

# 2017 HVAC Market Report

Prepared for: New York State Energy Research and Development Authority Issued: July 11, 2018

## **HVAC Market Share by Efficiency and Capacity**

January 1, 2017 - December 31, 2017

This report is based on sales data reported to D+R International by HARDI members participating in the Unitary HVAC Market Report.

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Prepared for: NYSERDA

Data Timeframe: January 1, 2017 - December 31, 2017

Custom Region: NY and Northeastern, excluding NY

**Notes**: Q denotes areas where there was insufficient data to release a number or develop market estimates.

#### Introduction

Heating, Air-conditioning & Distributors International (HARDI) and D+R International have been partnering since 2012. Distributor members of HARDI send their monthly sales data to D+R. In turn, D+R prepares quarterly updates of the HVAC markets for each participating distributor member.

### Estimation Methodology

The annual market size estimates are based on a stock-replacement model, developed by D+R using existing HVAC equipment stock data from the Energy Information Administration's 2009 Residential Energy Consumption Survey. D+R estimated equipment sales by dividing the total stock by average lifetimes of equipment to determine the number of probable replacements in a given year. HVAC equipment in new housing was estimated from U.S. Census data. D+R also developed a heat pump adjustment factor to account for heat pumps replacing some air conditioners, particularly in the cooling-dominated regions.

While this model drives the baseline market size, all other reporting metrics are based on the HARDI distributor data. These include:

- market growth
- efficiency distribution
- ducted/ductless percentage (within ASHPs and ACs)
- refrigerant type

Collected sales information always includes the distributor, branch location, model number, ZIP code shipped from, sales date, and quantity. D+R matches the model number to manufacturer specifications to determine values included in this report.

#### **Definitions**

This section is an overview of what equipment and metrics D+R tracks and how D+R classifies them.

**N-Value:** Sample size (total number of units) used in the analysis based on data collected from distributors.

**Estimated Unit Sales:** Estimate number of units sold based on N-value and market size estimates model (described in estimation methodology).

#### **Products**

**Air Conditioner:** Split and packaged, single fuel air conditioning systems that have a SEER rating.

- Includes: split system AC, packaged AC
- Excludes: room air conditioners, dual fuel packaged units, package terminal airconditioners

**Air-Source Heat Pumps:** Split and packaged, single fuel heat pump systems that have a SEER rating.

- Includes: split system ASHP, packaged ASHP
- Excludes: reverse cycle room air conditioners, dual fuel packaged units, package terminal air-source heat pumps, ground-source heat pumps

**Furnaces:** All ducted fossil fuel, single fuel furnaces that have an AFUE rating.

- Includes: split system ASHP, packaged ASHP
- Excludes: reverse cycle room air conditioners, dual fuel packaged units, package terminal air-source heat pumps, ground-source heat pumps

**Boilers:** All natural gas and fuel oil boilers that have an AFUE rating.

• Excludes: Water furnaces or other systems that contain an air-handler

**Ducted:** ACs and ASHPs (as defined above) that have ducting.

**Ductless:** Split system ACs and ASHPs (as defined above) that do not have ducts but do have an indoor air handler(s). These products often have inverter driven, variable speed compressors and are referred to as ductless mini-splits.

**Ground Source Heat Pumps (GSHP):** Split and packaged, single fuel air conditioning systems that use the ground (as opposed to the air) as a heat transfer mechanism.

- Includes: split system GSHP, packaged GSHP
- Excludes: All room type air conditioners, ASHPs of all kinds

#### Metrics

**SEER (nominal):** Nominal Seasonal Energy Efficiency Ratio of the outdoor condensing unit.

**HSPF:** Heating Season Performance Factor. In the case of split systems, the "lowest matched pair" value is reported.

**EER:** Energy Efficiency Ratio. In the case of split systems, the "lowest matched pair" value is reported.

**AFUE:** Annualized Fuel Utilization Efficiency of the equipment.

**Capacity (nominal):** Nominal heating or cooling capacity for the piece of equipment. For air conditioners, ground source heat pumps, and air source heat pumps, this is the capacity of the equipment to the closest half ton increment. For furnaces and boilers, this is the manufacturer specified input capacity.

#### Notes on data coverage

- D+R International does not make any distinctions between residential and commercial sales of HVAC systems/products. D+R International only aggregates and publishes distributor data. D+R International does not track the type of consumer that distributors sell to.
- HARDI includes data collected from NYC and Long Island in the HARDI Mid-Atlantic region, while the rest of NY State is covered under the HARDI Northeast region.
  NYSERDA incorporates all of NYS into its NY data. This may lead to differences and discrepancies between NYSERDA reports and HARDI data.
  - The NE region defined by NYSERDA (does not contain NYS) is to be included for comparison purposes.
- In some circumstances, metrics like AFUE, HSPF, fuel type, and EER could not be assigned due to insufficient submitted information. In these cases, D+R has excluded these units from the analysis and as a result, the total estimates for tables using these metrics will not sum to the total estimates for the entire category. When viewing the underlying data formatted for Open New York, these data with missing values can be viewed as having a value of "NA". In no case did missing values from any metric exceed 5% of the total sample pool for the category.

#### Suggested Citation

• D+R International. 2018. 2017 HVAC Market Report, prepared for the New York State Energy Research and Development Authority.

Air Conditioners		
	<u>Northeastern</u>	NY
N-value	24,894	22,512

Air Conditioners - Percentage of Sa	les by Nominal SEER	
<u>SEER</u>	<u>Northeastern</u>	<u>NY</u>
13.00 - 13.99	53.5%	59.6%
14.00 - 14.99	19.8%	9.8%
15.00 - 15.99	0.9%	11.5%
16.00 - 16.99	19.3%	13.7%
17.00 - 17.99	4.0%	1.7%
18.00 - 18.99	0.2%	0.6%
19.00 - 19.99	1.7%	0.3%
20.00 - 20.99	0.2%	1.0%
21.00 - 21.99	0.4%	0.8%
22.00 - 22.99	0.0%	0.0%
23.00 - 23.99	0.0%	0.6%
24.00 - 24.99	0.0%	0.5%
25.00 - 25.99	0.0%	0.0%
>= 26.00	0.0%	0.0%
Est. Unit Sales	95,149	128,387

Air Conditioners, Ducted - Percentage of Sales by Nominal	SEER		
2772			
<u>SEER</u>	<u>Northeastern</u>	<u>NY</u>	
13.00 - 13.99	54.1%	62.2%	
14.00 - 14.99	20.0%	10.1%	
15.00 - 15.99	0.8%	11.7%	
16.00 - 16.99	19.4%	14.2%	
17.00 - 17.99	3.4%	1.6%	
18.00 - 18.99	0.2%	0.0%	
19.00 - 19.99	1.7%	0.1%	
20.00 - 20.99	0.2%	0.0%	
21.00 - 21.99	0.2%	0.1%	
22.00 - 22.99	0.0%	0.0%	
23.00 - 23.99	0.0%	0.0%	
24.00 - 24.99	0.0%	0.0%	
25.00 - 25.99	0.0%	0.0%	
>= 26.00	0.0%	0.0%	
Est. Unit Sales	93,987	122,610	

Air Conditioners, Ductless - Percentage of Sales by Nominal SEER		
SEER	<u>Northeastern</u>	NY
13.00 - 13.99	0.7%	3.8%
14.00 - 14.99	4.9%	3.8%
15.00 - 15.99	6.9%	8.9%
16.00 - 16.99	10.5%	3.1%
17.00 - 17.99	49.3%	2.9%
18.00 - 18.99	0.7%	12.2%
19.00 - 19.99	0.3%	5.3%
20.00 - 20.99	5.9%	21.6%
21.00 - 21.99	14.8%	14.9%
22.00 - 22.99	1.0%	0.1%
23.00 - 23.99	3.9%	12.5%
24.00 - 24.99	1.0%	10.9%
25.00 - 25.99	0.0%	0.0%
>= 26.00	0.0%	0.0%
Est. Unit Sales	1,162	5,777

Air Conditioners - Percentage of Sales by Ducting Type			
<u>Ducting Type</u>	<u>Northeastern</u>	<u>NY</u>	
Ducted	98.8%	95.5%	
Ductless	1.2%	4.5%	
Est. Unit Sales	95,149	128,387	

Air Conditioners - Percentage of	Sales by Refrigerant Type	
<u>Refrigerant</u>	Northeastern	NY
R-22	0.1%	0.1%
R-410A	99.9%	99.9%
Est. Unit Sales	95,149	128,387

Air Conditioners - Percentage of Sales by Capacity			
Tonnage	Northeastern	<u>NY</u>	
0.5	0.0%	0.0%	
1.0	0.3%	1.8%	
1.5	14.8%	12.0%	
2.0	26.1%	23.2%	
2.5	20.7%	25.6%	
3.0	21.0%	15.4%	
3.5	5.4%	5.6%	
4.0	7.4%	8.5%	
4.5	0.0%	0.5%	
5.0	4.5%	7.5%	
Est. Unit Sales	95,149	128,387	

Air Conditioners, Ducted - Percent	age of Sales by Capacity	
<u>Tonnage</u>	<u>Northeastern</u>	<u>NY</u>
0.5	0.0%	0.0%
1.0	0.0%	0.0%
1.5	14.7%	11.3%
2.0	26.1%	23.4%
2.5	20.9%	26.7%
3.0	20.9%	15.7%
3.5	5.4%	5.8%
4.0	7.4%	8.9%
4.5	0.0%	0.5%
5.0	4.5%	7.9%
Est. Unit Sales	93,987	122,610

itioners, Ductless - Percentage of Sales by Capaci	ty	
<u>Tonnage</u>	<u>Northeastern</u>	NY
0.5	0.0%	0.0%
1.0	23.4%	39.5%
1.5	16.8%	28.6%
2.0	26.3%	18.6%
2.5	3.3%	2.3%
3.0	25.0%	9.3%
3.5	0.7%	1.1%
4.0	4.6%	0.6%
4.5	0.0%	0.1%
5.0	0.0%	0.0%
Est. Unit Sales	1,162	5,777

Air Conditioners - Capacity SEER Cross-Ta	abulation for Northeastern Regio	n			
<u>Tonnage</u>	<u>13 SEER</u>	14 SEER	15 SEER	<u> 16 SEER</u>	17+ SEER
0.5	0.0%	0.0%	0.0%	0.0%	0.0%
1.0	0.0%	0.0%	1.4%	0.0%	4.1%
1.5	10.3%	30.4%	23.4%	15.0%	2.2%
2.0	25.1%	30.3%	0.0%	23.6%	32.0%
2.5	24.5%	21.6%	72.9%	13.7%	0.1%
3.0	19.8%	12.2%	0.5%	28.0%	38.6%
3.5	6.3%	1.2%	0.9%	9.2%	0.0%
4.0	8.4%	3.2%	0.0%	6.3%	16.1%
4.5	0.0%	0.0%	0.0%	0.0%	0.0%
5.0	5.6%	1.1%	0.9%	4.3%	6.9%
Est. Unit Sales	50,892	18,878	833	18,331	6,215

Air Conditioners - Capacity SEER Cross-Tab	ulation for NY				
<u>Tonnage</u>	<u>13 SEER</u>	<u>14 SEER</u>	<u>15 SEER</u>	<u> 16 SEER</u>	<u>17+ SEER</u>
0.5	0.0%	0.1%	0.0%	0.0%	0.0%
1.0	0.2%	0.1%	0.9%	0.0%	28.6%
1.5	14.9%	4.0%	6.2%	6.9%	20.7%
2.0	26.2%	16.7%	12.2%	26.5%	16.9%
2.5	31.0%	18.0%	17.7%	24.0%	0.2%
3.0	13.0%	13.2%	23.7%	21.2%	12.5%
3.5	4.4%	16.2%	2.8%	7.8%	0.7%
4.0	5.4%	27.5%	6.0%	9.4%	11.1%
4.5	0.8%	0.0%	0.0%	0.0%	0.1%
5.0	4.2%	4.3%	30.5%	4.2%	9.2%
Est. Unit Sales	76,501	12,552	14,822	17,600	6,912

Air Source Heat Pumps		
	<u>Northeastern</u>	<u>NY</u>
N-value	9,395	10,720

Air Source Heat Pumps - Percentage of Sales by Nominal SE	ER		
<u>SEER</u>	<u>Northeastern</u>	<u>NY</u>	
13.00 - 13.99	0.6%	0.4%	
14.00 - 14.99	20.2%	14.2%	
15.00 - 15.99	10.1%	6.2%	
16.00 - 16.99	6.4%	8.3%	
17.00 - 17.99	4.5%	4.2%	
18.00 - 18.99	9.0%	20.2%	
19.00 - 19.99	7.2%	14.4%	
20.00 - 20.99	14.8%	11.0%	
21.00 - 21.99	4.7%	5.0%	
22.00 - 22.99	8.6%	3.3%	
23.00 - 23.99	1.3%	2.2%	
24.00 - 24.99	0.5%	2.5%	
25.00 - 25.99	6.0%	2.2%	
>= 26.00	6.0%	5.7%	
Est. Unit Sales	35,857	61,164	

Air Source Heat Pumps, Ducted - Perc	centage of Sales by Nominal SEER	
<u>SEER</u>	<u>Northeastern</u>	<u>NY</u>
13.00 - 13.99	1.6%	1.1%
14.00 - 14.99	54.6%	77.8%
15.00 - 15.99	19.9%	9.3%
16.00 - 16.99	6.6%	5.1%
17.00 - 17.99	7.2%	2.5%
18.00 - 18.99	4.5%	1.7%
19.00 - 19.99	0.6%	0.1%
20.00 - 20.99	3.8%	2.0%
21.00 - 21.99	1.0%	0.3%
22.00 - 22.99	0.0%	0.0%
23.00 - 23.99	0.0%	0.0%
24.00 - 24.99	0.0%	0.1%
25.00 - 25.99	0.0%	0.0%
>= 26.00	0.0%	0.0%
Est. Unit Sales	13,007	10,110

Air Source Heat Pumps, Ductless -	Percentage of Sales by Nominal SEER	
<u>SEER</u>	<u>Northeastern</u>	<u>NY</u>
13.00 - 13.99	0.0%	0.3%
14.00 - 14.99	0.6%	1.6%
15.00 - 15.99	4.5%	5.6%
16.00 - 16.99	6.3%	9.0%
17.00 - 17.99	2.9%	4.6%
18.00 - 18.99	11.6%	23.8%
19.00 - 19.99	10.9%	17.3%
20.00 - 20.99	21.0%	12.7%
21.00 - 21.99	6.8%	5.9%
22.00 - 22.99	13.5%	4.0%
23.00 - 23.99	2.0%	2.6%
24.00 - 24.99	0.8%	3.0%
25.00 - 25.99	9.5%	2.6%
>= 26.00	9.4%	6.9%
Est. Unit Sales	22,850	51,054

Air Source Heat Pumps - Percentage of Sales by Ducting Typ	e	
<u>Ducting Type</u>	<u>Northeastern</u>	<u>NY</u>
Ducted	36.3%	16.5%
Ductless	63.7%	83.5%
Est. Unit Sales	35,857	61,164

Air Source Heat Pumps, Ducted - Percentage of Sales by Refrigerant Type		
<u>Refrigerant</u>	<u>Northeastern</u>	NY
R-22	0.0%	0.0%
R-410A	100.0%	100.0%
Est. Unit Sales	13,007	10,110

Air Source Heat Pumps - Percentag	ge of Sales by Capacity	
<u>Tonnage</u>	<u>Northeastern</u>	NY
0.5	0.1%	0.7%
1.0	15.9%	17.4%
1.5	25.1%	20.8%
2.0	24.6%	20.7%
2.5	8.4%	9.4%
3.0	16.6%	19.0%
3.5	1.1%	3.8%
4.0	5.1%	6.1%
4.5	0.5%	0.0%
5.0	2.6%	2.1%
Est. Unit Sales	35,857	61,164

Air Source Heat Pumps, Ducted - P	ercentage of Sales by Capacity	
<u>Tonnage</u>	<u>Northeastern</u>	NY
0.5	0.0%	0.0%
1.0	0.0%	0.0%
1.5	19.5%	6.0%
2.0	29.4%	16.8%
2.5	14.0%	18.7%
3.0	21.5%	22.2%
3.5	2.1%	8.7%
4.0	5.3%	15.1%
4.5	1.1%	0.2%
5.0	7.1%	12.2%
Est. Unit Sales	13,007	10,110

rce Heat Pumps, Ductless - Percentage of Sales by	Capacity	
<u>Tonnage</u>	<u>Northeastern</u>	NY
0.5	0.2%	0.9%
1.0	25.0%	20.8%
1.5	28.3%	23.7%
2.0	21.8%	21.4%
2.5	5.2%	7.5%
3.0	13.8%	18.4%
3.5	0.5%	2.8%
4.0	4.9%	4.3%
4.5	0.2%	0.0%
5.0	0.1%	0.0%
Est. Unit Sales	22,850	51,054

Air Source Heat Pumps, Ducted - Percentage of Sales by HS	PF		
<u>HSPF</u>	<u>Northeastern</u>	<u>NY</u>	
7.70-8.19	2.4%	7.3%	
8.20-8.49	55.1%	74.4%	
8.50-8.99	10.4%	8.3%	
9.00-9.49	19.9%	5.7%	
9.50-9.99	4.3%	0.8%	
10.00-10.49	0.1%	0.8%	
10.50-10.99	0.3%	0.0%	
11.00+	7.6%	2.6%	
Est. Unit Sales	11,996	9,734	

Air Source Heat Pumps, Ductless - Percentage of Sales by HSPF			
<u>HSPF</u>	<u>Northeastern</u>	<u>NY</u>	
7.70-8.19	0.1%	0.2%	
8.20-8.49	2.0%	5.2%	
8.50-8.99	4.1%	6.0%	
9.00-9.49	8.2%	16.8%	
9.50-9.99	10.8%	13.4%	
10.00-10.49	28.1%	13.7%	
10.50-10.99	8.4%	11.6%	
11.00+	38.2%	33.0%	
Est. Unit Sales	22,678	50,900	

Est. Unit Sales	12,068	9,728	
20.00+	0.0%	0.0%	
19.00 - 19.99	0.0%	0.0%	
18.00 - 18.99	0.0%	0.0%	
17.00 - 17.99	0.0%	0.0%	
16.00 - 16.99	1.1%	0.1%	
15.00 - 15.99	0.0%	0.0%	
14.00 - 14.99	4.2%	1.5%	
13.00 - 13.99	5.8%	3.3%	
12.00 - 12.99	24.4%	56.4%	
11.00 - 11.99	61.0%	37.8%	
10.00 - 10.99	3.6%	0.7%	
< 10.00	0.0%	0.2%	
<u>EER</u>	<u>Northeastern</u>	<u>NY</u>	
ir Source Heat Pumps, Ducted - Percentage of Sales by	Nominal EER		

Air Source Heat Pumps, Ductless -	Percentage of Sales by Nominal EER	
EER	<u>Northeastern</u>	<u>NY</u>
< 10.00	9.5%	15.0%
10.00 - 10.99	8.8%	17.5%
11.00 - 11.99	1.2%	3.1%
12.00 - 12.99	38.1%	34.0%
13.00 - 13.99	33.6%	21.9%
14.00 - 14.99	1.3%	2.0%
15.00 - 15.99	4.7%	4.2%
16.00 - 16.99	0.6%	0.9%
17.00 - 17.99	0.0%	0.0%
18.00 - 18.99	2.2%	0.5%
19.00 - 19.99	0.0%	0.9%
20.00+	0.0%	0.0%
Est. Unit Sales	22,464	51,025

<b>Air Source Heat Pumps - Capacity SEER Cro</b>	r Source Heat Pumps - Capacity SEER Cross-Tabulation for Northeastern Region					
<u>Tonnage</u>	<u>13 SEER</u>	<u> 14 SEER</u>	<u>15 SEER</u>	<u> 16 SEER</u>	17+ SEER	
0.5	0.0%	0.0%	0.3%	0.2%	0.2%	
1.0	1.7%	0.0%	1.9%	12.4%	23.8%	
1.5	3.4%	26.0%	18.5%	1.2%	28.6%	
2.0	8.6%	30.8%	41.4%	22.2%	20.3%	
2.5	1.7%	19.7%	7.9%	17.9%	3.9%	
3.0	24.1%	12.6%	20.3%	37.1%	15.1%	
3.5	5.2%	2.3%	3.3%	0.7%	0.3%	
4.0	25.9%	2.7%	2.8%	5.5%	5.9%	
4.5	0.0%	0.4%	3.2%	0.2%	0.1%	
5.0	29.3%	5.5%	0.3%	2.8%	1.8%	
Est. Unit Sales	221	7,244	3,622	2,305	22,464	

Air Source Heat Pumps - Capacity	SEER Cross-Tabulation for NY				
<u>Tonnage</u>	<u>13 SEER</u>	<u> 14 SEER</u>	<u>15 SEER</u>	<u>16 SEER</u>	17+ SEER
0.5	0.0%	0.0%	0.3%	0.0%	1.0%
1.0	4.5%	0.1%	2.5%	37.7%	19.9%
1.5	2.3%	6.4%	11.5%	1.3%	26.9%
2.0	0.0%	14.2%	27.9%	2.3%	23.6%
2.5	54.5%	20.1%	7.6%	9.4%	7.1%
3.0	6.8%	26.2%	33.0%	43.7%	13.5%
3.5	11.4%	8.8%	8.7%	0.4%	2.7%
4.0	13.6%	13.9%	6.0%	2.3%	5.0%
4.5	0.0%	0.0%	0.3%	0.0%	0.0%
5.0	6.8%	10.4%	2.1%	2.8%	0.3%
Est. Unit Sales	251	8,701	3,806	5,107	43,300

Air Source Heat Pumps - Capaci	ty HSPF Cross-Tabulation	on for Northeaster	n Region			
<u>Tonnage</u>	7.70-8.19	8.20-8.49	<u>8.50-8.99</u>	9.00-9.49	<u>9.50-9.99</u>	10.00+
0.5	0.0%	0.0%	0.2%	0.0%	0.0%	0.3%
1.0	0.0%	2.6%	0.9%	5.1%	0.3%	29.3%
1.5	14.6%	25.9%	9.0%	25.2%	35.6%	26.7%
2.0	23.2%	30.7%	46.4%	19.8%	38.8%	18.7%
2.5	11.0%	19.4%	12.5%	5.8%	7.1%	4.3%
3.0	13.4%	13.8%	12.1%	39.6%	10.8%	12.0%
3.5	6.1%	2.0%	6.2%	0.1%	0.0%	0.3%
4.0	6.1%	2.1%	4.9%	3.3%	0.6%	7.3%
4.5	0.0%	0.2%	6.2%	0.0%	0.0%	0.0%
5.0	25.6%	3.1%	1.8%	1.1%	6.9%	1.0%
Est. Unit Sales	313	7,068	2,172	4,248	2,973	17,900

Air Source Heat Pumps - Capacity	y HSPF Cross-Tabulatio	n for NY				
<u>Tonnage</u>	<u>7.70-8.19</u>	8.20-8.49	8.50-8.99	9.00-9.49	9.50-9.99	<u>10.00+</u>
0.5	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%
1.0	0.0%	0.7%	0.4%	24.3%	0.1%	27.2%
1.5	32.1%	3.6%	36.1%	17.3%	13.8%	27.3%
2.0	12.1%	13.0%	30.4%	9.8%	66.4%	14.9%
2.5	18.6%	17.3%	9.5%	5.1%	1.7%	9.7%
3.0	23.6%	37.8%	10.5%	40.6%	7.7%	9.9%
3.5	4.3%	7.3%	3.9%	0.2%	8.4%	2.6%
4.0	0.7%	12.1%	5.3%	1.3%	1.6%	6.8%
4.5	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%
5.0	8.6%	8.1%	3.6%	1.5%	0.2%	0.1%
Est. Unit Sales	799	9,911	3,846	9,129	6,921	30,029

Air Source Heat Pumps, Ducted -	Capacity HSPF Cross-T	abulation for Nor	theastern Region			
<u>Tonnage</u>	<u>7.70-8.19</u>	8.20-8.49	<u>8.50-8.99</u>	9.00-9.49	<u>9.50-9.99</u>	10.00+
0.5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1.5	16.2%	27.0%	5.8%	25.4%	0.0%	0.0%
2.0	24.3%	31.7%	25.5%	34.4%	8.9%	28.2%
2.5	5.4%	20.3%	20.2%	3.7%	0.0%	1.6%
3.0	14.9%	13.2%	20.6%	28.6%	51.1%	31.7%
3.5	4.1%	2.1%	8.0%	0.0%	0.0%	0.0%
4.0	6.8%	2.3%	7.7%	5.9%	0.0%	22.2%
4.5	0.0%	0.0%	9.2%	0.0%	0.0%	0.0%
5.0	28.4%	3.4%	3.1%	1.9%	40.0%	16.3%
Est. Unit Sales	282	6,607	1,244	2,385	515	962

Air Source Heat Pumps, Ducted -	Capacity HSPF Cross-T	abulation for NY				
<u>Tonnage</u>	<u>7.70-8.19</u>	8.20-8.49	8.50-8.99	9.00-9.49	9.50-9.99	10.00+
0.5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1.5	36.3%	4.1%	0.0%	2.0%	0.0%	11.9%
2.0	13.7%	16.1%	20.6%	13.3%	28.6%	13.6%
2.5	16.9%	21.8%	17.0%	9.2%	0.0%	0.0%
3.0	18.5%	20.4%	29.1%	27.6%	57.1%	42.4%
3.5	4.0%	10.0%	8.5%	2.0%	0.0%	0.0%
4.0	0.8%	16.5%	6.4%	21.4%	0.0%	25.4%
4.5	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%
5.0	9.7%	11.1%	17.0%	24.5%	14.3%	6.8%
Est. Unit Sales	707	7,246	804	559	80	337

Air Source Heat Pumps, Ductless	- Capacity HSPF Cross-	Tabulation for No	rtheastern Region			
<u>Tonnage</u>	7.70-8.19	8.20-8.49	8.50-8.99	9.00-9.49	9.50-9.99	10.00+
0.5	0.0%	0.0%	0.4%	0.0%	0.0%	0.3%
1.0	0.0%	40.5%	2.1%	11.7%	0.3%	31.0%
1.5	0.0%	10.7%	13.2%	25.0%	43.0%	28.2%
2.0	12.5%	16.5%	74.5%	1.0%	45.0%	18.2%
2.5	62.5%	6.6%	2.1%	8.4%	8.5%	4.4%
3.0	0.0%	22.3%	0.8%	53.7%	2.3%	10.9%
3.5	25.0%	0.0%	3.7%	0.2%	0.0%	0.3%
4.0	0.0%	0.0%	1.2%	0.0%	0.8%	6.5%
4.5	0.0%	3.3%	2.1%	0.0%	0.0%	0.0%
5.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Est. Unit Sales	31	462	927	1,862	2,458	16,938

Air Source Heat Pumps, Ductless -	Capacity HSPF Cross-	Tabulation for NY				
<u>Tonnage</u>	7.70-8.19	8.20-8.49	8.50-8.99	9.00-9.49	9.50-9.99	<u>10.00+</u>
0.5	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%
1.0	0.0%	2.6%	0.6%	25.8%	0.1%	27.6%
1.5	0.0%	2.1%	45.6%	18.2%	14.0%	27.5%
2.0	0.0%	4.7%	33.0%	9.6%	66.9%	14.9%
2.5	31.3%	5.1%	7.5%	4.8%	1.8%	9.8%
3.0	62.5%	85.2%	5.6%	41.5%	7.2%	9.5%
3.5	6.3%	0.0%	2.6%	0.1%	8.5%	2.6%
4.0	0.0%	0.0%	5.1%	0.0%	1.6%	6.6%
4.5	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
5.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Est. Unit Sales	91	2,665	3,041	8,570	6,841	29,692

Ground Source Heat Pumps -	Percentage of Sales b	y Nominal EER			
<u>EER</u>	N-value	<u>-</u>	<u>Northeastern</u>	<u>NY</u>	
10.00 - 10.99	NY	Q*	Q*	Q*	
11.00 - 11.99	Northeastern	Q*	Q*	Q*	
12.00 - 12.99			Q*	Q*	
13.00 - 13.99			Q*	Q*	
14.00 - 14.99			Q*	Q*	
15.00 - 15.99			Q*	Q*	
16.00 - 16.99			Q*	Q*	
17.00 - 17.99			Q*	Q*	
18.00 - 18.99			Q*	Q*	
19.00 - 19.99			Q*	Q*	
20.00+			Q*	Q*	
Est. Unit Sales			Q*	Q*	•

<sup>\*</sup> Q denotes insufficient information to develop full market estimates

Furnaces		
	<u>Northeastern</u>	<u>NY</u>
N-value	16,028	23,625

Furnaces - Percentage of Sales by I	Iominal AFUE	
<u>AFUE</u>	<u>Northeastern</u>	<u>NY</u>
80.00 - 80.99	18.9%	32.5%
81.00 - 81.99	1.0%	0.3%
82.00 - 82.99	1.1%	0.4%
83.00 - 83.99	1.3%	0.9%
84.00 - 84.99	0.2%	0.3%
85.00 - 85.99	4.4%	3.1%
86.00 - 86.99	3.4%	0.8%
87.00 - 87.99	0.1%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.7%	0.1%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	20.7%	20.6%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.1%
95.00 - 95.99	11.9%	13.9%
96.00 - 96.99	30.1%	24.6%
97.00 - 97.99	6.2%	2.3%
98.00 - 98.99	0.0%	0.1%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	78,374	157,209

Furnaces, Natural Gas - Percentage	of Sales by Nominal AFUE	
<u>AFUE</u>	<u>Northeastern</u>	<u>NY</u>
80.00 - 80.99	21.0%	33.7%
81.00 - 81.99	0.3%	0.4%
82.00 - 82.99	0.0%	0.1%
83.00 - 83.99	0.5%	0.1%
84.00 - 84.99	0.0%	0.1%
85.00 - 85.99	0.0%	0.0%
86.00 - 86.99	0.0%	0.0%
87.00 - 87.99	0.0%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.4%	0.0%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	23.3%	22.0%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.1%
95.00 - 95.99	13.4%	14.8%
96.00 - 96.99	33.9%	26.1%
97.00 - 97.99	7.0%	2.5%
98.00 - 98.99	0.0%	0.1%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	69,467	147,241

Furnaces, Fuel Oil - Percentage of S	Sales by Nominal AFUE	
<u>AFUE</u>	<u>Northeastern</u>	<u>NY</u>
80.00 - 80.99	2.1%	13.3%
81.00 - 81.99	6.6%	0.2%
82.00 - 82.99	9.8%	5.3%
83.00 - 83.99	7.6%	13.4%
84.00 - 84.99	1.7%	2.9%
85.00 - 85.99	38.5%	50.3%
86.00 - 86.99	30.0%	13.2%
87.00 - 87.99	0.8%	0.1%
88.00 - 88.99	0.1%	0.0%
89.00 - 89.99	0.1%	0.1%
90.00 - 90.99	2.8%	1.0%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	0.0%	0.0%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.0%
95.00 - 95.99	0.0%	0.0%
96.00 - 96.99	0.0%	0.0%
97.00 - 97.99	0.0%	0.0%
98.00 - 98.99	0.0%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	8,906	9,701

Furnaces - Percentage of Sales by Input Capacity			
BTU/hr.	<u>Northeastern</u>	<u>NY</u>	
< 40,000	0.8%	0.3%	
40,000 - 59,999	19.1%	20.3%	
60,000 - 79,999	32.4%	34.0%	
80,000 - 99,999	27.1%	28.8%	
100,000 - 119,999	15.0%	13.1%	
120,000 - 139,999	4.0%	2.4%	
>= 140,000	1.7%	1.0%	
Est. Unit Sales	78,639	157,609	

Furnaces, Natural Gas - Percentage of Sales by Input Capac	ity		
BTU/hr.	<u>Northeastern</u>	NY	
< 40,000	0.9%	0.3%	
40,000 - 59,999	21.5%	21.5%	
60,000 - 79,999	34.5%	35.7%	
80,000 - 99,999	28.1%	28.6%	
100,000 - 119,999	10.2%	11.0%	
120,000 - 139,999	4.3%	2.4%	
>= 140,000	0.4%	0.6%	
Est. Unit Sales	69,459	147,414	

Furnaces, Fuel Oil - Percentage of	Sales by Input Capacity	
BTU/hr.	<u>Northeastern</u>	<u>NY</u>
< 40,000	0.1%	0.0%
40,000 - 59,999	0.6%	-0.1%
60,000 - 79,999	16.3%	9.7%
80,000 - 99,999	19.2%	34.1%
100,000 - 119,999	51.3%	45.8%
120,000 - 139,999	1.2%	2.9%
>= 140,000	11.2%	7.5%
Est. Unit Sales	9,163	9,768

Furnaces - Percentage of Sales by Motor Type		
Motor Type	<u>Northeastern</u>	NY
ECM	38.1%	27.6%
PSC	61.9%	72.4%
Est. Unit Sales	76,749	152,145

Furnaces, Natural Gas - Percentage of Sales by Motor Type		
Motor Type	<u>Northeastern</u>	NY
ECM	39.9%	28.6%
PSC	60.1%	71.4%
Est. Unit Sales	68,508	142,951

Furnaces, Oil - Percentage of Sales by Motor Type			
Makes Time	Mandagan	NIV/	
<u>Motor Type</u>	<u>Northeastern</u>	<u>NY</u>	
ECM	23.1%	12.5%	
PSC	76.9%	87.5%	
Est. Unit Sales	8,233	9,134	

Furnaces - Percentage of Sales by I	Nominal AFUE and Motor Type in Northeastern Region	
<u>AFUE</u>	<u>ECM</u>	<u>PSC</u>
80.00 - 80.99	4.0%	27.8%
81.00 - 81.99	2.0%	0.5%
82.00 - 82.99	0.0%	1.8%
83.00 - 83.99	0.9%	1.3%
84.00 - 84.99	0.0%	0.2%
85.00 - 85.99	1.4%	5.7%
86.00 - 86.99	2.2%	3.7%
87.00 - 87.99	0.1%	0.1%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	0.5%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	0.6%	33.9%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.0%
95.00 - 95.99	4.9%	16.2%
96.00 - 96.99	67.3%	8.3%
97.00 - 97.99	16.6%	0.0%
98.00 - 98.99	0.0%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	29,213	47,150

Furnaces, Natural Gas - Percentage	Furnaces, Natural Gas - Percentage of Sales by Nominal AFUE and Motor Type in Northeastern Region	
<u>AFUE</u>	<u>ECM</u>	<u>PSC</u>
80.00 - 80.99	4.3%	31.5%
81.00 - 81.99	0.0%	0.5%
82.00 - 82.99	0.0%	0.0%
83.00 - 83.99	0.0%	0.9%
84.00 - 84.99	0.0%	0.0%
85.00 - 85.99	0.0%	0.0%
86.00 - 86.99	0.0%	0.0%
87.00 - 87.99	0.0%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	0.0%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	0.6%	38.9%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.0%
95.00 - 95.99	5.3%	18.6%
96.00 - 96.99	72.0%	9.5%
97.00 - 97.99	17.7%	0.0%
98.00 - 98.99	0.0%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	27,313	41,060

Furnaces, Fuel Oil - Percentage of S	Sales by Nominal AFUE and Motor Type in Northeastern Region	
<u>AFUE</u>	<u>ECM</u>	<u>PSC</u>
80.00 - 80.99	0.0%	3.1%
81.00 - 81.99	30.3%	0.3%
82.00 - 82.99	0.0%	13.6%
83.00 - 83.99	14.0%	4.2%
84.00 - 84.99	0.0%	1.5%
85.00 - 85.99	21.0%	43.9%
86.00 - 86.99	33.9%	28.4%
87.00 - 87.99	0.8%	0.9%
88.00 - 88.99	0.0%	0.1%
89.00 - 89.99	0.0%	0.1%
90.00 - 90.99	0.0%	4.0%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	0.0%	0.0%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.0%
95.00 - 95.99	0.0%	0.0%
96.00 - 96.99	0.0%	0.0%
97.00 - 97.99	0.0%	0.0%
98.00 - 98.99	0.0%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	1,899	6,090

Furnaces - Percentage of Sales by I	Iominal AFUE and Motor Type in NY	
<u>AFUE</u>	<u>ECM</u>	<u>PSC</u>
80.00 - 80.99	11.7%	40.4%
81.00 - 81.99	0.0%	0.5%
82.00 - 82.99	0.0%	0.5%
83.00 - 83.99	1.1%	0.8%
84.00 - 84.99	0.0%	0.2%
85.00 - 85.99	1.0%	3.8%
86.00 - 86.99	0.6%	0.8%
87.00 - 87.99	0.0%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	0.1%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	2.7%	28.0%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.2%	0.0%
95.00 - 95.99	14.7%	13.3%
96.00 - 96.99	59.9%	11.4%
97.00 - 97.99	7.9%	0.0%
98.00 - 98.99	0.2%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	41,999	109,952

Furnaces, Natural Gas - Percentage	of Sales by Nominal AFUE and Motor Type in NY	
<u>AFUE</u>	<u>ECM</u>	<u>PSC</u>
80.00 - 80.99	12.0%	42.2%
81.00 - 81.99	0.0%	0.5%
82.00 - 82.99	0.0%	0.1%
83.00 - 83.99	0.0%	0.2%
84.00 - 84.99	0.0%	0.0%
85.00 - 85.99	0.0%	0.0%
86.00 - 86.99	0.0%	0.0%
87.00 - 87.99	0.0%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	0.0%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	2.7%	30.2%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.2%	0.0%
95.00 - 95.99	15.1%	14.4%
96.00 - 96.99	61.6%	12.3%
97.00 - 97.99	8.2%	0.0%
98.00 - 98.99	0.2%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	40,832	101,992

Furnaces, Fuel Oil - Percentage of	ales by Nominal AFUE and Motor Type in NY	
<u>AFUE</u>	<u>ECM</u>	<u>PSC</u>
80.00 - 80.99	0.0%	16.3%
81.00 - 81.99	0.0%	0.3%
82.00 - 82.99	0.0%	6.0%
83.00 - 83.99	39.8%	8.5%
84.00 - 84.99	0.0%	3.1%
85.00 - 85.99	37.4%	52.9%
86.00 - 86.99	21.6%	11.7%
87.00 - 87.99	1.2%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.2%
90.00 - 90.99	0.0%	1.3%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	0.0%	0.0%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.0%
95.00 - 95.99	0.0%	0.0%
96.00 - 96.99	0.0%	0.0%
97.00 - 97.99	0.0%	0.0%
98.00 - 98.99	0.0%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	1,141	7,960

Boilers		
	<u>Northeastern</u>	<u>NY</u>
N-value	5,309	3,541

Boilers - Percentage of Sales by No	minal AFUE	
<u>AFUE</u>	<u>Northeastern</u>	<u>NY</u>
80.00 - 80.99	0.5%	3.1%
81.00 - 81.99	0.1%	0.2%
82.00 - 82.99	3.1%	16.0%
83.00 - 83.99	4.0%	9.6%
84.00 - 84.99	6.0%	5.5%
85.00 - 85.99	25.4%	22.8%
86.00 - 86.99	7.0%	3.9%
87.00 - 87.99	4.1%	1.1%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	1.0%
91.00 - 91.99	1.7%	2.1%
92.00 - 92.99	0.4%	0.3%
93.00 - 93.99	0.8%	0.2%
94.00 - 94.99	2.7%	2.1%
95.00 - 95.99	29.9%	26.9%
96.00 - 96.99	12.9%	4.1%
97.00 - 97.99	1.0%	1.0%
98.00 - 98.99	0.4%	0.1%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	64,766	95,679

Natural Gas - Percentage of Sales by Nominal A	FUE	
<u>AFUE</u>	<u>Northeastern</u>	NY
80.00 - 80.99	0.9%	4.4%
81.00 - 81.99	0.0%	0.3%
82.00 - 82.99	5.1%	20.0%
83.00 - 83.99	4.8%	12.6%
84.00 - 84.99	3.1%	5.6%
85.00 - 85.99	3.9%	6.7%
86.00 - 86.99	0.0%	0.0%
87.00 - 87.99	2.1%	0.0%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	1.4%
91.00 - 91.99	2.8%	3.0%
92.00 - 92.99	0.6%	0.4%
93.00 - 93.99	1.4%	0.3%
94.00 - 94.99	4.6%	2.9%
95.00 - 95.99	46.5%	35.1%
96.00 - 96.99	21.8%	5.7%
97.00 - 97.99	1.8%	1.4%
98.00 - 98.99	0.6%	0.1%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	36,745	67,875

<b>Boilers, Fuel Oil - Percentage of Sa</b>	es by Nominal AFUE	
<u>AFUE</u>	<u>Northeastern</u>	<u>NY</u>
80.00 - 80.99	0.0%	0.0%
81.00 - 81.99	0.0%	0.0%
82.00 - 82.99	0.3%	4.1%
83.00 - 83.99	2.7%	1.8%
84.00 - 84.99	10.7%	5.8%
85.00 - 85.99	58.9%	67.7%
86.00 - 86.99	17.5%	14.5%
87.00 - 87.99	7.3%	4.2%
88.00 - 88.99	0.0%	0.0%
89.00 - 89.99	0.0%	0.0%
90.00 - 90.99	0.0%	0.0%
91.00 - 91.99	0.0%	0.0%
92.00 - 92.99	0.0%	0.0%
93.00 - 93.99	0.0%	0.0%
94.00 - 94.99	0.0%	0.0%
95.00 - 95.99	2.5%	1.9%
96.00 - 96.99	0.0%	0.0%
97.00 - 97.99	0.0%	0.0%
98.00 - 98.99	0.0%	0.0%
99.00 - 99.99	0.0%	0.0%
Est. Unit Sales	26,656	25,399

Boilers - Percentage of Sales by Input Capacity			
		<u> </u>	
BTU/hr.	<u>Northeastern</u>	NY	
< 40,000	0.0%	0.2%	
40,000 - 59,999	1.6%	0.4%	
60,000 - 79,999	2.8%	7.4%	
80,000 - 99,999	26.8%	17.5%	
100,000 - 119,999	21.8%	20.6%	
120,000 - 139,999	22.3%	24.4%	
>= 140,000	24.6%	29.5%	
Est. Unit Sales	64,754	95,679	

oilers, Natural Gas - Percentage of Sales by Input Capaci	ity		
BTU/hr.	<u>Northeastern</u>	NY	
< 40,000	0.0%	0.3%	
40,000 - 59,999	2.9%	0.6%	
60,000 - 79,999	3.2%	10.0%	
80,000 - 99,999	24.4%	11.6%	
100,000 - 119,999	14.8%	20.2%	
120,000 - 139,999	23.7%	22.6%	
>= 140,000	31.1%	34.7%	
Est. Unit Sales	36,732	67,875	

Boilers, Fuel Oil - Percentage of Sales by Input Capacity		
BTU/hr.	<u>Northeastern</u>	<u>NY</u>
< 40,000	0.0%	0.0%
40,000 - 59,999	0.0%	0.0%
60,000 - 79,999	2.2%	1.1%
80,000 - 99,999	31.2%	35.0%
100,000 - 119,999	32.5%	23.3%
120,000 - 139,999	20.7%	23.7%
>= 140,000	13.4%	16.9%
Est. Unit Sales	26,656	25,399