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9.7.10 Population Winter Peak Day Load Shape by End Use Category and Weekday Occupancy
1 Terminology

Throughout this report, the research results are referenced with various terminology, including:

- **Population**: These results are scaled by saturation and show the overall impact to the system on average by home, but do not represent the impact from an individual appliance.
- **For Homes with End Use**: These results only include homes with the relevant end use installed, irrespective of the saturation of that end use in the population.
- **Winter**: To calculate winter-only results, the team has used the metered data from November 1, 2017 to March 13, 2018.
- **ISO-NE Winter Peak**: For the purposes of this report, ISO-NE winter peak is approximated as 5-7 p.m. on the 3 days with highest ISO-NE system peak loads in 2017-2018 (December 28, January 2, January 5).
- **Expanded Winter Peak**: For the purposes of this report, expanded winter peak is defined as 5-7 p.m. on the 3 days with highest ISO-NE system peak loads in 2017-2018.
- **Winter Peak Days**: These results include data only from the 3 days identified as peak days (December 28, January 2, January 5).
- **Building Type**: Either Single-Family Detached, Single-Family Attached (2-4 units), or Multi-family (5+ units)
- **Number of Occupants**: number of permanent residents (adults and children) living in the home
2 ISO-NE Winter Peak Demand

2.1 Average Whole Home ISO-NE Winter Peak Demand by Demographic

Source: Navigant Analysis
### 2.2 Population Average ISO-NE Winter Peak Demand by End Use Category

<table>
<thead>
<tr>
<th>End Use Category</th>
<th>Average Demand (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen</td>
<td>0.0</td>
</tr>
<tr>
<td>Laundry</td>
<td>0.2</td>
</tr>
<tr>
<td>Water Heating</td>
<td>0.4</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.6</td>
</tr>
<tr>
<td>HVAC</td>
<td>0.6</td>
</tr>
<tr>
<td>Remaining Load</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Source: Navigant Analysis
2.3 Population Average ISO-NE Winter Peak Demand by End Use

Source: Navigant Analysis
2.4 Average ISO-NE Winter Peak Demand by End Use for Homes With End Use

Source: Navigant Analysis
2.5 Population Average ISO-NE Winter Peak Demand by End Use Category and Demographic

Source: Navigant Analysis
3 Residential Winter Peak Demand

3.1 Average Whole Home Residential Winter Peak Demand by Demographic

- **Age**
  - Age 20-29 (n = 20)
  - Age 30-59 (n = 125)
  - Age 60+ (n = 73)

- **Building Type**
  - Multi-family (n = 34)
  - Single Family Attached (n = 63)
  - Single Family Detached (n = 121)

- **Education Level**
  - College Degree (n = 172)
  - No College Degree (n = 46)

- **Heating Fuel**
  - Electric Heat (n = 15)
  - Gas Heat (n = 116)
  - Gas Plus Electric (n = 21)
  - Oil Heat (n = 35)
  - Oil Plus Electric (n = 9)
  - Other Heat (n = 4)
  - Shared Heat (n = 11)

- **Income**
  - Low Income (n = 58)
  - Not Low Income (n = 160)

- **Language**
  - English Is Primary Language (n = 191)
  - English Not Primary Language (n = 31)

- **Number of Occupants**
  - 1 (n = 46)
  - 2 (n = 72)
  - 3-4 (n = 75)
  - 5+ (n = 23)

- **Occupancy Type**
  - Owner (n = 166)
  - Renter (n = 52)

- **Program Participation**
  - Non-participant (n = 167)
  - Participant (n = 51)

- **Weekday Occupancy**
  - Nobody Home On Weekdays (n = 98)
  - Somebody Home On Weekdays (n = 120)

Source: Navigant Analysis
3.2 Population Average Residential Winter Peak Demand by End Use Category

Source: Navigant Analysis
3.3 Population Average Residential Winter Peak Demand by End Use

Average Demand (kW)

Source: Navigant Analysis
3.4 Average Residential Winter Peak Demand by End Use for Homes With End Use

Source: Navigant Analysis
3.5 Population Average Residential Winter Peak Demand by End Use Category and Demographic

Source: Navigant Analysis
4 Winter Energy Consumption

4.1 Average Whole Home Winter Energy Consumption by Demographic

Source: Navigant Analysis
4.2 Population Average Winter Energy Consumption by End Use Category

Source: Navigant Analysis
4.3 Population Average Winter Energy Consumption by End Use

Source: Navigant Analysis
### 4.4 Average Winter Energy Consumption by End Use for Homes With End Use

<table>
<thead>
<tr>
<th>End Use</th>
<th>Average Energy (kWh)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Refrigerator (n = 233)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Refrigerator (n = 77)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freezer (n = 53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dishwasher (n = 202)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes Washer (n = 203)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes Dryer − Electric (n = 172)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes Dryer − Natural Gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Heater − Electric (n = 29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Heater − Natural Gas/Fuel Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehumidifier (n = 30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool Pump (n = 21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sun Pump (n = 50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well Pump (n = 10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ejector Pump (n = 7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary TV (n = 22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Air Conditioner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini−Split Air Conditioner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room or Window Air Conditioner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furnace Fan (n = 8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiler Distribution (n = 144)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini−Split Heat Pump (n = 73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harrow Electric Heat (n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plug−in Electric Heat (n = 115)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Navigant Analysis
4.5 Population Average Winter Energy Consumption by End Use Category and Demographic

![Graphs showing consumption by age, building type, education level, income, number of occupants, program participation, and weekday occupancy.]

Source: Navigant Analysis
5 Monthly Energy Consumption

5.1 Population Total Monthly Energy Consumption by End Use Category

Source: Navigant Analysis
5.2 Population Monthly Energy Consumption Per Day by End Use Category

Source: Navigant Analysis
5.3 Population Total Monthly Energy Consumption by End Use

Source: Navigant Analysis
5.4 Population Monthly Energy Consumption Per Day by End Use

Source: Navigant Analysis
5.5 Total Monthly Energy Consumption by End Use for Homes With End Use

Source: Navigant Analysis
5.6 Monthly Energy Consumption Per Day by End Use for Homes With End Use

Source: Navigant Analysis
6 Winter Peak Day Load Shapes

6.1 Population Winter Peak Day Load Shape by End Use Category

Source: Navigant Analysis
6.2 Population Winter Peak Day Load Shape by End Use

Source: Navigant Analysis
6.3 Winter Peak Day HVAC Load Shapes for Homes With End Use

Source: Navigant Analysis
6.4 Winter Peak Day Water Heating Load Shapes for Homes With End Use

Source: Navigant Analysis
6.5 Winter Peak Day Kitchen Load Shapes for Homes With End Use

Source: Navigant Analysis
6.6 Winter Peak Day Laundry Load Shapes for Homes With End Use

Source: Navigant Analysis
6.7 Winter Peak Day Miscellaneous Load Shapes for Homes With End Use

[Graph showing average demand (kW) for various end uses throughout the day, with labels for different appliances such as Primary Computer, Primary TV, Ejector Pump, Well Pump, Sump Pump, Pool Pump, and Dehumidifier. Peaks highlighted for ISO-NE and Expanded Peak periods (5-7 PM and 5-9 PM respectively). Source: Navigant Analysis]
7 Distributions and High Users

7.1 Distribution of ISO-NE Winter Peak Demand by End Use for Homes With End Use

Source: Navigant Analysis
Note: data displayed as a Tukey boxplot - whiskers represent the highest/lowest datum within 1.5 * IQR
7.2 Average ISO-NE Winter Peak Demand by End Use for Top 25% of Homes With End Use

Source: Navigant Analysis
7.3 Percent of Homes (With End Use) with Average ISO-NE Winter Peak Demand > 0.2 kW by End Use

Source: Navigant Analysis
7.4 Percent of Population Homes with Average ISO-NE Winter Peak Demand > 0.2 kW by End Use

Source: Navigant Analysis
7.5 Distribution of Residential Winter Peak Demand by End Use for Homes With End Use

Source: Navigant Analysis

Note: data displayed as a Tukey boxplot - whiskers represent the highest/lowest datum within 1.5 * IQR

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7.6 Average Residential Winter Peak Demand by End Use for Top 25% of Homes With End Use

Source: Navigant Analysis
7.7 Percent of Homes (With End Use) with Average Residential Winter Peak Demand > 0.2 kW by End Use

Source: Navigant Analysis
7.8 Percent of Population Homes with Average Residential Winter Peak Demand > 0.2 kW by End Use
7.9 Distribution of Winter Energy Consumption by End Use for Homes With End Use

Source: Navigant Analysis

Note: data displayed as a Tukey boxplot - whiskers represent the highest/lowest datum within 1.5 * IQR
7.10 Average Winter Energy Consumption by End Use for Top 25% of Homes With End Use

Source: Navigant Analysis
8 Monthly Load Shapes by End Use Category

8.1 Monthly Weekday HVAC Load Shapes for Homes With End Use

Source: Navigant Analysis
8.2 Monthly Weekend HVAC Load Shapes for Homes With End Use

Source: Navigant Analysis
8.3 Monthly Weekday Water Heating Load Shapes for Homes With End Use

Source: Navigant Analysis
8.4 Monthly Weekend Water Heating Load Shapes for Homes With End Use

Source: Navigant Analysis
8.5 Monthly Weekday Kitchen Load Shapes for Homes With End Use

Source: Navigant Analysis
8.6 Monthly Weekend Kitchen Load Shapes for Homes With End Use

<table>
<thead>
<tr>
<th>Month</th>
<th>Dishwasher</th>
<th>Freezer</th>
<th>Secondary Refrigerator</th>
<th>Primary Refrigerator</th>
</tr>
</thead>
<tbody>
<tr>
<td>November</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>December</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>February</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Navigant Analysis
8.7 Monthly Weekday Laundry Load Shapes for Homes With End Use

Source: Navigant Analysis
8.8 Monthly Weekend Laundry Load Shapes for Homes With End Use

Source: Navigant Analysis
8.9 Monthly Weekday Miscellaneous Load Shapes for Homes With End Use

Source: Navigant Analysis
8.10 Monthly Weekend Miscellaneous Load Shapes for Homes With End Use

Source: Navigant Analysis
9 End Use Data Split by Demographic

9.1 Population ISO-NE Winter Peak Demand

9.1.1 Population Average ISO-NE Winter Peak Demand by End Use and Age

Source: Navigant Analysis
### 9.1.2 Population Average ISO-NE Winter Peak Demand by End Use and Building Type

![Bar Chart: Population Average ISO-NE Winter Peak Demand by End Use and Building Type](chart.png)

**Source:** Navigant Analysis

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9.1.3 Population Average ISO-NE Winter Peak Demand by End Use and Education Level

Source: Navigant Analysis
9.1.4 Population Average ISO-NE Winter Peak Demand by End Use and Heating Fuel

![Graph showing average demand (kW) for various end uses and heating fuels.]

Source: Navigant Analysis
### 9.1.5 Population Average ISO-NE Winter Peak Demand by End Use and Income

<table>
<thead>
<tr>
<th>End Use</th>
<th>Average Demand (kW)</th>
<th>Low Income</th>
<th>Not Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Refrigerator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Refrigerator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freezer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dishwasher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes Washer - Electric</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes Dryer - Electric</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Heater - Electric</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Heater - Heat Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehumidifier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool Pump</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Oven Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary TV</td>
<td></td>
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<td></td>
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<tr>
<td>Primary Computer</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Furnace Fan</td>
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</tr>
<tr>
<td>Boiler Distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini-Split Heat Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardwired Electric Heat</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Plug-in Electric Heat</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>HVAC - Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc Metered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remaining Load</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Navigant Analysis
9.1.6 Population Average ISO-NE Winter Peak Demand by End Use and Language

Source: Navigant Analysis
9.1.7 Population Average ISO-NE Winter Peak Demand by End Use and Number of Occupants

Source: Navigant Analysis
9.1.8 Population Average ISO-NE Winter Peak Demand by End Use and Occupancy Type

Source: Navigant Analysis
9.1.9 Population Average ISO-NE Winter Peak Demand by End Use and Program Participation

Average Demand (kW)

Source: Navigant Analysis
9.1.10 Population Average ISO-NE Winter Peak Demand by End Use and Weekday Occupancy

![Bar graph showing average demand (kW) for different end uses and weekday occupancy levels.]

Source: Navigant Analysis
9.2 ISO-NE Winter Peak Demand for Homes With End Use

9.2.1 Average ISO-NE Winter Peak HVAC Demand by End Use and Demographic for Homes With End Use

- **Age**
  - Age 20–29
  - Age 30–59
  - Age 60+

- **Education Level**
  - College Degree
  - No College Degree

- **Income**
  - Low Income
  - Not Low Income

- **Number of Occupants**
  - 1
  - 2
  - 3–4
  - 5+

- **Program Participation**
  - Non-participant
  - Participant

- **Weekday Occupancy**
  - Nobody Home On Weekdays
  - Somebody Home On Weekdays

- **Building Type**
  - Multi-family
  - Single Family Attached
  - Single Family Detached

- **Heating Fuel**
  - Electric Heat
  - Gas Heat
  - Gas Plus Electric
  - Oil Heat
  - Oil Plus Electric
  - Other Heat
  - Shared Heat

- **Language**
  - English Is Primary Language
  - English Not Primary Language

- **Occupancy Type**
  - Owner
  - Renter

Source: Navigant Analysis

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9.2.2 Average ISO-NE Winter Peak Water Heating Demand by End Use and Demographic for Homes With End Use

- **Age**
  - Age 20−29
  - Age 30−59
  - Age 60+

- **Building Type**
  - Multi-Family
  - Single Family Attached
  - Single Family Detached

- **Education Level**
  - College Degree
  - No College Degree

- **Income**
  - Low Income
  - Not Low Income

- **Number of Occupants**
  - 1−2
  - 3−4
  - 5+

- **Program Participation**
  - Non-participant
  - Participant

- **Heating Fuel**
  - Electric Heat
  - Gas Heat
  - Gas Plus Electric
  - Oil Heat
  - Oil Plus Electric
  - Other Heat
  - Shared Heat

- **Language**
  - English Is Primary Language
  - English Not Primary Language

- **Occupancy Type**
  - Owner
  - Renter

- **Weekday Occupancy**
  - Nobody Home On Weekdays
  - Somebody Home On Weekdays

Source: Navigant Analysis
9.2.3 Average ISO-NE Winter Peak Kitchen Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.2.4 Average ISO-NE Winter Peak Laundry Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.2.5 Average ISO-NE Winter Peak Miscellaneous Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.3 Population Residential Winter Peak Demand

9.3.1 Population Average Residential Winter Peak Demand by End Use and Age

Source: Navigant Analysis
9.3.2 Population Average Residential Winter Peak Demand by End Use and Building Type

Source: Navigant Analysis
9.3.3 Population Average Residential Winter Peak Demand by End Use and Education Level

Source: Navigant Analysis
9.3.5 Population Average Residential Winter Peak Demand by End Use and Income

Source: Navigant Analysis
9.3.6 Population Average Residential Winter Peak Demand by End Use and Language

Source: Navigant Analysis
### 9.3.7 Population Average Residential Winter Peak Demand by End Use and Number of Occupants

<table>
<thead>
<tr>
<th>End Use</th>
<th>1 Occupant</th>
<th>2 Occupants</th>
<th>3-4 Occupants</th>
<th>5+ Occupants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Refrigerator</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Secondary Refrigerator</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Freezer</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Dishwasher</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Clothes Washer - Electric</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Clothes Dryer - Electric</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Water Heater - Electric</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Water Heater - Heat Pump</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Water Heater - Natural Gas/Fuel Oil</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Dehumidifier</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Pool Pump</td>
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</tr>
<tr>
<td>Other Pump</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Primary TV</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Primary Computer</td>
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<td>0.0</td>
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<tr>
<td>Furnace Fan</td>
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<tr>
<td>Boiler Distribution</td>
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<td>0.0</td>
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</tr>
<tr>
<td>Mini-Split Heat Pump</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Heat Pump - Electric Heat</td>
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<td>0.0</td>
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<tr>
<td>Plug-in Electric Heat</td>
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<td>HVAC - Other</td>
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<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Mac</td>
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<td>0.0</td>
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</tr>
<tr>
<td>Remaining Load</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Source:** Navigant Analysis
9.3.8 Population Average Residential Winter Peak Demand by End Use and Occupancy Type

Source: Navigant Analysis
9.3.9 Population Average Residential Winter Peak Demand by End Use and Program Participation

Source: Navigant Analysis
9.3.10 Population Average Residential Winter Peak Demand by End Use and Weekday Occupancy

Source: Navigant Analysis
### 9.4 Residential Winter Peak Demand for Homes With End Use

#### 9.4.1 Average Residential Winter Peak HVAC Demand by End Use and Demographic for Homes With End Use

- **Age**: Age 20-29, Age 30-59, Age 60+.
- **Education Level**: College Degree, No College Degree.
- **Income**: Low Income, Not Low Income.
- **Number of Occupants**: 1, 2, 3-4, 5+.
- **Language**: English is Primary Language, English Not Primary Language.
- **Occupancy Type**: Owner, Renter.
- **Weekday Occupancy**: Nobody Home On Weekdays, Somebody Home On Weekdays.
- **Program Participation**: Non-participant, Participant.
- **Building Type**: Multi-family, Single Family Attached, Single Family Detached.
9.4.2 Average Residential Winter Peak Water Heating Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.4.3 Average Residential Winter Peak Kitchen Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.4.4 Average Residential Winter Peak Laundry Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.4.5 Average Residential Winter Peak Miscellaneous Demand by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.5 Population Winter Energy Consumption

9.5.1 Population Average Winter Energy Consumption by End Use and Age

Source: Navigant Analysis
9.5.2 Population Average Winter Energy Consumption by End Use and Building Type

Source: Navigant Analysis
9.5.3 Population Average Winter Energy Consumption by End Use and Education Level

Source: Navigant Analysis
9.5.4 Population Average Winter Energy Consumption by End Use and Heating Fuel

![Bar chart showing average energy consumption by end use and heating fuel.](chart)

Source: Navigant Analysis
9.5.5 Population Average Winter Energy Consumption by End Use and Income

Source: Navigant Analysis
9.5.6 Population Average Winter Energy Consumption by End Use and Language

Source: Navigant Analysis
9.5.7 Population Average Winter Energy Consumption by End Use and Number of Occupants

Source: Navigant Analysis
9.5.8 Population Average Winter Energy Consumption by End Use and Occupancy Type

Source: Navigant Analysis
9.5.9 Population Average Winter Energy Consumption by End Use and Program Participation

Source: Navigant Analysis
9.5.10 Population Average Winter Energy Consumption by End Use and Weekday Occupancy

[Bar chart showing average energy consumption by end use and weekday occupancy for different household appliances.]

Source: Navigant Analysis
9.6 Winter Energy Consumption for Homes With End Use

9.6.1 Average Winter HVAC Energy Consumption by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.6.2 Average Winter Water Heating Energy Consumption by End Use and Demographic for Homes With End Use

- **Age**
  - Age 20−29
  - Age 30−59
  - Age 60+

- **Education Level**
  - College Degree
  - No College Degree

- **Income**
  - Low Income
  - Not Low Income

- **Number of Occupants**
  - 1−2
  - 3−4
  - 5+

- **Program Participation**
  - Non-participant
  - Participant

- **Building Type**
  - Multi-family
  - Single Family Attached
  - Single Family Detached

- **Heating Fuel**
  - Electric Heat
  - Gas Heat
  - Gas Plus Electric
  - Oil Heat
  - Oil Plus Electric
  - Other Heat
  - Shared Heat

- **Occupancy Type**
  - Owner
  - Renter

- **Weekday Occupancy**
  - Nobody Home On Weekdays
  - Somebody Home On Weekdays

Source: Navigant Analysis
9.6.3 Average Winter Kitchen Energy Consumption by End Use and Demographic for Homes With End Use

Source: Navigant Analysis
9.6.4 Average Winter Laundry Energy Consumption by End Use and Demographic for Homes With End Use

- **Age:**
  - Age 20-29
  - Age 30-59
  - Age 60+

- **Building Type:**
  - Multi-family
  - Single Family Attached
  - Single Family Detached

- **Education Level:**
  - College Degree
  - No College Degree

- **Heating Fuel:**
  - Electric Heat
  - Gas Heat
  - Gas Plus Electric
  - Oil Heat
  - Oil Plus Electric
  - Other Heat
  - Shared Heat

- **Income:**
  - Low Income
  - Not Low Income

- **Language:**
  - English is Primary Language
  - English Not Primary Language

- **Number of Occupants:**
  - 1
  - 2
  - 3-4
  - 5+

- **Occupancy Type:**
  - Owner
  - Renter

- **Program Participation:**
  - Non-participant
  - Participant

- **Weekday Occupancy:**
  - Nobody Home On Weekdays
  - Somebody Home On Weekdays

Source: Navigant Analysis
9.6.5 Average Winter Miscellaneous Energy Consumption by End Use and Demographic for Homes With End Use

- **Age**: Age 20-29, Age 30-59, Age 60+

- **Education Level**: College Degree, No College Degree

- **Income**: Low Income, Not Low Income

- **Number of Occupants**: 1, 2, 3-4, 5+

- **Occupancy Type**: Owner, Renter

- **Program Participation**: Non-participant, Participant

- **Weekday Occupancy**: Nobody Home On Weekdays, Somebody Home On Weekdays

- **Building Type**: Multi-family, Single Family Attached, Single Family Detached

- **Heating Fuel**: Electric Heat, Gas Heat, Gas Plus Electric, Oil Heat, Oil Plus Electric, Other Heat, Shared Heat

- **Language**: English Is Primary Language, English Not Primary Language

Source: Navigant Analysis

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9.7 Winter Peak Day Load Shapes

9.7.1 Population Winter Peak Day Load Shape by End Use Category and Age

Source: Navigant Analysis
9.7.2 Population Winter Peak Day Load Shape by End Use Category and Building Type

Source: Navigant Analysis
9.7.3 Population Winter Peak Day Load Shape by End Use Category and Education Level

Source: Navigant Analysis
9.7.4 Population Winter Peak Day Load Shape by End Use Category and Heating Fuel

Source: Navigant Analysis
9.7.5 Population Winter Peak Day Load Shape by End Use Category and Income

Source: Navigant Analysis
9.7.6 Population Winter Peak Day Load Shape by End Use Category and Language

Source: Navigant Analysis
9.7.7 Population Winter Peak Day Load Shape by End Use Category and Number of Occupants

Source: Navigant Analysis
9.7.8 Population Winter Peak Day Load Shape by End Use Category and Occupancy Type

Hour of Day
Average Demand (kW)

Remaining Load
HVAC
Miscellaneous
Water Heating
Laundry
Kitchen

ISO–NE Peak
Expanded Peak

Owner
Renter

Source: Navigant Analysis
9.7.9 Population Winter Peak Day Load Shape by End Use Category and Program Participation

Source: Navigant Analysis
9.7.10 Population Winter Peak Day Load Shape by End Use Category and Weekday Occupancy

Source: Navigant Analysis