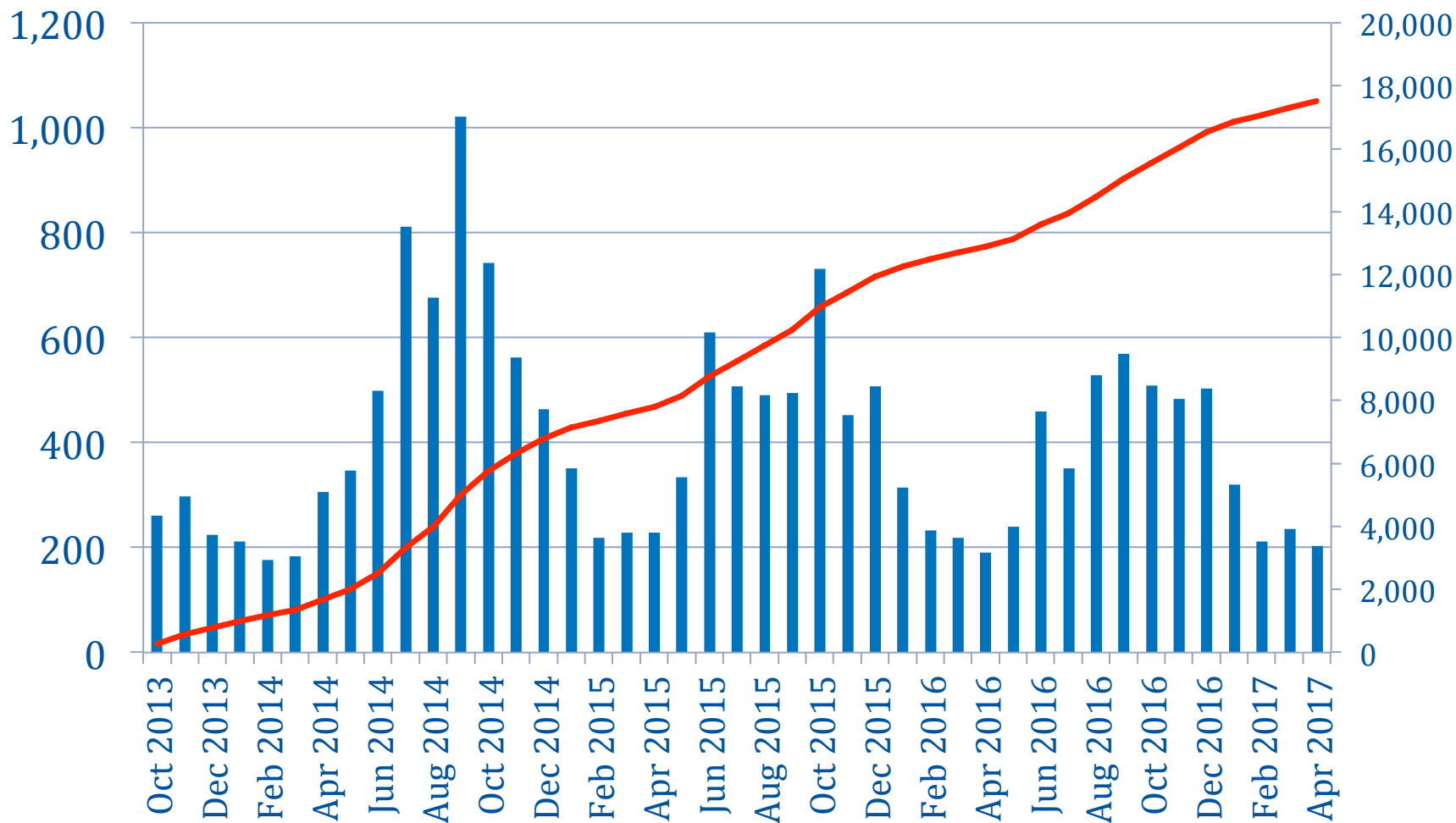
# Maine Ductless Air Source Heat Pump Residential Rebates

- **\$500** for One or First Zone of DUCTLESS heat pump heating
- **\$250** for Second Zone of DUCTLESS Heating
- up to **\$2,000** on eligible Low Income homes

## Equipment criteria:

- Mini-split models :  $\text{HSPF} \geq 12.0$
- Multi-split models:  $\text{HSPF} \geq 10.0$

Simple unsecured financing available at 4.99% APR with up to a 10 year term with no upfront cost. ~\$11 per \$1,000 borrowed.

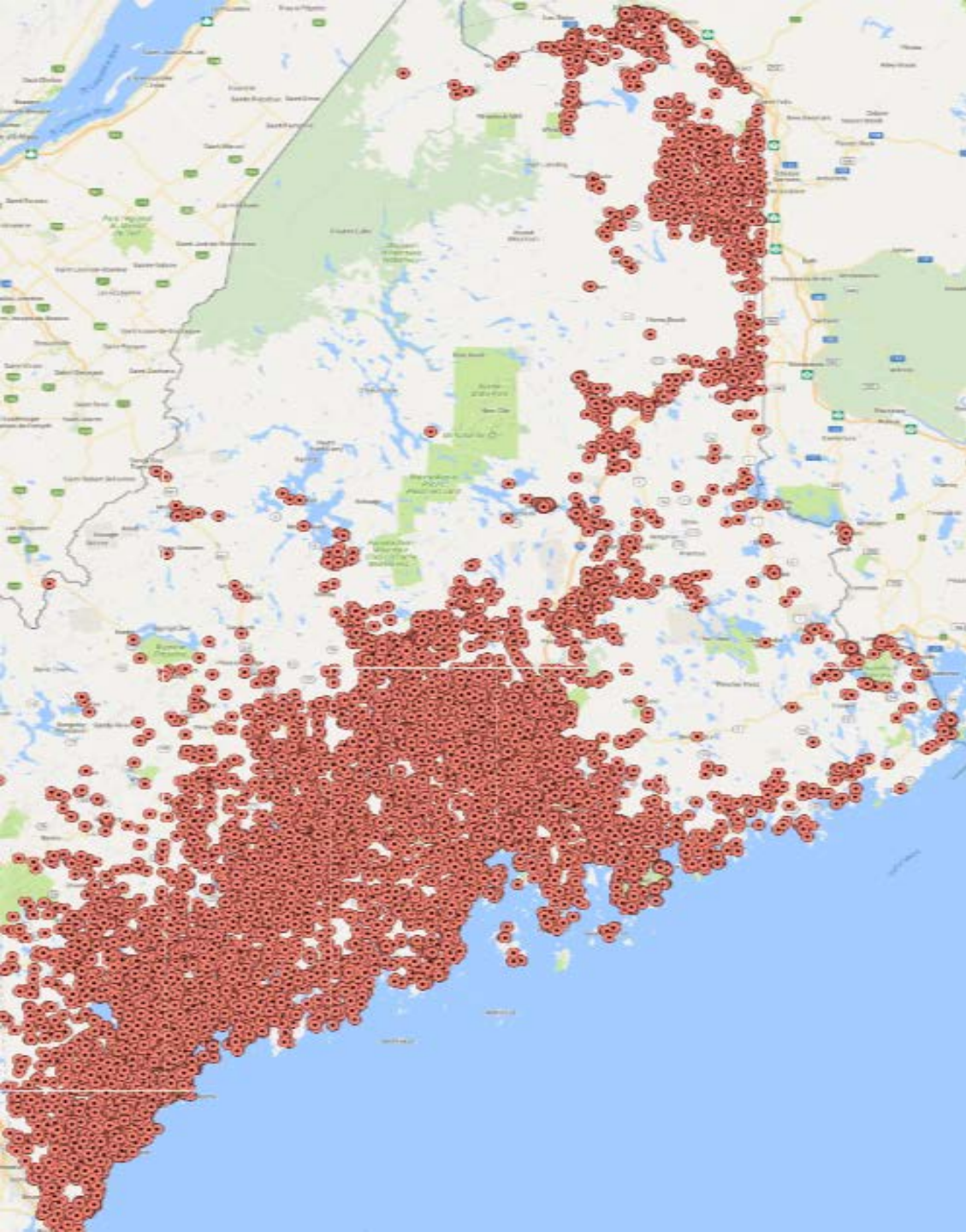


Ductless heat pumps continue to be installed at an average rate of 400 per month statewide with a clear seasonal pattern.









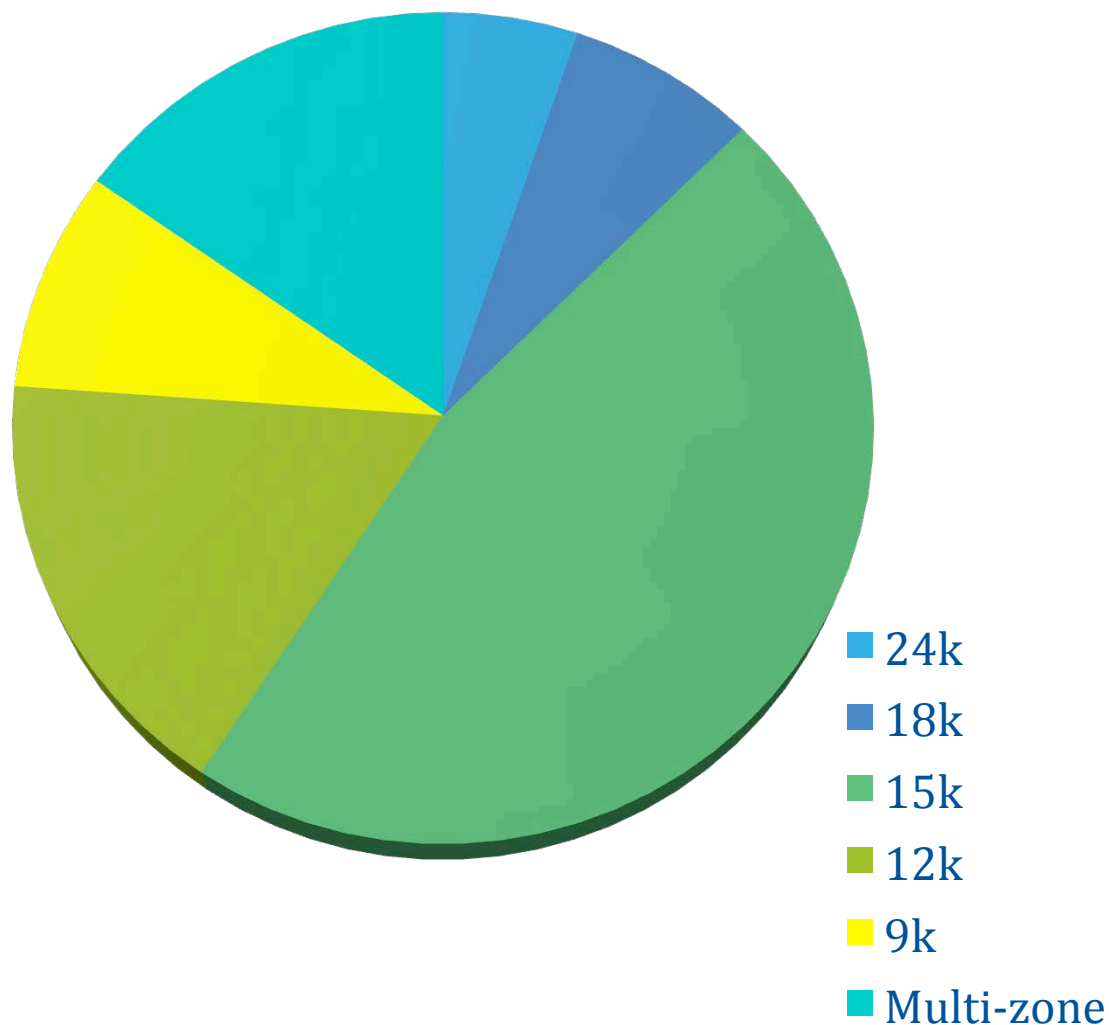
Map showing 17,500 ductless heat pump installations in the past 3.5 years.

Installation density correlates directly with population.

Very popular in far northern areas where systems are reported to continue to provide heat even at -27F.



## ASHP Rebates by BTU Capacity



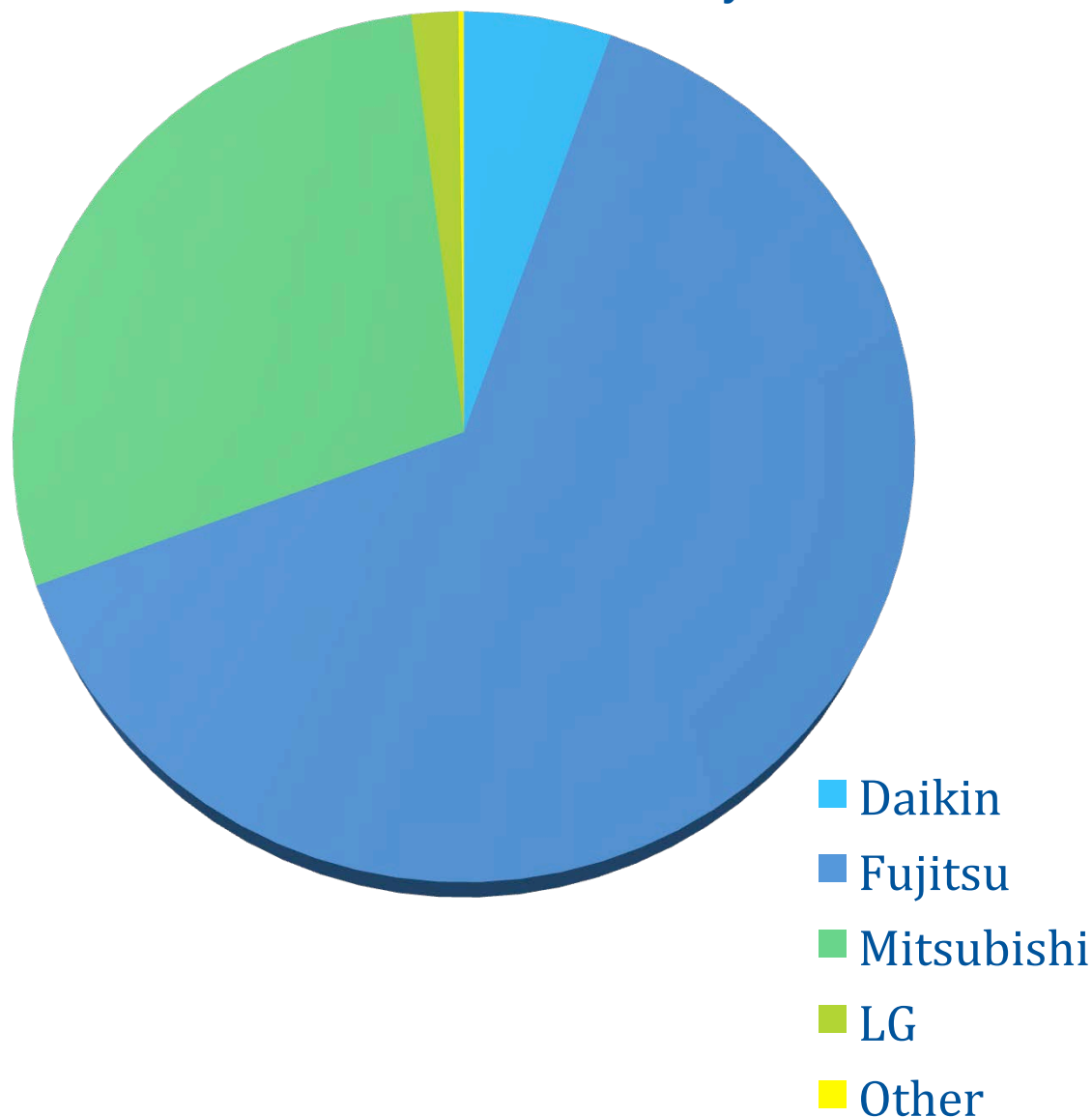
Single indoor unit installations dominate the marketplace.

When centrally located and properly used, a 15k unit can displace 95% of the heating load of an average home in ME.

(And in Alaska)

Chart reflects data for residential installations in Maine receiving a rebate between January 2016 and May 2017.

## ASHP Rebates by MFG

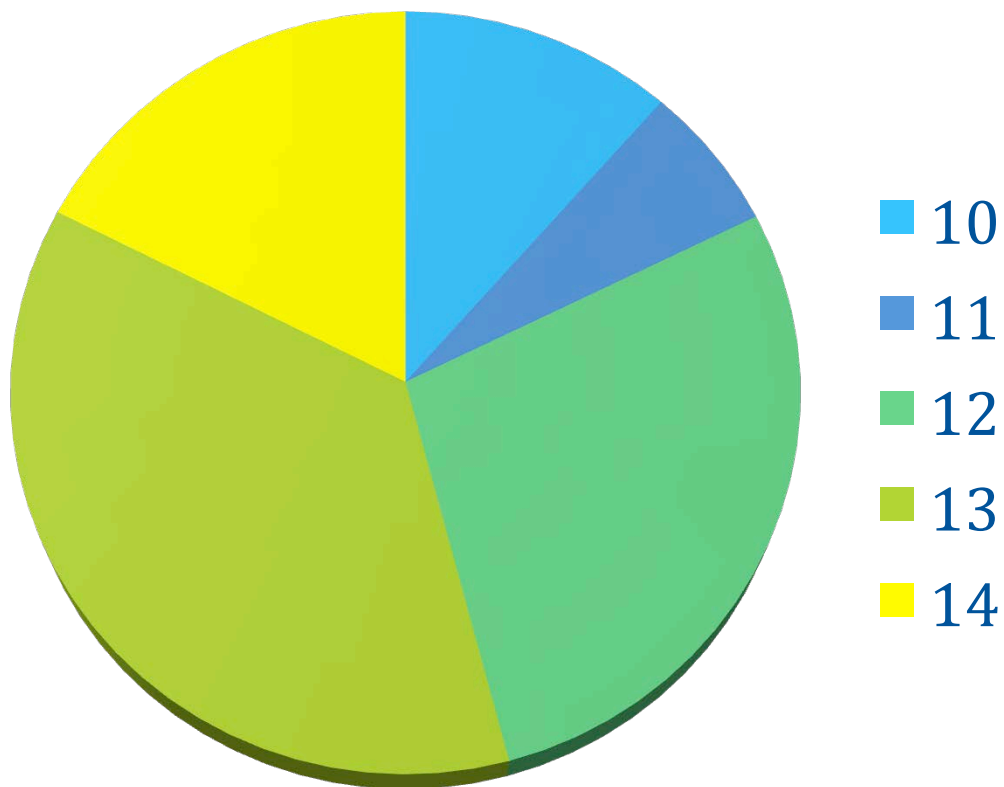


Word of mouth on what works and strong dealer networks maintain market dominance for top brands.

High performance models from other manufactures can perform well below 0F.

Chart reflects data for residential installations in Maine receiving a rebate between January 2016 and May 2017.

## ASHP Rebates by HSPF



Highest efficiency equipment is popular.

HSPF 10 and HSPF 11 units in the chart are from Multi-zone units along with approximately 10 percent of units in the HSPF 12 wedge.

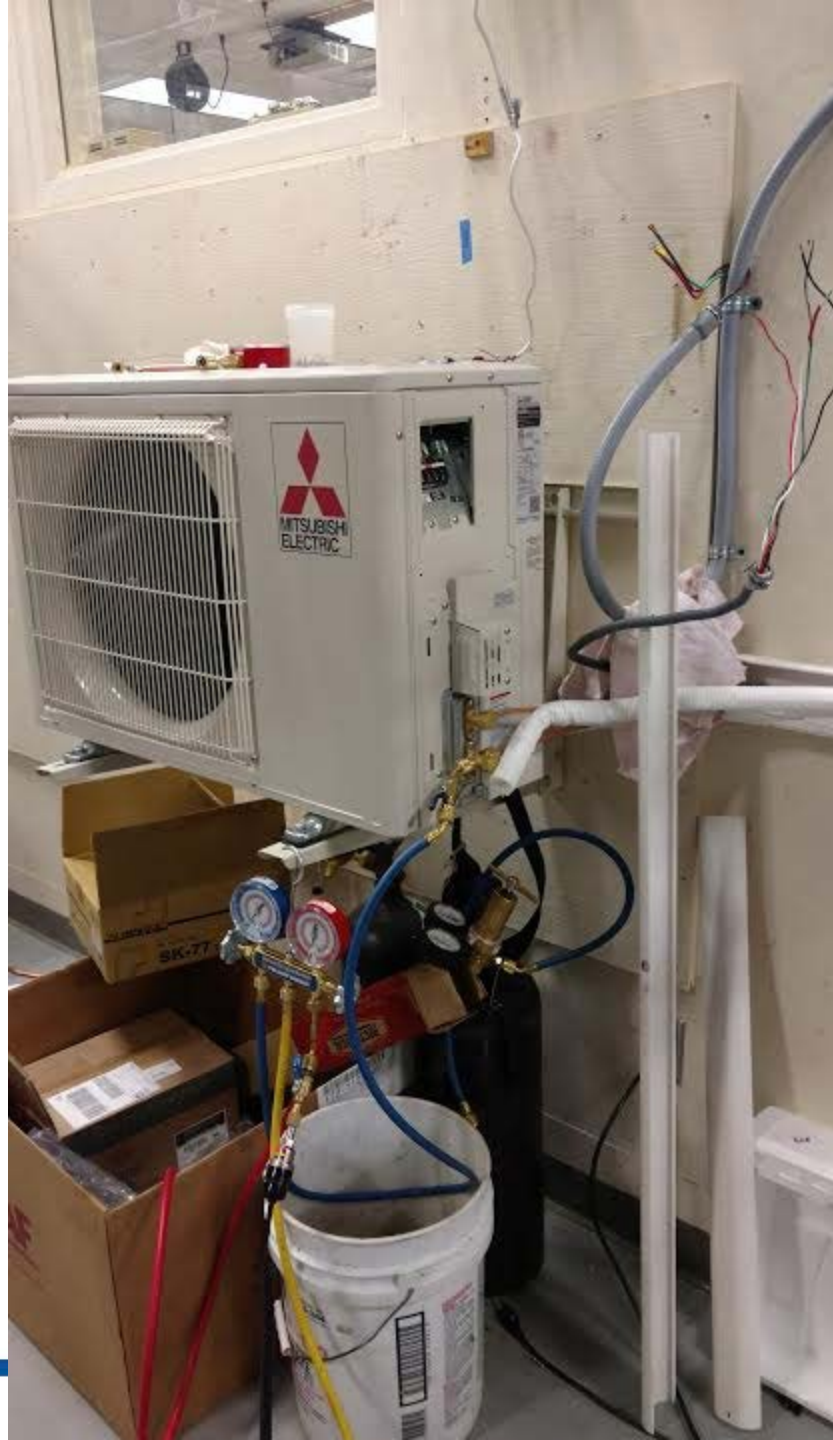
Chart reflects data for residential installations in Maine receiving a rebate between January 2016 and May 2017.



# Heat Pump Rebate

## Key Components

- Efficiency standard that is both high and simple:
  - Single head HSPF  $\geq 12.0$
  - Multi-head HSPF  $\geq 10.0$   
(New standards in development worth watching.)
- Contractor credentials and training required.
- List of eligible models and installation criteria.
- Installation checklist must be submitted.
- Independent inspection.
- Rebate to cover portion of incremental cost between baseline unit and high efficiency unit.
- User tips in print and from installer.
- Education, outreach, promotion, web resources.



## **Key Installation Guidelines**

- Outdoor unit must be mounted on a wall bracket or stand above anticipated snow drift line. 18" to 24" above grade recommended in Maine.
- If the outdoor unit must be placed under a roof drip line, a roof or cap must be installed to keep bulk moisture from splashing around the coils.
- Professional installation required by trained technician with correct gear.
- Line sets should be triple purged with nitrogen and vacuum with leak testing.
- All copper lines should be insulated and covered with any penetrations into the home sealed against leaks and pests.
- Critical that technician takes time to show customer how to operate the unit and how to remove and clean the indoor air handler dust filter screens.



# Find a Residential Registered Vendor

[Home](#) » [At Home](#) » [Find a Residential Registered Vendor](#)

Use this tool to find an Energy Advisor, Contractor, or Renewable Energy Installer near you.

**Questions to ask  
a Registered Vendor**

[Print These Results](#)

## Search and Sort Options

Start by entering your ZIP Code and a search radius.

ZIP Code:  Radius:




Sort by:

\* Ranked according to the quantity of projects that received a rebate from Efficiency Maine over the past four months.

## What services do you need?

Hover over service icons below for more information on services and qualifications.

- ☒ All Services
- ☐ Energy Advisor
- ☐ Air Sealing & Assessment
- ☐ Insulation
- ☒ Heat Pumps
- ☐ Gas
- ☐ Oil
- ☐ Pellet Boilers
- ☐ Pellet/Wood Stoves
- ☐ Geothermal
- ☐ Heat Pump Water Heaters

Vendor	Services Provided	Miles	More Info
1 Dave's World - Windham Windham, ME - 207-523-9414 <a href="http://www.davesworld.com">www.davesworld.com</a>		10	
2 Royal River Heat Pumps LLC Freeport, ME - 207-400-4065 <a href="http://www.royalriverheatpumps.com">www.royalriverheatpumps.com</a>		17	
3 Dave's Appliance, Inc. Winthrop, ME - 207-377-8858 <a href="http://www.davesappliancewin.com">www.davesappliancewin.com</a>		48	
4 Northeast Heat Pump Services Durham, ME - 207-319-5178		22	
5 Revision Energy LLC - Portland Portland, ME - 207-221-6342 <a href="http://www.revisionenergy.com">www.revisionenergy.com</a>	  	2	
6 Arsenault's Satellite TV Norway, ME - 207-743-6926 <a href="http://www.ecoheatmaine.com">www.ecoheatmaine.com</a>		42	
7 Independent Power Greene, ME - 207-946-4444 <a href="http://www.independentpowermaine.com">www.independentpowermaine.com</a>	   	37	
8 Horizon Residential Energy Services Portland, ME - 207-221-3221 <a href="http://www.horizonmaine.com">www.horizonmaine.com</a>	     	2	
9 CJ Whidden Electric Gray, ME - 207-653-7006 <a href="http://www.cjwhiddenelectric.com">www.cjwhiddenelectric.com</a>		15	
10 Mid Coast Energy Systems Damariscotta, ME - 207-563-5147 <a href="http://www.midcoastenergysystems.com">www.midcoastenergysystems.com</a>	      	49	
11 Tom Dyer Construction Wales, ME - 207-375-7193		34	
12 Gelinash HVAC Services Inc Scarborough, ME - 207-885-0771 <a href="http://www.gelinashvac.com">www.gelinashvac.com</a>	   	6	

# Home Energy Savings Program

## Heat Pump Eligibility Criteria and List of Known Eligible Models

### Eligibility Criteria

The FIRST ZONE of heat provided by eligible ductless heat pumps installed by an [Efficiency Maine Registered Vendor](#) in residential, 1-4 unit buildings that serve as the principle residence for the occupants may qualify for a \$500 rebate. The SECOND ZONE may qualify for a \$250 rebate. Please see [Rebate Claim Form](#) for full list of terms and conditions.

### Known Eligible Models\*

The following is a list of air-source, ductless heat pumps that meet or exceed the program requirements for efficiency. Other units may also qualify. For more information, please contact Efficiency Maine at 866-376-2463 or [efficiencymaine@efficiencymaine.com](mailto:efficiencymaine@efficiencymaine.com).

SINGLE-HEAD Heat Pumps (HSPF min = 12)			
Manufacturer	Outdoor Model #	HSPF	
1	Daikin	RXL09QMVJU*	12.5
2	Daikin	RXS09LVJU*	12.5
3	Daikin	RXL12QMVJU*	12.0
4	Daikin	RXS12LVJU*	12.5
5	Daikin	RXL15QMVJU*	12.5
6	Daikin	RZQ18PVJU9*	12.0
7	Fujitsu	AOU9RLFC	13.0
8	Fujitsu	AOU9RLFF	12.6
9	Fujitsu	AOU9RLFFH	12.4
10	Fujitsu	AOU9RLS2	12.5
11	Fujitsu	AOU9RLS3	14.2
12	Fujitsu	AOU9RLS3H	14.0
13	Fujitsu	AOU12RLFC*	12.2
14	Fujitsu	AOU12RLS2	12.0
15	Fujitsu	AOU12RLS3	14.0
16	Fujitsu	AOU12RLS3H	13.8
17	Fujitsu	AOU15RLS2	12.0
18	Fujitsu	AOU15RLS3	13.4
19	Fujitsu	AOU15RLS3H	13.3
20	Haier	1U09EH2VHA	13.0
21	Haier	1U09ES2VHA	12.5
22	Haier	1U12EH2VHA	12.0
23	LG	LAU090HYV1	12.0
24	LG	LAU120HYV1	12.0
25	LG	LAU180HYV1	13.0
26	LG	LAU240HYV1	12.4
27	Mitsubishi	MUZ-FH06NA	13.5
28	Mitsubishi	MUZ-FH06NAH	12.5
29	Mitsubishi	MUFZ-KJ09NAHZ	13.0
30	Mitsubishi	MUZ-FH09NA	13.5

MULTI-HEAD Heat Pumps (HSPF min = 10)			
Manufacturer	Outdoor Model #	HSPF	# indoor units
1	American Standard	4MXW2136A1050AA	10.2
2	Bryant	538KEQ030R	10.2
3	Carrier	38GJQF30	10.0
4	Carrier	38GJQF48	10.0
5	Daikin	2MXL18QMVJU	10.3
6	Daikin	2MXS18NMVJU	10.7
7	Daikin	3MXL24QMVJU	12.5
8	Daikin	3MXS24NMVJU	12.5
9	Daikin	4MXS36NMVJU	12.2
10	Daikin	RMXS48LVJU	11.3
11	Friedrich	MR36TQY3JM	10.0
12	Fujitsu	AOU18RLXFZH	10.3
13	Fujitsu	AOU24RLXFZH	10.3
14	Fujitsu	AOU45RLXFZ	10.3
15	Haier	3U24MS2VHB	10.0
16	Haier	4U36MS2VHB	10.0
17	LG	LMU24CHV	10.6
18	LG	LMU30CHV	10.0
19	LG	LMU36CHV	10.0
20	LG	LMU369HV	10.5
21	LG	LMU480HV	10.0
22	LG	LMU600HV	11.0
23	Midea	M20D-18HFN1-M	10.2
24	Midea	M30C-30HFN1-M	10.0
25	Mitsubishi	MXZ-3B30NA	10.0 – 10.5
26	Mitsubishi	MXZ-3C24NAHZ	10.0
27	Mitsubishi	MXZ-3C30 (NA, NA2 & NAHZ)	10.6 – 11.0
28	Mitsubishi	MXZ-4C36 (NA, NA2 & NAHZ)	10.1 – 11.3
29	Mitsubishi	MXZ-5C42 (NA, NA2 & NAHZ)	10.1 – 11.0
30	Mitsubishi	MXZ-8C48 (NA & NAHZ)	10.0 – 11.0



## Home Energy Savings Program



### Ductless Heat Pump Installation Checklist – Submit with Claim Form

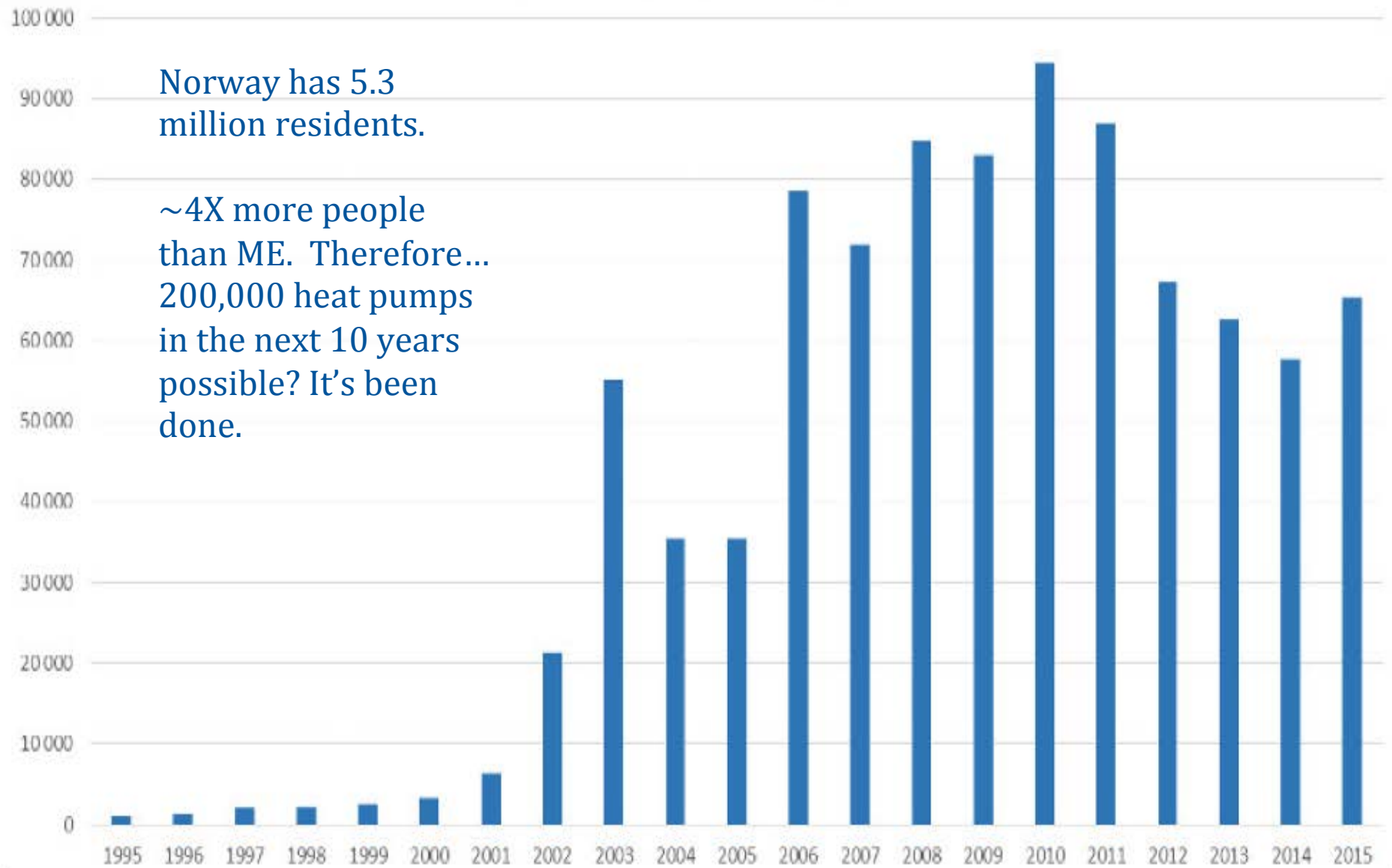
Customer Name:		Street Address:	
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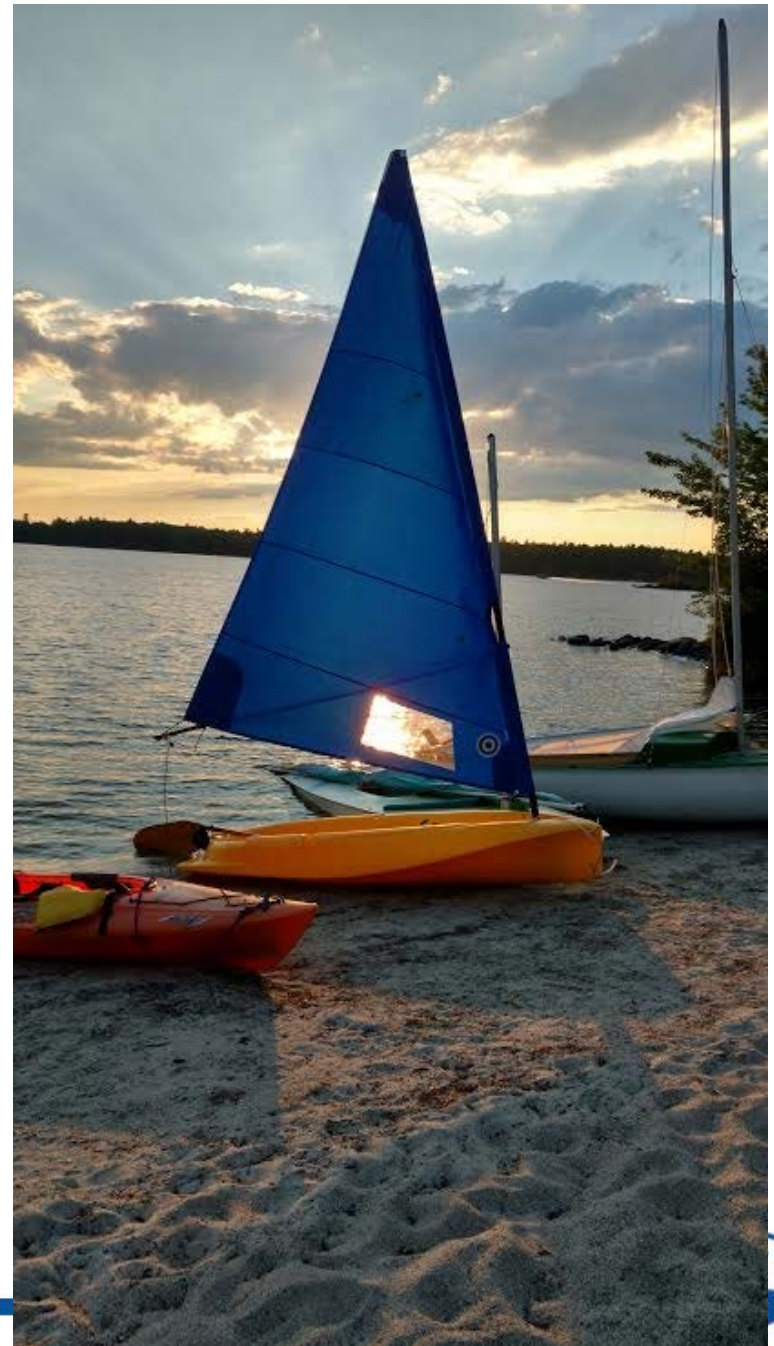
#### SECTION 1. Vendor Checklist. Please complete and sign the following section.

<b>Outdoor Unit</b>	
Height off ground (inches) : _____ Best Practice: Above snow level ( $\geq 24$ inches)	
<input type="checkbox"/>	Unobstructed airflow
<input type="checkbox"/>	Level
<input type="checkbox"/>	Does not interfere with view through or operation of a window
<input type="checkbox"/>	Protected by rain cap (required if installed under roof drip line)
<b>Line Set</b>	
Minimum line set length (manufacturer): _____	
Maximum line set length (manufacturer): _____	
Maximum line set length for factory charge (manufacturer): _____	
Actual line set length: _____	
<input type="checkbox"/>	Refrigerant added for line set length that exceeds manufacturer maximum for factory charge
Amount of refrigerant added to system: _____ Pounds _____ Ounces	
<input type="checkbox"/>	Line set purged with nitrogen, pressure tested & evacuated with pump per mfg.'s instructions
Pressure test pressure (PSI): _____, and duration (minutes): _____	
Number of evacuations performed: _____	
Vacuum level (microns): _____	
<input type="checkbox"/>	Flare connections tightened using manufacturer's torque specification
<input type="checkbox"/>	Visible line sets run through line set covers with transition and termination fittings
<input type="checkbox"/>	Line set covers are level or plumb
<input type="checkbox"/>	Insulation covers full length of line sets (no exposed copper)
<input type="checkbox"/>	Floor/wall/ceiling penetrations sealed with spray foam

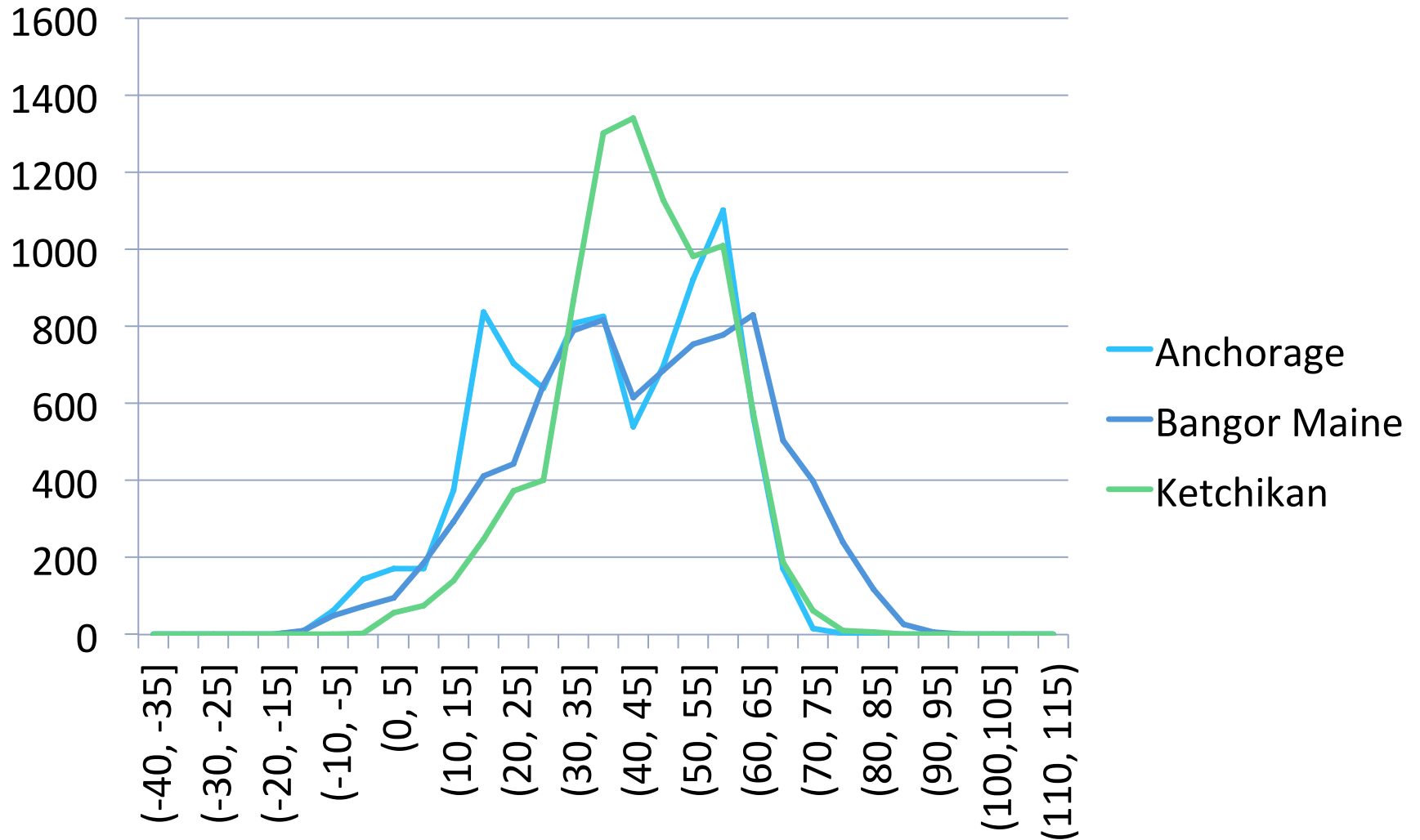


# Market development - more than 900,000 heat pumps sold in Norway



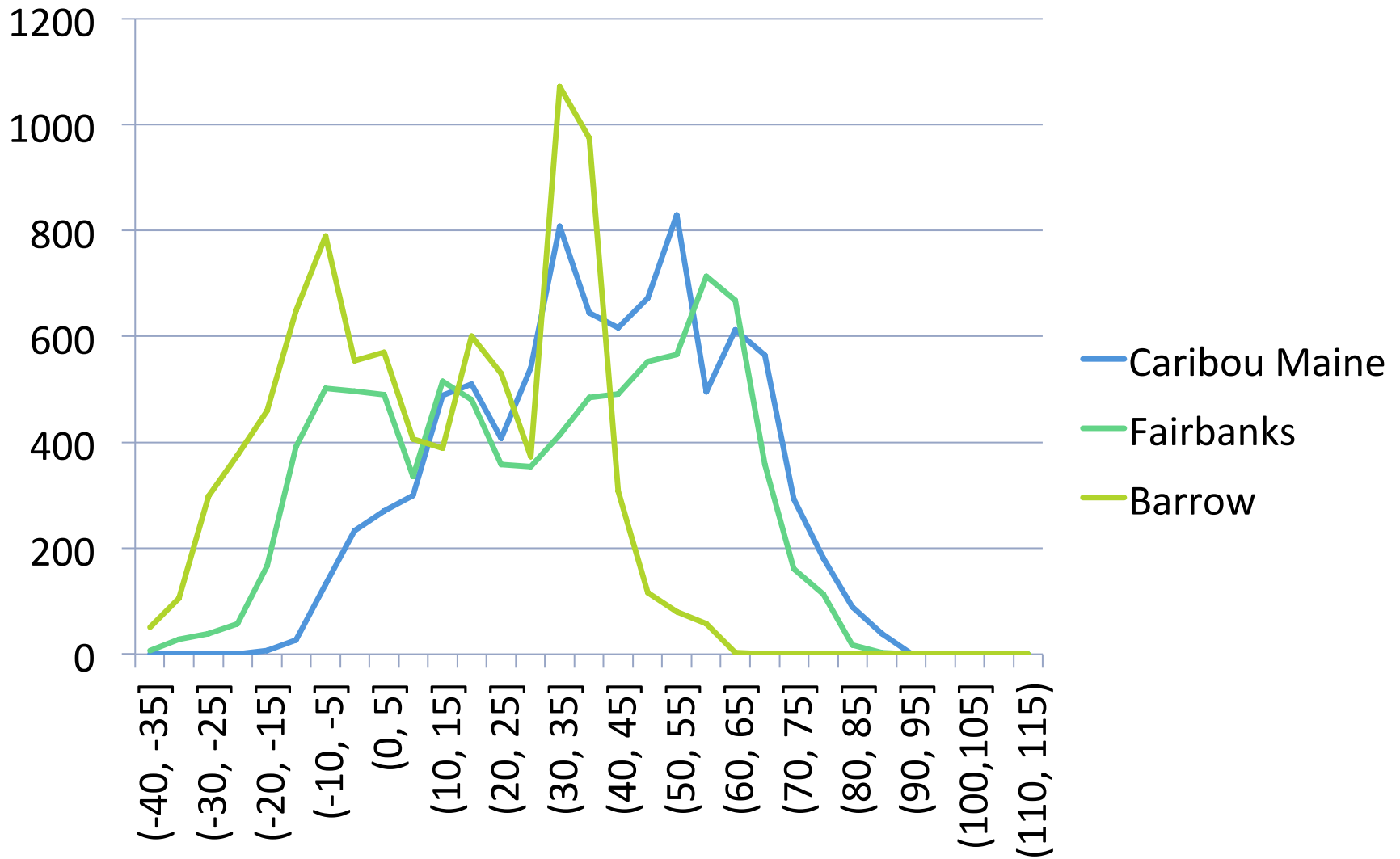


# Comparison of hours at bin temperatures





## Comparison of hours at bin temperatures



Electricity Cost	:	<input type="text" value="\$0.175"/>	per kWh	Fuel Type	:	<input type="text" value="Natural Gas"/>	
Local Electricity Cost	:	<input type="text" value="\$ 0.175"/>	per kWh				
Indoor Temperature	:	<input type="text" value="65"/>	°F	Fuel Cost	:	<input type="text" value="\$0.87"/>	per therm
				Local Fuel Ave:	\$	<input type="text" value="0.87"/>	per therm
Location	:	<input type="text" value="Anchorage"/>	<div><div></div><div></div></div>	Efficiency	:	<input type="text" value="80%"/>	
Savings Over How Many Years?	:	<input type="text" value="10"/>	Years	Reset to Local			
				Fuel Usage	:	<input type="text" value="1,231"/>	therm
Est Install cost:		<input type="text" value="\$3,500"/>		Local Fuel Ave:		<input type="text" value="1,231"/>	therm

	Estimates	
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Supplemental Heat Recommended at	:	<input type="text" value="20"/>	°F	Fuel Cost Prior to Heat Pump Install	:	<input type="text" value="\$1,073.81"/>	
Electricity Usage	:	<input type="text" value="8793"/>	kWh	Electricity Cost	:	<input type="text" value="\$1,538.69"/>	
Fuel Usage	:	<input type="text" value="102.1"/>	therm	Fuel Cost	:	<input type="text" value="\$89.03"/>	
Average COP	:	<input type="text" value="3.01"/>		\$ Savings per Year	:	<input type="text" value="(\$553.91)"/>	
CO <sub>2</sub> Reduction	:	<input type="text" value="9,847"/>	lbs	Payback (in years)	:	<input type="text" value="-6.3"/>	
% CO <sub>2</sub> Reduction	:	<input type="text" value="68.37%"/>		10 Years Profit	:	<input type="text" value="(\$9,039.12)"/>	
% heating load displacment potential:		<input type="text" value="92%"/>		Approx. seasonal equivalent:		<input type="text" value="\$1.36"/>	per therm

Electricity Cost	:	<input type="text" value="\$0.278"/>	per kWh	Fuel Type	:	<input type="text" value="Oil"/>
Local Electricity Cost	:	<input type="text" value="\$ 0.278"/>	per kWh			
Indoor Temperature	:	<input type="text" value="65"/>	°F	Fuel Cost	:	<input type="text" value="\$4.49"/> per gal
				Local Fuel Ave:	\$	<input type="text" value="4.49"/> per gal
Location	:	<input type="text" value="Bethel"/>	<div><div></div><div></div></div>	Efficiency	:	<input type="text" value="80%"/>
Savings Over How Many Years?	:	<input type="text" value="10"/>	Years	Fuel Usage	:	<input type="text" value="573"/> gal
			<div>Reset to Local</div>			
Est Install cost:		<input type="text" value="\$3,500"/>		Local Fuel Ave:		<input type="text" value="573"/> gal

	Estimates	
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Supplemental Heat Recommended at	:	<input type="text" value="-5"/>	°F	Fuel Cost Prior to Heat Pump Install	:	<input type="text" value="\$2,572.78"/>
Electricity Usage	:	<input type="text" value="5954"/>	kWh	Electricity Cost	:	<input type="text" value="\$1,655.19"/>
Fuel Usage	:	<input type="text" value="43.4"/>	gal	Fuel Cost	:	<input type="text" value="\$194.94"/>
Average COP	:	<input type="text" value="2.87"/>		\$ Savings per Year	:	<input type="text" value="\$722.65"/>
CO <sub>2</sub> Reduction	:	<input type="text" value="9,602"/>	lbs	Payback (in years)	:	<input type="text" value="4.8"/>
% CO <sub>2</sub> Reduction	:	<input type="text" value="74.71%"/>		10 Years Profit	:	<input type="text" value="\$3,726.46"/>
% heating load displacment potential:		<input type="text" value="92%"/>		Approx. seasonal equivalent:		<input type="text" value="\$3.13"/> per gal



Electricity Cost	:	<input type="text" value="\$0.199"/>	per kWh	Fuel Type	:	<input type="text" value="Oil"/>
Local Electricity Cost	:	<input type="text" value="\$ 0.199"/>	per kWh			
Indoor Temperature	:	<input type="text" value="65"/>	°F	Fuel Cost	:	<input type="text" value="\$2.50"/> per gal
				Local Fuel Ave:	\$	<input type="text" value="2.50"/> per gal
Location	:	<input type="text" value="Fairbanks"/>	<div><div>▲</div><div>▼</div></div>	Efficiency	:	<input type="text" value="80%"/>
Savings Over How Many Years?	:	<input type="text" value="10"/>	Years	Reset to Local		
				Fuel Usage	:	<input type="text" value="1,130"/> gal
Est Install cost:		<input type="text" value="\$3,500"/>		Local Fuel Ave:		<input type="text" value="1,130"/> gal

	Estimates	
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Supplemental Heat Recommended at	:	<input type="text" value="20"/>	°F	Fuel Cost Prior to Heat Pump Install	:	<input type="text" value="\$2,825.01"/>
Electricity Usage	:	<input type="text" value="7995"/>	kWh	Electricity Cost	:	<input type="text" value="\$1,590.13"/>
Fuel Usage	:	<input type="text" value="379.9"/>	gal	Fuel Cost	:	<input type="text" value="\$949.68"/>
Average COP	:	<input type="text" value="2.82"/>		\$ Savings per Year	:	<input type="text" value="\$285.20"/>
CO <sub>2</sub> Reduction	:	<input type="text" value="13,769"/>	lbs	Payback (in years)	:	<input type="text" value="12.3"/>
% CO <sub>2</sub> Reduction	:	<input type="text" value="54.32%"/>		10 Years Profit	:	<input type="text" value="(\$647.96)"/>
% heating load displacment potential:		<input type="text" value="66%"/>		Approx. seasonal equivalent:		<input type="text" value="\$2.12"/> per gal

Electricity Cost	:	<input type="text" value="\$0.086"/>	per kWh	Fuel Type	:	<input type="text" value="Oil"/>
Local Electricity Cost	:	\$ 0.086	per kWh			
Indoor Temperature	:	<input type="text" value="65"/>	°F	Fuel Cost	:	<input type="text" value="\$2.74"/> per gal
				Local Fuel Ave:	\$	<input type="text" value="2.74"/> per gal
Location	:	<input type="text" value="Juneau"/>	<div><div></div><div></div></div>	Efficiency	:	<input type="text" value="80%"/>
Savings Over How Many Years?	:	<input type="text" value="10"/>	Years	Fuel Usage	:	<input type="text" value="885"/> gal
			<div>Reset to Local</div>			
Est Install cost:		<input type="text" value="\$3,500"/>		Local Fuel Ave:		<input type="text" value="885"/> gal

	Estimates	
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Supplemental Heat Recommended at	:	<input type="text" value="25"/>	°F	Fuel Cost Prior to Heat Pump Install	:	<input type="text" value="\$2,424.91"/>
Electricity Usage	:	<input type="text" value="8601"/>	kWh	Electricity Cost	:	<input type="text" value="\$736.23"/>
Fuel Usage	:	<input type="text" value="44.6"/>	gal	Fuel Cost	:	<input type="text" value="\$122.31"/>
Average COP	:	<input type="text" value="3.21"/>		\$ Savings per Year	:	<input type="text" value="\$1,566.37"/>
CO <sub>2</sub> Reduction	:	<input type="text" value="15,561"/>	lbs	Payback (in years)	:	<input type="text" value="2.2"/>
% CO <sub>2</sub> Reduction	:	<input type="text" value="78.39%"/>		10 Years Profit	:	<input type="text" value="\$12,163.68"/>
% heating load displacment potential:		<input type="text" value="95%"/>		Approx. seasonal equivalent:		<input type="text" value="\$0.88"/> per gal

Electricity Cost	:	<input type="text" value="\$0.405"/>	per kWh	Fuel Type	:	<input type="text" value="Oil"/>
Local Electricity Cost	:	<input type="text" value="\$ 0.405"/>	per kWh			
Indoor Temperature	:	<input type="text" value="65"/>	°F	Fuel Cost	:	<input type="text" value="\$5.00"/> per gal
				Local Fuel Ave:	\$	<input type="text" value="5.00"/> per gal
Location	:	<input type="text" value="Nome"/>	<div><div></div><div></div></div>	Efficiency	:	<input type="text" value="80%"/>
Savings Over How Many Years?	:	<input type="text" value="10"/>	Years	Fuel Usage	:	<input type="text" value="684"/> gal
			<div>Reset to Local</div>			
Est Install cost:		<input type="text" value="\$3,500"/>		Local Fuel Ave:		<input type="text" value="684"/> gal

	Estimates	
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Supplemental Heat Recommended at	:	<input type="text" value="0"/>	°F	Fuel Cost Prior to Heat Pump Install	:	<input type="text" value="\$3,420.01"/>
Electricity Usage	:	<input type="text" value="7041"/>	kWh	Electricity Cost	:	<input type="text" value="\$2,852.34"/>
Fuel Usage	:	<input type="text" value="54.7"/>	gal	Fuel Cost	:	<input type="text" value="\$273.70"/>
Average COP	:	<input type="text" value="2.84"/>		\$ Savings per Year	:	<input type="text" value="\$293.96"/>
CO <sub>2</sub> Reduction	:	<input type="text" value="11,422"/>	lbs	Payback (in years)	:	<input type="text" value="11.9"/>
% CO <sub>2</sub> Reduction	:	<input type="text" value="74.45%"/>		10 Years Profit	:	<input type="text" value="(\$560.35)"/>
% heating load displacment potential:		<input type="text" value="92%"/>		Approx. seasonal equivalent:		<input type="text" value="\$4.53"/> per gal



Electricity Cost	:	<input type="text" value="\$0.143"/>	per kWh	Fuel Type	:	<input type="text" value="Oil"/>	
Local Electricity Cost	:	<input type="text" value="\$ 0.143"/>	per kWh				
Indoor Temperature	:	<input type="text" value="65"/>	°F	Fuel Cost	:	<input type="text" value="\$2.43"/>	per gal
				Local Fuel Ave:	\$	<input type="text" value="2.43"/>	per gal
Location	:	<input type="text" value="Seward"/>	<div><div>▲</div><div>▼</div></div>	Efficiency	:	<input type="text" value="80%"/>	
Savings Over How Many Years?	:	<input type="text" value="10"/>	Years	Reset to Local			
				Fuel Usage	:	<input type="text" value="1,014"/>	gal
Est Install cost:		<input type="text" value="\$3,500"/>		Local Fuel Ave:		<input type="text" value="1,014"/>	gal

	Estimates	
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Supplemental Heat Recommended at	:	<input type="text" value="25"/>	°F	Fuel Cost Prior to Heat Pump Install	:	<input type="text" value="\$2,464.03"/>	
Electricity Usage	:	<input type="text" value="9763"/>	kWh	Electricity Cost	:	<input type="text" value="\$1,400.04"/>	
Fuel Usage	:	<input type="text" value="61.9"/>	gal	Fuel Cost	:	<input type="text" value="\$150.48"/>	
Average COP	:	<input type="text" value="3.20"/>		\$ Savings per Year	:	<input type="text" value="\$913.51"/>	
CO <sub>2</sub> Reduction	:	<input type="text" value="17,622"/>	lbs	Payback (in years)	:	<input type="text" value="3.8"/>	
% CO <sub>2</sub> Reduction	:	<input type="text" value="77.48%"/>		10 Years Profit	:	<input type="text" value="\$5,635.14"/>	
% heating load displacment potential:		<input type="text" value="94%"/>		Approx. seasonal equivalent:		<input type="text" value="\$1.47"/>	per gal

Electricity Cost	:	\$0.162	per kWh	Fuel Type	:	Oil
Local Electricity Cost	:	\$ 0.162	per kWh			
Indoor Temperature	:	65	°F	Fuel Cost	:	\$2.85 per gal
				Local Fuel Ave:	\$	2.85 per gal
Location	:	Kodiak		Efficiency	:	80%
Savings Over How Many Years?	:	10	Years	Fuel Usage	:	842 gal
			Reset to Local			
Est Install cost:		\$3,500		Local Fuel Ave:		842 gal

	Estimates	
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Supplemental Heat Recommended at	:	25	°F	Fuel Cost Prior to Heat Pump Install	:	\$2,399.71
Electricity Usage	:	8330	kWh	Electricity Cost	:	\$1,345.28
Fuel Usage	:	9.3	gal	Fuel Cost	:	\$26.53
Average COP	:	3.28		\$ Savings per Year	:	\$1,027.90
CO <sub>2</sub> Reduction	:	15,492	lbs	Payback (in years)	:	3.4
% CO <sub>2</sub> Reduction	:	82.03%		10 Years Profit	:	\$6,778.99
% heating load displacment potential:		99%		Approx. seasonal equivalent:	\$1.62	per gal

Electricity Cost :	<input type="text" value="\$0.120"/>	per kWh	Fuel Type :	<input type="text" value="Natural Gas"/>
Local Electricity Cost :	\$ 0.120 per kWh			
Indoor Temperature :	<input type="text" value="65"/>	°F	Fuel Cost :	<input type="text" value="\$0.33"/> per therm
Location :	<input type="text" value="Barrow"/>	<div>▲ ▼</div>	Local Fuel Ave:	\$ 0.33 per therm
Savings Over How Many Years? :	<input type="text" value="10"/>	Years	Efficiency :	<input type="text" value="80%"/>
		<div>Reset to Local</div>	Fuel Usage :	<input type="text" value="791"/> therm
Est Install cost:	<input type="text" value="\$3,500"/>		Local Fuel Ave:	791 therm

	<b>Estimates</b>	
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Supplemental Heat Recommended at :	<input type="text" value="-5"/>	°F	Fuel Cost Prior to Heat Pump Install :	<input type="text" value="\$261.04"/>
Electricity Usage :	<input type="text" value="3965"/>	kWh	Electricity Cost :	<input type="text" value="\$475.74"/>
Fuel Usage :	<input type="text" value="195.3"/>	therm	Fuel Cost :	<input type="text" value="\$64.44"/>
Average COP :	<input type="text" value="2.73"/>		\$ Savings per Year :	<input type="text" value="(\$279.14)"/>
CO <sub>2</sub> Reduction :	<input type="text" value="5,454"/>	lbs	Payback (in years) :	<input type="text" value="-12.5"/>
% CO <sub>2</sub> Reduction :	<input type="text" value="58.94%"/>		10 Years Profit :	<input type="text" value="(\$6,291.41)"/>
% heating load displacement potential:	<input type="text" value="75%"/>		Approx. seasonal equivalent:	<input type="text" value="\$0.80"/> per therm



Thank you!

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