VOL. 1

New York State

Commercial Baseline Study

NEW YORK STATE OF OPPORTUNITY. | NYSERDA

Final Report

PREPARED FOR:

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY
Albany, New York

TRACEY DESIMONE
Project Manager

PATRICIA GONZALES
Senior Project Manager

PREPARED BY:

OPINION DYNAMICS
Waltham, Massachusetts

NYSERDA Contract 43672

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SECTION 1
Study Overview

Study Overview

This report presents the comprehensive baseline results of New York State Commercial Baseline Study. The New York State Energy Research and Development Authority (NYSERDA), in collaboration with the E2 Working Group Statewide Study Subcommittee led by the New York State Department of Public Service (DPS), contracted Opinion Dynamics and its subcontractors ICF and Optimal Energy – collectively referred to as the "Study Team" – to conduct a commercial statewide baseline study across a broad range of customer segments and energy measures.

The focus of the New York Commercial Baseline Study is the non-residential commercial sector. Not included in the study are industrial and agricultural businesses, defined by their rate code or the primary use of their space. The study does include the commercial portion of businesses that generally fall in an industrial business segment (e.g., the building that houses the accounting and marketing departments of a manufacturing company). The study also includes limited research on master-metered multifamily buildings but excludes individually metered multifamily units.

Including this report, the Commercial Baseline Study has three main components, divided into six volumes:

COMMERCIAL BASELINE (VOLUME 1): This report consists of a comprehensive statewide baseline study of the existing commercial market across a broad range of customer segments and energy measures. The overall objective of the research was to understand the existing commercial building stock and associated energy use, including the penetration and saturation of energy consuming equipment (electric, natural gas, and other fuels), equipment and building characteristics, energy management practices, and occupancy and firmographic information.

COMMERCIAL POTENTIAL STUDY (VOLUME 2): Based on the primary data collected in the baseline research, the Study Team assessed the energy efficiency potential in New York State from the commercial buildings sector. This volume presents estimates of potential over the next ten years for a variety of technical, economic, and achievable scenarios.

MARKET ASSESSMENTS (VOLUMES 3-6): The New York Commercial Baseline Study also included four market assessment reports that focus on specific technology or service markets of interest to NYSERDA: (3) heating ventilation and air conditioning (HVAC); (4) energy management systems (EMS); (5) customer decision making (CDM); and (6) energy service companies (ESCOs). These market assessments provide insights into the selected markets, supplementing information collected in the commercial baseline study, and help support future market transformation/market effects evaluation studies.

Each volume contains a separate appendix with additional, more detailed information. Collectively, the information provided in the six volumes and six associated appendices will be used by NYSERDA, the DPS, New York program administrators, and other private and public stakeholders to help inform program planning, evaluations, and market knowledge and transformation.

Methodology

The baseline results presented in this volume are based on extensive primary data collection that included a telephone/web survey and on-site audits.

The sampling and analysis unit for this study was the business, which is defined as a unique company or organization at a unique location. A business may consist of:

- a single stand-alone building,
- a portion of a building (i.e., more than one business share a single building), or
- multiple buildings or parts of buildings.

The remainder of this section provides a high-level overview of the study methodology. Additional details are provided in Appendix 1A.

Study Population

The population of this study consisted of 367,223 electric service customers in the 31 segments defined for this study. This population was developed from account-level customer information, provided by the individual participating utilities, which was then aggregated to the business level. As is often the case with utility customer data, large shares of the customer data used for this study lacked a business segment classification or were not classified correctly. To correct for this, the Study Team adjusted the initial business segment classifications following the primary data collection efforts based on self-reported data.

The businesses included in the study population account for 71% of total electric accounts and 88% of total electric usage in the commercial sector.[1] The study population does not include (1) the Multifamily[2] segment (19% of accounts and 3% of annual kWh), (2) the miscellaneous "Other Commercial" segments (5% of accounts and 4% of annual kWh), and (3) out-of-scope segments, such as businesses in industrial and agriculture segments with commercial rate codes (accounting for 5% of accounts and 4% of annual kWh).

[1] These percentages are based on the total commercial accounts and usage of the seven investor-owned utilities participating in the study and does not include municipal utilities.
[2] NYSERDA originally identified master-metered multifamily buildings as a study segment of interest. However, data collection for this segment was discontinued due to extremely low incidence and response rate.

Segmentation

The goal of the study was to meet a sampling precision threshold of 90% confidence with a relative precision of 10% for key data points and study segments. The Study Team developed a segmentation strategy by business segment, electric usage category, and geographic region. Overall, this approach resulted in 31 study segments, defined by combinations of eight business segments, two electric usage categories, and three geographic regions. The 367,223 businesses break out by these three dimensions as follows:

BUSINESS SEGMENT

- Businesses in the Office/Government segment account for 35% of businesses and electric usage.
- Retail businesses make up more than one quarter (26%) of businesses but only 13% of electric usage.
- The education segment accounts for only 5% of businesses but is relatively energy-intensive, making up 12% of electric usage.

Segment	Share of Businesses	Share of Electric Usage
Office	35%	35%
Retail	26%	13%
Food Service	11%	9%
Health Services/ Hospitals	9%	10%
Warehouse	7%	9%
Education	5%	12%
Grocery	4%	7%
Lodging/ Hospitality	3%	4%

CUSTOMER USAGE CATEGORY

- Electricity usage in commercial sector is heterogeneous: 83% of commercial businesses in New York account for only 13% of overall electric usage.
- Segmentation by size ensures sufficient representation of medium/large businesses.

		Share of Businesses	Share of Electric Usage
Usage Category	Less Than 75 MWh	81%	13%
	75 MWh and Greater	19%	87%

GEOGRAPHIC REGION

- Three geographic regions reflect differences in building stock and climate.
- Study regions align with the service territories of the seven New York investor-owned utilities (IOU):
  - Downstate: Consolidated Edison
  - Long Island/Hudson Valley: PSEG Long Island, Central Hudson, Orange & Rockland
  - Upstate: National Grid, New York State Electric and Gas Corporation (NYSEG), Rochester Gas & Electric (RG&E)

		Share of Businesses	Share of Electric Usage
Region	Upstate	31%	32%
	Long Island/ Hudson Valley	27%	21%
	Downstate	42%	47%

Sample Design

The Study Team targeted 150 phone/web survey completes and 30 on-site visits for most sampling strata, to maximize the opportunity to meet the 90/10 confidence/precision threshold for key data points. For some strata, the population could not support 150 completed interviews, and the Study Team tried to contact all customers with available contact information (i.e., a census attempt).

Phone / Web Surveys

3,882 Businesses

TOPIC AREAS:
- High-level penetration of energy-using equipment
- Information about customers' energy-related decision-making
- Information on business and occupancy characteristics

FIELDING TIMELINE:
- May to December 2018

SURVEY COMPLETES/RESPONSE RATE:
- 3,882 completes[3] / 3.3%

Region / Usage Category / Segment	Upstate		Long Island/ Hudson Valley		Downstate		Totals	
	Less Than 75 MWh	75 MWh and Greater	Less Than 75 MWh	75 MWh and Greater	Less Than 75 MWh	75 MWh and Greater	Less Than 75 MWh	75 MWh and Greater
Office	187	113	152	101	173	78	512	292
Retail	262	88	176	69	186	59	624	216
Food Service	180	119	104	94	80	104	364	317
Warehouse	240						240	
Grocery	75 *(Less Than 75 MWh)*	103 *(75 MWh and Greater)*			74	71	149	174
Health Services/ Hospitals	220				198		418	
Education	168 *(Less Than 75 MWh)*	112 *(75 MWh and Greater)*			74	40	242	152
Lodging/ Hospitality	159				23		182	
Total	**2,026**		**696**		**1,160**		**3,882**	

[3] Includes 436 responses from a prior study and temporary sample frames; excludes 76 out of scope completes.

On-Site Visits

826 Businesses

INFORMATION COLLECTED:
- Detailed information on penetration and saturation of energy-using equipment
- Equipment and building/space characteristics
- Energy management characteristics

FIELDING TIMELINE:
- July 2018 to January 2019

COMPLETED ON-SITE VISITS:
- 826[4]

Region / Usage Category / Segment	Upstate		Long Island/ Hudson Valley		Downstate		Totals	
	Less Than 75 MWh	75 MWh and Greater	Less Than 75 MWh	75 MWh and Greater	Less Than 75 MWh	75 MWh and Greater	Less Than 75 MWh	75 MWh and Greater
Office	42	33	26	21	26	15	94	69
Retail	51	24	40	12	28	12	119	48
Food Service	42	32	22	15	14	23	78	70
Warehouse	42						42	
Grocery	18	32			18	11	36	43
Health Services/ Hospitals	47				25	25	72	
Education	52	30			17	6	69	36
Lodging/ Hospitality	44				6	6	50	
Total	489		136		201		826	

Study Limitations

- To meet privacy concerns of the IOUs, the customer data provided consisted of two parts: (1) anonymized account data, including electric usage (kWh and kW) and business segment information (i.e., NAICS or SIC codes); and (2) customer information, including business name and address. Most utilities provided the customer information separately, after the sampling dimensions were established, and only identified the business' assigned study stratum to preserve customer anonymity. As a result, the Study Team was unable to link usage information to specific customers, which led to several shortcomings:
    - It may have resulted in underestimating the annual electric usage of some businesses with multiple accounts that could not be linked. As a result, this study may have misclassified some businesses in the medium/large usage category as small.
    - It prevented linking electric and gas usage, meaning that all segmentation was done based on electric usage, potentially misrepresenting large gas customers.
    - It prevented analysis that would have correlated usage data to survey responses.
    - It prevented additional analyses that were originally under consideration, e.g., energy modeling that would have augmented operational and behavioral information obtained through the survey and site work.

- Despite large sample sizes, some data points do not meet the targeted 90/10 precision, due to low incidence in the population and large variation in responses (e.g., lighting saturation).
- The initial scope of the study included a master-metered multifamily segment. Data collection for this segment was discontinued due to extremely low incidence and response rate. Limited findings for this segments are provided in a separate section in this study.
- Where possible, the Study Team used multiple survey modes but was limited to available data and customer outreach preferences of each utility.
- The Study Team relied on third party databases (e.g., InfoGroup) to look up phone numbers. This may have resulted in higher instances of wrong numbers and potentially fewer completed interviews than if utility customer information had been available.

SECTION 2
Population Summary

Population Summary

Information about the study population – such as business counts and energy usage, by subgroups – is a critical component of any baseline and potential study. It is needed to develop sample frames and weights for primary data collection efforts, to estimate applicable markets, and to calibrate potential estimates.

The population for the NYSERDA Commercial Baseline Study is defined in terms of businesses, which are unique businesses at a unique location. Note that the number of businesses in New York is greater than the number of buildings as a building may include more than one business. The study population was developed from anonymized account-level commercial customer information, provided by the individual participating utilities, which was then aggregated to the business level (see Appendix 1A for more detailed information). For sampling purposes, the population was segmented across three dimensions: geographic region, business segment, and electric usage category. Following the primary data collection efforts, the Study Team adjusted the initial business segment classifications based on self-reported data in the general population survey. This adjustment corrects for business segments that were misclassified or missing in the utility data.

Table 1 Number of Businesses by Region, Segment, and Usage Category

Region / Usage Category	Upstate Medium/Large (≥75 MWh/Year)	Upstate Small (<75 MWh/Year)	Long Island/Hudson Valley Medium/Large (≥75 MWh/Year)	Long Island/Hudson Valley Small (<75 MWh/Year)	Downstate Medium/Large (≥75 MWh/Year)	Downstate Small (<75 MWh/Year)	Total
Office	29,943	4,479	32,505	4,362	48,654	7,103	127,046
Retail	25,870	3,541	22,950	3,244	35,516	3,848	94,969
Food Service	8,105	4,173	5,391	4,052	9,502	8,122	39,345
Grocery	5,714	2,196	6,518	1,576	7,660	1,863	25,527
Health Services/Hospitals	1,425	2,327	1,845	1,960	4,806	3,979	16,342
Education	6,569	1,302	6,982	859	15,479	2,159	33,350
Lodging/Hospitality	5,918	1,918	3,218	1,825	3,582	2,080	18,541
Warehouse	7,780	1,217	1,708	593	223	582	12,103
Total	91,324	21,153	81,117	18,471	125,422	29,736	367,223

SECTION 3

Key Results

Key Results

A principal purpose of this study was to determine the penetration and saturation of key energy-using equipment in New York State commercial businesses. These two concepts are defined as follows:

PENETRATION: A percentage representing the proportion of businesses that have one or more of a particular piece of equipment (e.g., linear LED fixtures). It is calculated by dividing the number of businesses with one or more of a piece of equipment by the total number of customers responding to that question. For example, businesses in the retail segment have a linear LED penetration rate of 44%, meaning that 44% of businesses in this segment have at least one fixture with linear LEDs.

SATURATION: A number representing how many of a particular piece of equipment (e.g., linear LED fixtures) are present, on average, among all businesses. It is calculated by dividing the total number of a particular piece of equipment by the total number of businesses responding to that question (including businesses that do not have the equipment). For example, the saturation of linear LED fixtures among businesses in the retail segment is 22.6, meaning that on average there are 22.6 linear LED fixtures in each retail business.[1]

The table on the next page presents key equipment penetration and saturation data collected in the baseline study. In some cases, the table does not include the saturation value because it is not applicable at the level shown (such as for heating fuel type). These cells are shaded instead.

Later sections provide more detailed discussion of the penetration and saturation results for individual end uses as well as key equipment characteristics. Additionally, more detailed penetration and saturation tables for each end use are presented in Section 19.

[1] It should be noted that for lighting measures, socket saturation is a common metric. Socket saturation refers to the percentage of sockets that contain a particular type of lamp and is different from saturation as used in this report.

Table 1 | Key Penetration and Saturation Results

Equipment Type	Penetration	Saturation
Lighting		
Interior Lighting	100%	94.5
Linear Lighting	88%	62.5
Linear Fluorescent	72%	40.4
T5 Linear Fluorescent	0%	0.0
T5HO Linear Fluorescent	2%	0.9
T8 Linear Fluorescent	60%	33.2
T10 Linear Fluorescent	<1%	<0.1
T12 Linear Fluorescent	34%	4.2
Linear LED	40%	22.1
General Service Non-Linear Lighting	87%	31.5
LED	54%	16.6
Incandescent	47%	5.2
CFL	42%	7.7
Halogen	14%	2.0
HID Lighting	4%	0.3
Other Lighting	9%	0.3
Exterior Lighting	54%	6.2
Cooling		
Central Cooling	68%	
Package System	29%	0.8
Package System Air Conditioner	28%	0.7
Package System Heat Pump	2%	0.1
Split System	36%	0.9
Split System Air Conditioner	26%	0.6
Split System Heat Pump	12%	0.3
Chiller	5%	<0.1
Room Air Conditioner	29%	1.2
Any Heat Pump	14%	0.5
Split System Heat Pump	12%	0.3
Package System Heat Pump	2%	0.1
Window or Wall Unit Heat Pump	2%	0.1
Ductless Mini-split Heat Pump	<1%	<0.1

Equipment Type	Penetration	Saturation
Refrigeration		
Commercial Refrigeration	27%	
Commercial Cases	25%	1.7
Non-Display Case Coolers	23%	1.0
Display Case Coolers	7%	0.2
Non-Display Case Freezers	16%	0.4
Display Case Freezers	3%	0.1
Commercial Refrigerated Walk-Ins	16%	0.3
Walk-In Coolers	15%	0.2
Walk-In Freezers	7%	0.1
Ice Machines	13%	0.2
Refrigerated Vending Machines	8%	0.1
Residential-Style Refrigerators	59%	1.6
Heating		
Natural Gas Heat	59%	
Electric Heat	28%	
Oil Heat	17%	
Propane Heat	5%	
District Steam Heat	3%	
Wood Heat	1%	
Other Heating Fuel Heat	1%	
No Heating	3%	
Natural Gas Boiler	21%	0.3
Natural Gas Furnace	35%	0.7
Natural Gas Infrared Heater	1%	<0.1
Natural Gas Other Heater	<1%	<0.1
Natural Gas Unit Heater	12%	0.3
Oil Boiler	9%	0.1
Oil Furnace	7%	0.1
Oil Other Heater	<1%	<0.1

Equipment Type	Penetration	Saturation
HVAC Controls[1]		
Any Cooling	91%	9,570
Cooling - Manual On/Off	15%	7%
Cooling - Manual Thermostat	25%	13%
Cooling - Programmable Thermostat	47%	46%
Cooling - Smart/Wifi Thermostat	4%	2%
Cooling - Energy Management System (EMS)	2%	31%
Cooling - Other	1%	<1%
Any Heating	91%	11,291
Heating - Manual On/Off	8%	6%
Heating - Manual Thermostat	35%	23%
Heating - Programmable Thermostat	48%	39%
Heating - Smart/Wifi Thermostat	4%	2%
Heating - Energy Management System (EMS)	2%	29%
Heating - Other	1%	1%
Ventilation		
Demand Controlled Ventilation	9%	
Water Heating		
Water Heating	81%	
Natural Gas Water Heating	45%	
Electric Water Heating	41%	
Propane Water Heating	4%	
Fuel Oil Water Heating	3%	
Solar Water Heating	<1%	
District Steam Water Heating	<1%	
Storage With Dedicated Heater	67%	0.9
Tankless Water Heater	9%	0.1
Indirect Storage Water Heater	4%	0.1
Heat Pump Water Heater	2%	<0.1
Other Water Heater Type	4%	<0.1
Faucet	85%	5.9
Irrigation Nozzle	1%	<0.1
Showerhead	9%	0.1
Spray Nozzle	6%	0.1
Commercial Kitchen		
Cooking Equipment	19%	
Electric Cooking Equipment	11%	
Gas Cooking Equipment	13%	
Propane Cooking Equipment	3%	

Equipment Type	Penetration	Saturation
Other Fuel Cooking Equipment	<1%	
Oven	19%	0.5
Conventional Oven	9%	0.2
Combination Oven	7%	0.1
Convection Oven	5%	0.2
Conveyor Oven	1%	<0.1
Rack Oven	1%	<0.1
Rotisserie Oven	<1%	<0.1
Griddle	7%	0.1
Holding Cabinet	4%	0.1
Steam Cooker	2%	<0.1
Commercial Fryer	9%	0.2
Broiler	2%	<0.1
Dishwasher	8%	0.1
Office Equipment		
Computers (Excluding Servers)	89%	10.4
On-Site Computer Servers	7%	0.7
Point-of-Sale or Cash Register Equipment	31%	0.5
Printers or Copiers or Imaging Equipment	71%	2.6
Televisions	54%	2.1
Commissioning		
Building Commissioned	7%	
Building Retro Commissioned	2%	
Energy Management System		
Energy Management System	3%	
Compressed Air		
Compressed Air	12%	0.2
Adjustable Speed Drives	2%	*
Motors		
Motors	7%	0.4
Adjustable Speed Drives[2]	1%	10%
On-Site Generation		
On-Site Generation	9%	
Emergency or Backup Energy Generation	6%	
Cogeneration	<1%	
Renewable Energy Generation	2%	
Solar Photovoltaics	2%	
Biomass	<1%	
Wind Turbines	<1%	
Electric Vehicle		
Electric Vehicle Charging Stations	1%	<0.1

Equipment Type	Penetration	Saturation
Building Envelope		
Building Windows	100%	
Double Pane	3%	
Single Pane	31%	
Other	65%	
Floor Insulation	16%	
Roof Insulation	76%	
Wall Insulation	66%	
Basement or crawlspace	52%	
Building Characteristics		
Mean Number of Stories of Building		3.0
Mean Number of Stories of Tenant Space		1.6
Mean % of the Building Occupied by Customer Site		62%
Mean Businesses Operate in New York		7.8
Mean Square Feet Paid by the Utility Bills		12,705
Mean Year Business Built		1949
Mean Year of Last Full Renovation		2001

Equipment Type	Penetration	Saturation
Business Built Year Range: Before 1900	10%	
Business Built Year Range: Between 1900 and 1949	37%	
Business Built Year Range: Between 1950 and 1969	19%	
Business Built Year Range: Between 1970 and 1989	20%	
Business Built Year Range: Between 1990 and 2009	11%	
Business Built Year Range: Between 2010 and 2016	4%	
Full and Part Time Employees: 0 Employees (Rental)	1%	
Full and Part Time Employees: 1-4 Employees	45%	
Full and Part Time Employees: 10-24 Employees	18%	
Full and Part Time Employees: 100-249 Employees	2%	
Full and Part Time Employees: 25-49 Employees	8%	
Full and Part Time Employees: 250-499 Employees	1%	
Full and Part Time Employees: 5-9 Employees	23%	
Full and Part Time Employees: 50-99 Employees	3%	
Full and Part Time Employees: 500-999 Employees	<1%	
Full and Part Time Employees: 1,000 or More Employees	0%	

[1] Saturations for Any Cooling or Any Heating are presented as the mean cooled or heated square footage. Saturations for other metrics are presented as the percent of total cooled or heated square footage.   [2] Percent of motors with adjustable speed drives   * Results do not meet significance criteria

SECTION 4
Business Characteristics

Business Characteristics
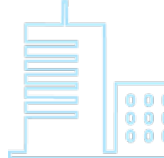
Business characteristics – such as size, space types, age, and operating hours – are an important driver of a business's energy use and the equipment within it. As such, understanding the characteristics of New York commercial businesses provides useful context to the equipment-related results presented elsewhere in this report.

Business Fuel Type

- Commercial businesses in New York have an average area of 12,700 square feet (SF).
- Businesses that use electricity as their primary heating fuel are smaller on average (mean of 8,000 SF) while businesses that use natural gas as their primary heating fuel are larger (mean of 14,400 SF). This is likely tied to the relatively high penetration of electric heat in the Downstate region (33%) compared to the Upstate and Long Island/Hudson Valley regions (23% and 28%, respectively).

Average Business Size (SF) Statewide and by Fuel Type

12,700 SF
Overall

14,400 SF
Natural Gas

8,000 SF
Electricity

9,900 SF
Fuel Oil

Business size is rounded to the nearest 100 square feet.

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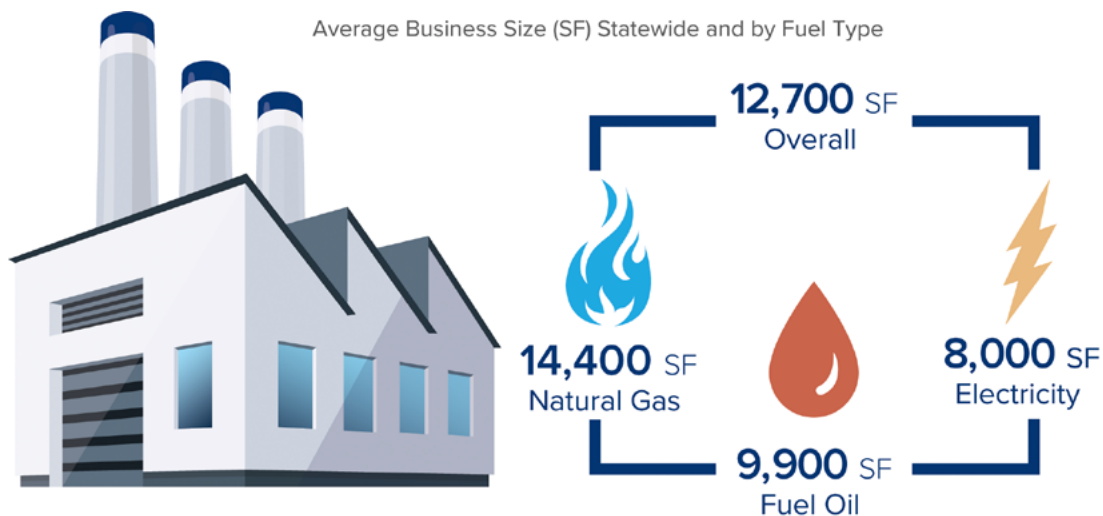
Business Size

- Businesses in the Upstate region tend to be larger (mean of 15,500 SF) while those in the Downstate region tend to be smaller (mean of 9,900 SF).
- Businesses in the education, lodging/hospitality, and warehouse segments are among the largest in New York, while food service and grocery businesses tend to be the smallest.

	Square Feet
Statewide	12,700
Region	
Upstate	15,500
Long Island/ Hudson Valley	13,800
Downstate	9,900
Usage Category	
Medium/Large (≥75 MWh/Year)	40,900
Small (<75 MWh/Year)	6,200
Segment	
Education	44,600
Lodging/ Hospitality	37,600
Warehouse	28,200
Health Services/ Hospitals	16,300
Office	8,700
Retail	8,600
Grocery	5,800
Food Service	3,500
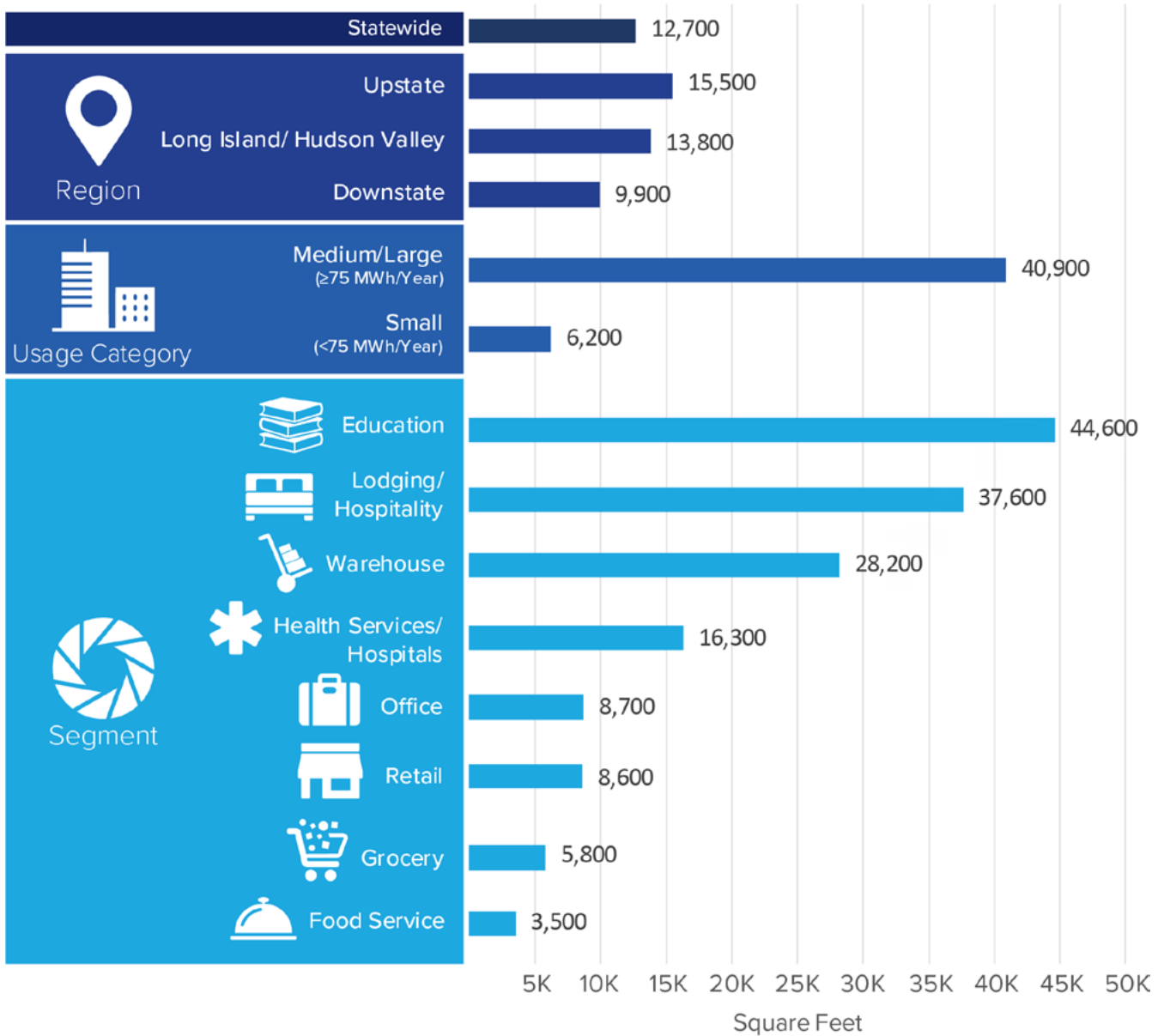
Business size is rounded to the nearest 100 square feet.

Other Key Findings

- On average, commercial businesses account for 62% of their buildings' total square footage. This varies by region, with Downstate businesses making up the smallest share (44%) and Upstate businesses making up the largest share (82%) of the total building area.
- On average, New York commercial buildings have 3.0 floors. This varies from 4.8 in the Downstate region to 1.7 and 1.6 in the Upstate and Long Island/Hudson Valley regions, respectively.

Business Ownership and Occupancy

Ownership

- Statewide, just under half of New York commercial businesses (43%) are occupied by their owner.
- Owner occupancy is most common in the Upstate region (70% of businesses) and lowest in the Downstate region (27%).

	Owner or Partial Owner	Lease or Rent
Statewide	43%	57%
Upstate	70%	30%
Long Island/ Hudson Valley	38%	62%
Downstate	27%	73%
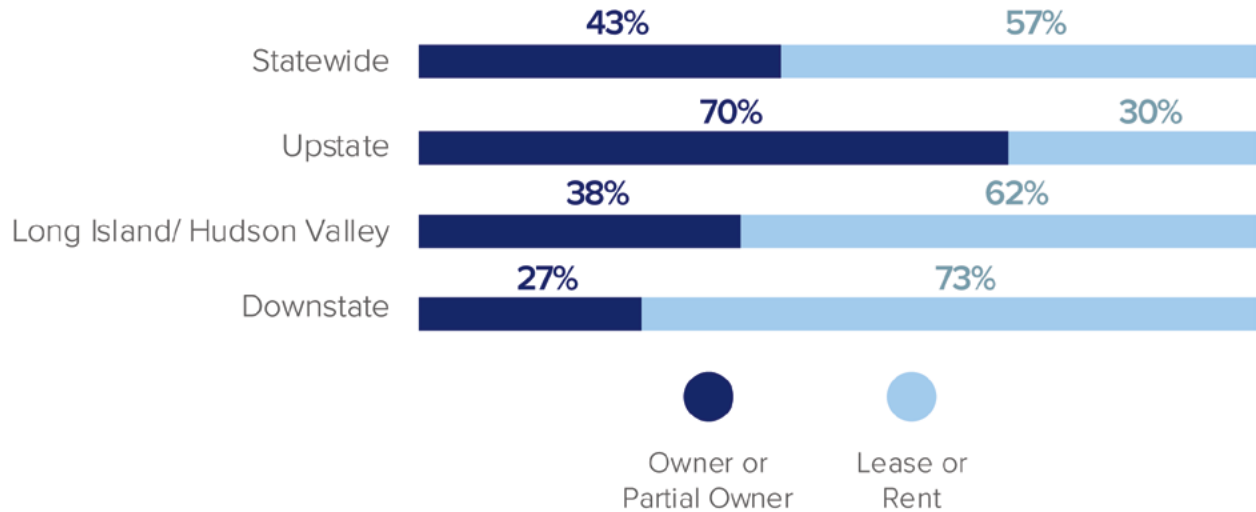
Occupancy

- Statewide, just under half of businesses (47%) occupy their entire building.
- Over two-thirds of businesses in the Upstate region (70%) are stand-alone buildings, compared to only 27% in the Downstate region.

Business Occupies Entire Building

Statewide	Upstate	Long Island/ Hudson Valley	Downstate
47%	70%	51%	27%
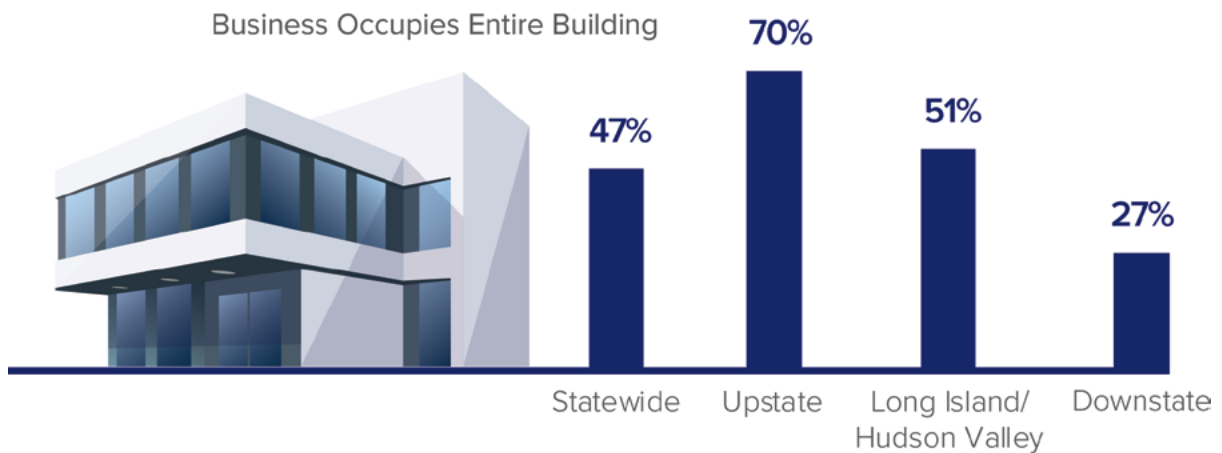
Energy Use Intensity

Energy use intensity (EUI) is a key metric used to convey a business' energy use as a function of its size. It is calculated by dividing the business' energy use by its square footage and allows for a more meaningful comparison energy usage across businesses of different sizes.

A lower EUI for comparable sites indicates better energy performance. However, some segments typically are more energy intensive than others due to the equipment common in those types of businesses.

- On average, New York commercial businesses have an electric EUI of 15.9 kWh/SF.

- The Grocery and Food Service segments have the highest electric EUI of all segments, representing more than twice the mean EUI. This high EUI is driven by the high penetration of refrigeration in these segments.

Electric Energy Use Intensity (kWh/SF)

Segment	kWh/SF
Grocery	37.0
Food Service	36.5
Office/Gov't	13.8
Health Services/Hospitals	13.0
Retail	12.7
Lodging/Hospitality	8.2
Education	7.1
Warehouse	5.7

Mean 15.9
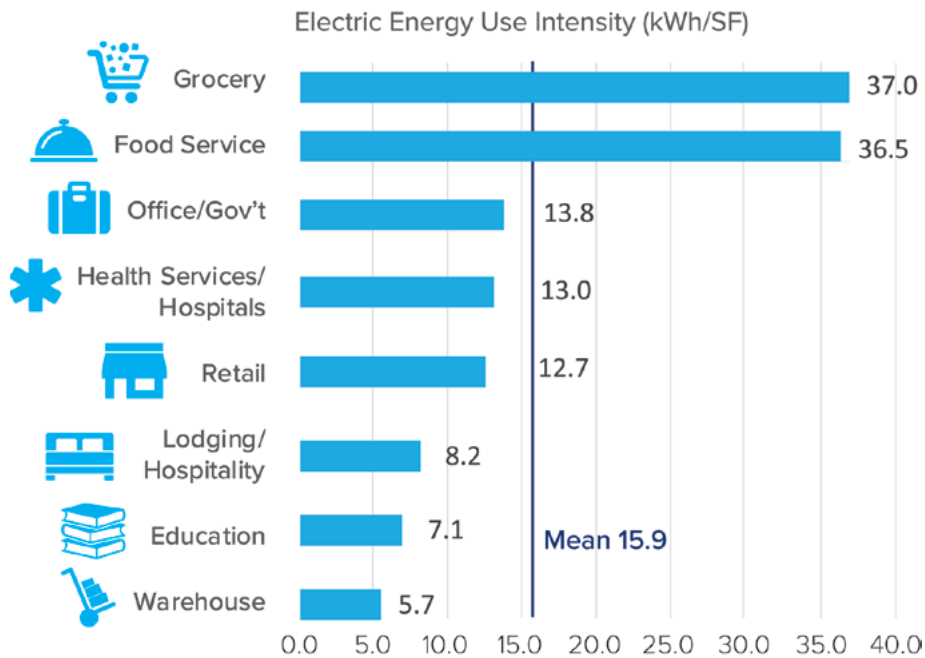
Commercial Space Types

- Office space makes up the largest share of commercial space in New York (27% of total commercial square footage) followed by conference/class rooms (15%), warehouse space (12%), and retail sales areas (10%).

Space Type	%
Office	27%
Conference Room Or Classroom	15%
Warehouse	12%
Retail Sales Area	10%
Guest/Patient/Dorm Rooms	5%
Hallway/Corridor/Stairwell	5%
Other General Storage	5%
Dining Area	3%
Other	18%
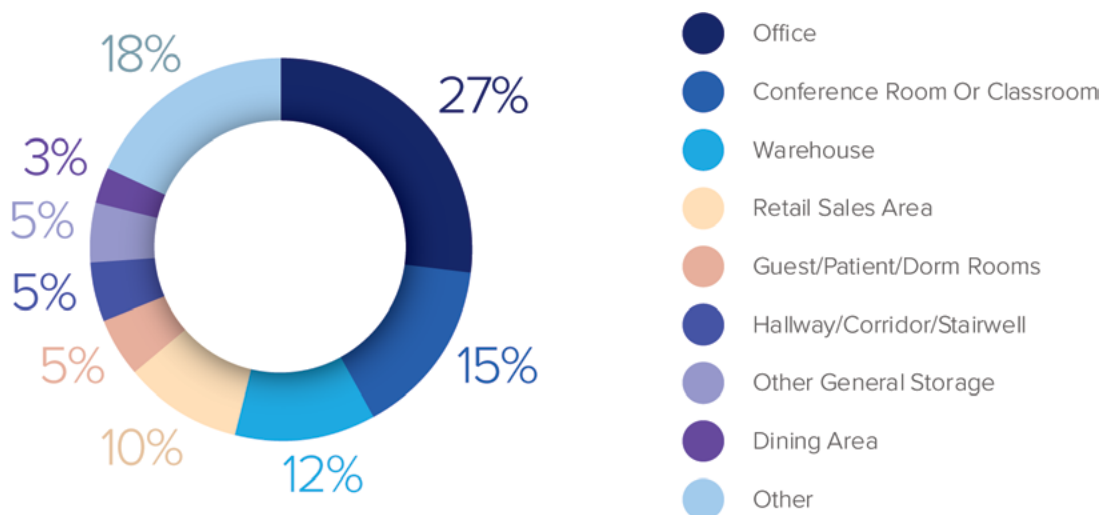
All "other" space types individually account for 2% or less of total commercial square footage

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Business Age

- Almost half of all commercial businesses in New York (47%) were built prior to 1950.
- Over one-quarter of commercial businesses (28%) have been renovated after 2015.

Year of Construction

10%
4%
11%
20%
37%
19%

Mean Year of Construction: 1949

- Before 1900
- Between 1900 and 1949
- Between 1950 and 1969
- Between 1970 and 1989
- Between 1990 and 2009
- Between 2010 and 2016

Year of Last Full Renovation

1% 5%
19%
28%
21%
26%

Mean Year of Renovation: 2001

- Before 1980
- Between 1980 and 1999
- Between 2000 and 2009
- Between 2010 and 2015
- After 2015
- Never
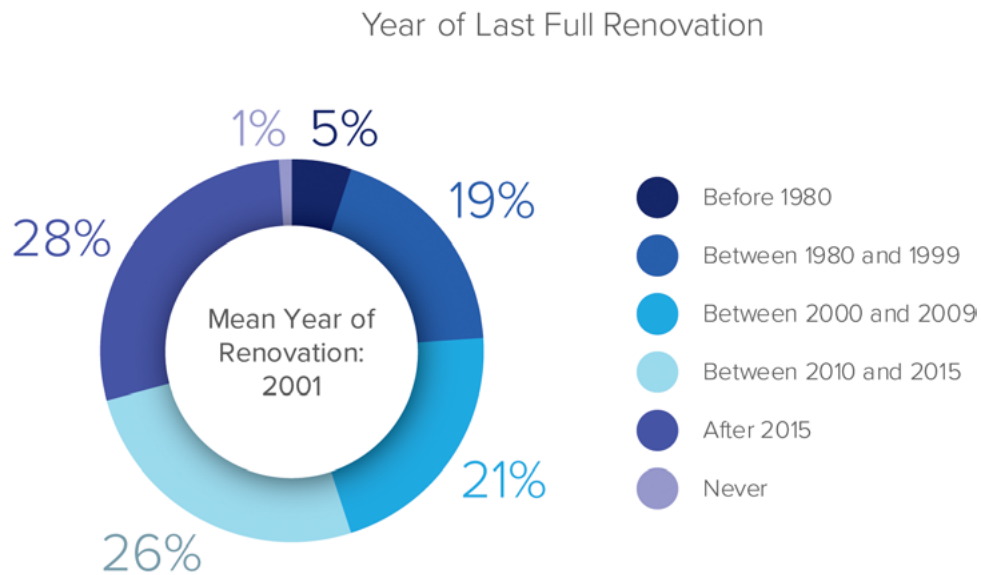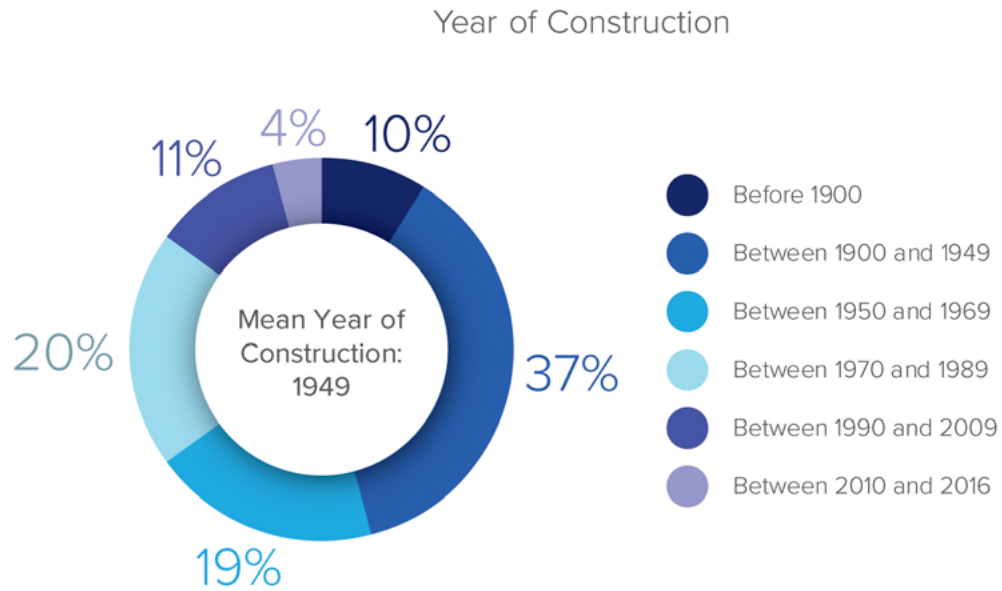
Note that this study excludes businesses built in 2017 or later.

Other Key Findings

- On average, New York State commercial businesses have 21.6 full-time employees.
- The mean employee count in the Downstate and Long Island/Hudson Valley regions (25.7 and 23.6, respectively) are both significantly larger compared to the Upstate region (13.5).

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Maintenance

- Businesses have different maintenance approaches: preventative, scheduled, or reactive. These approaches may vary for different end uses.

- Commercial buildings in New York primarily rely on reactive maintenance for HVAC equipment (66%) with scheduled maintenance (18%) and preventative maintenance (16%) being less common.

- Virtually all businesses (96%) rely on reactive maintenance for their lighting systems, replacing bulbs on burnout.

16%   18%

HVAC

66%

1% 3%

Lighting

96%

- Preventative
- Reactive
- Scheduled
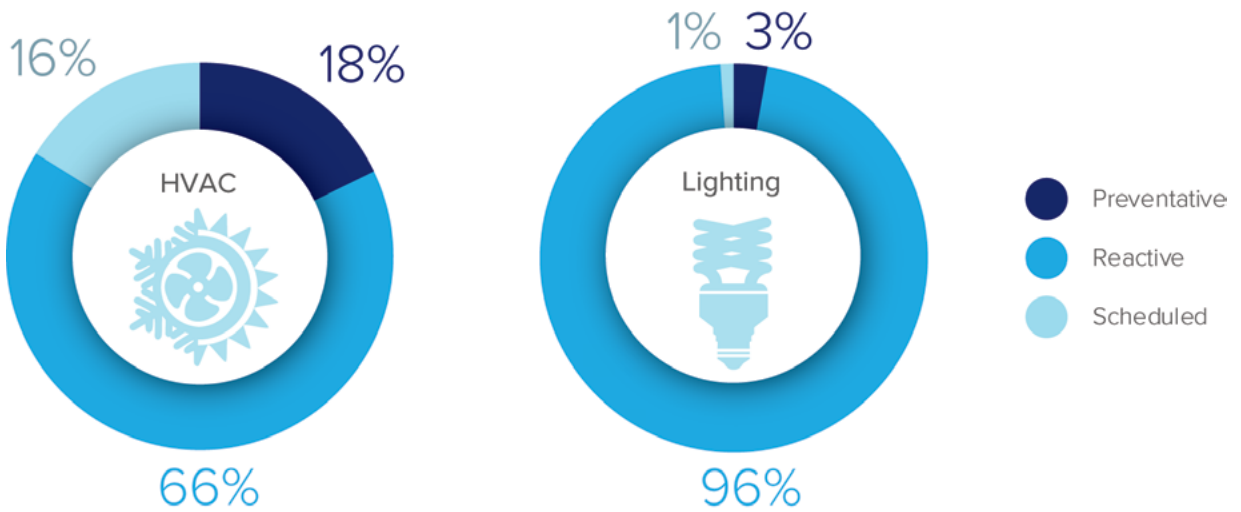
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Other Key Findings

COMMISSIONING

- Statewide, only 7% of commercial businesses were commissioned when they were built, and 2% have been retro-commissioned.

- By segment, the penetration of commissioned buildings is highest in the warehouse segment (13% of businesses).

SECTION 5

Lighting

Lighting

Lighting is ubiquitous in commercial buildings in New York State. It also is the single largest electric end use, accounting for an estimated 17% of electric consumption in commercial businesses nationwide.[1] Common commercial lighting applications include indoor ambient, task, and decorative lighting as well as exterior area, parking garage, and sign lighting.[2] While commercial lighting technologies are diverse, they can be grouped into four broad categories based on their form factor and use: linear lighting, general service lighting, high intensity discharge (HID), and other lighting.

Over the past decade, changes in technology and increasingly strict codes and standards have led to the introduction and proliferation of more efficient lighting types, most notably LEDs. Businesses are increasingly replacing existing lamps with LED options, both linear and non-linear. LEDs provide a higher efficacy (lumens, or light output per watt) and have a longer rated life than other lighting options. In addition, the cost of LEDs has decreased substantially in recent years as the technology has grown in popularity.

LINEAR LIGHTING:
The primary overhead lighting technology in commercial spaces. Common types are linear fluorescent and linear LEDs.

GENERAL SERVICE LIGHTING:
Non-linear technologies similar to those found in residential spaces. Common types, from least to most efficient, are incandescent, halogen, CFL, and LED lamps.

HID LIGHTING:
A type of non-linear lighting commonly found in large spaces and exterior applications. Common types are mercury vapor, metal halide, and high-pressure sodium bulbs.

OTHER LIGHTING:
Less common bulb types not included in the other categories. Examples include neon lights, lasers, and germicidal lights.
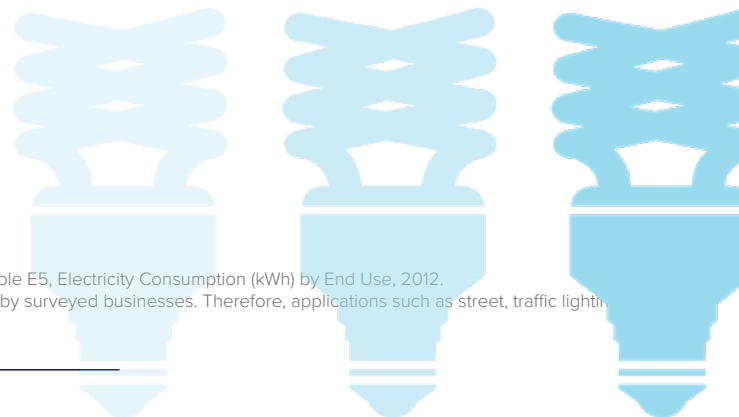
Interior Lighting Penetration

- All New York commercial businesses surveyed for this study have interior lighting.
- Almost equal shares of businesses have interior linear and general service lighting.
- Linear fluorescent lighting is the most common type of interior lighting (72% of businesses). 40% of commercial businesses have linear LEDs.
- 54% of businesses have general service LEDs. 47% of businesses still have one or more incandescent lights.

Category	Percentage
Interior Lighting	100%
Linear Lighting	88%
Linear Fluorescent	72%
Linear LED	40%
General Service Lighting	87%
Non-Linear LED	54%
Incandescent	47%
CFL	42%
Halogen	14%
HID Lighting	5%
Other Lighting	9%
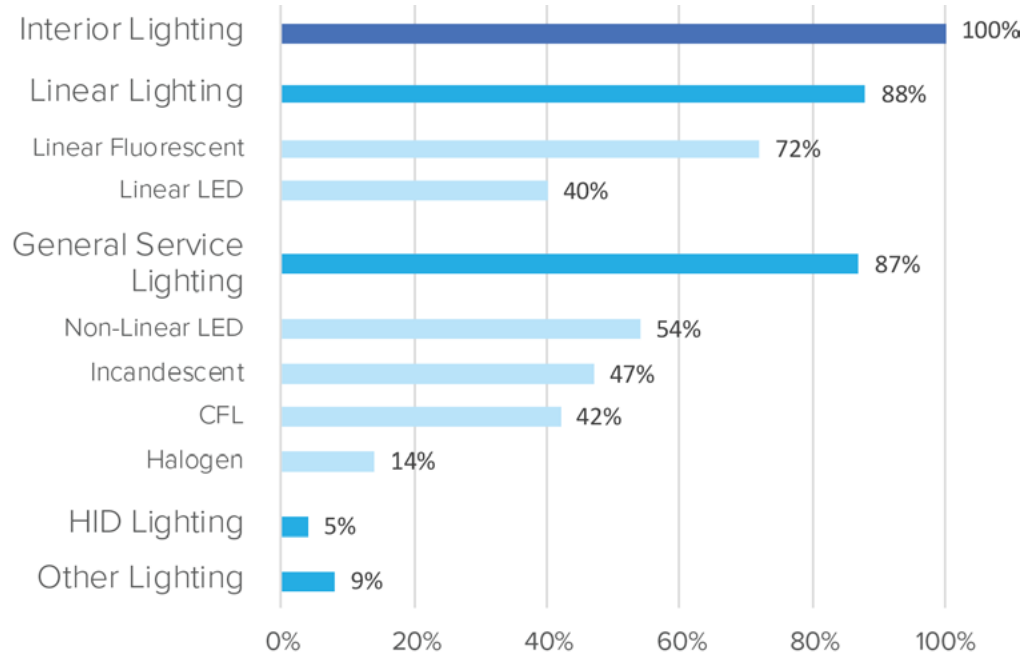
Exterior Lighting Penetration

- 54% of commercial businesses pay for exterior lighting on their utility bill.
- Non-linear lighting and HID lighting are more prevalent than linear lighting.
- Due to differences in building stock, exterior lighting included on businesses' electric bills is less common in the Downstate region compared to the two other regions.

Category	Percentage
Exterior Lighting	54%
General Service Lighting	49%
Non-Linear LED	31%
CFL	16%
Incandescent	14%
Halogen	5%
HID Lighting	17%
Metal Halide	12%
Other HID	5%
Linear Lighting	11%
Linear Fluorescent	8%
Linear LED	3%
Other Lighting	2%

Section 5 | Lighting

Interior Lighting Penetration: Regions

- Penetration of linear fluorescent lighting is highest in the Upstate region.
- All regions have similar penetrations of linear LED lighting.
- Penetration of incandescent lighting is lowest in the Long Island/Hudson Valley region.

	Linear Fluorescent	Linear LED	Non-Linear LED	Incandescent	Halogen	CFL	HID	Other
Downstate	71%	39%	53%	48%	15%	44%	3%	6%
Upstate	75%	39%	58%	53%	13%	43%	6%	11%
Lond Island/ Hudson Valley	69%	41%	51%	37%	11%	35%	6%	9%
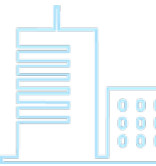
Interior Lighting Penetration: Business Size

- The penetration of linear fluorescent lighting is very similar for both small and medium/large businesses.
- Small businesses have lower penetration of LED lighting compared to medium/large businesses, including both linear and non-linear LEDs.

	Linear Fluorescent	Linear LED	Non-Linear LED	Incandescent	Halogen	CFL	HID	Other
Small	72%	36%	52%	46%	12%	40%	5%	9%
Medium/ Large	71%	56%	64%	49%	19%	47%	5%	9%

Interior Lighting Penetration: Segments

- The health services/hospitals segment has the highest penetration of linear fluorescent lighting.
- The grocery segment has the highest penetration of linear LEDs.
- The lodging/hospitality and food service segments have the highest penetration of non-linear LED and incandescent lighting.

	Linear Fluorescent	Linear LED	Non-Linear LED	Incandescent	Halogen	CFL	HID	Other
Office	74%	34%	46%	44%	15%	42%	4%	4%
Retail	67%	44%	53%	42%	10%	35%	4%	11%
Education	74%	40%	60%	51%	22%	53%	7%	3%
Health Services/ Hospitals	82%	34%	59%	51%	9%	46%	2%	3%
Lodging/ Hospitality	69%	33%	79%	67%	17%	59%	8%	8%
Food Service	67%	49%	71%	60%	17%	49%	<1%	21%
Grocery	67%	60%	52%	39%	12%	34%	2%	19%
Warehouse	70%	36%	45%	40%	16%	34%	7%	8%

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Interior Lighting Saturation

- On average, New York commercial businesses have 201 interior and 8 exterior lamps.
- Linear lighting accounts for 75% of interior lamps. One third of these are linear LEDs (an average of 51 lamps per business).
- Businesses also have an average of 50 general service non-linear lamps, of which 28 are non-linear LEDs.
- While 47% of commercial customers still have incandescent lamps, the average number is small (8 per business).

Saturation of Interior Lighting (Lamps)

201 Overall
- 2
- 8
- 11
- 28
- 51
- 101

120 Small
- 2
- 8
- 7
- 22
- 22
- 59

543 Med/Large
- 4
- 10
- 29
- 52
- 174
- 274

Legend:
- Linear Fluorescent
- Linear LED
- Non-Linear LED
- CFL
- Incandescent
- Other Types/HID

Socket Saturation of Interior Lighting

| 50% | 25% | 14% | 5% | 6% | <1% |

Legend:
- Linear Fluorescent
- Linear LED
- Non-Linear LED
- Incandescent/ Halogen
- CFL
- Other/ HID

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Interior Socket Saturation by Region

- Linear LEDs account for a much higher share of lamps in the Downstate region than in other regions. The share of linear fluorescent lamps is the lowest in this region.
- Businesses in the Upstate region have the highest share of non-linear LED lamps.
- Linear fluorescent lamps account for very different shares of total lamps in each of the regions. This type is most common in the Long Island/Hudson Valley region and least common in the Downstate region.

Downstate 38% 40% 12% 5% 5% <1%

Upstate 51% 17% 19% 6% 6% <1%

Lond Island/ Hudson Valley 65% 17% 9% 3% 6% <1%

Linear Fluorescent | Linear LED | Non-Linear LED | Incandescent/ Halogen | CFL | Other/ HID

Interior Socket Saturation by Business Size

- Linear fluorescent lamps account for half of all lamps in both small and medium/large businesses.
- Small businesses have relatively fewer linear LEDs compared to medium/large businesses, including both linear and non-linear LEDs.

Small 50% 18% 18% 8% 6% <1%

Medium/ Large 50% 32% 10% 3% 5% <1%

Linear Fluorescent | Linear LED | Non-Linear LED | Incandescent/ Halogen | CFL | Other/ HID

Interior Socket Saturation by Segment

- The education, health services/hospitals, and warehouse segments have the highest share of linear fluorescent fixtures.
- The grocery, retail, and office segments have the highest share of linear LEDs.
- The lodging/hospitality and food service segments have the highest share of non-linear LEDs.

Segment	Linear Fluorescent	Linear LED	Non-Linear LED	Incandescent/Halogen	CFL	Other/HID
Office	51%	32%	7%	5%	4%	<1%
Retail	32%	33%	25%	4%	6%	<1%
Education	67%	14%	8%	3%	7%	<1%
Health Services/Hospitals	69%	6%	10%	4%	11%	<1%
Lodging/Hospitality	28%	7%	46%	9%	10%	<1%
Food Service	24%	17%	36%	16%	5%	1%
Grocery	41%	48%	7%	2%	1%	1%
Warehouse	69%	20%	3%	5%	2%	<1%

Legend: Linear Fluorescent, Linear LED, Non-Linear LED, Incandescent/Halogen, CFL, Other/HID
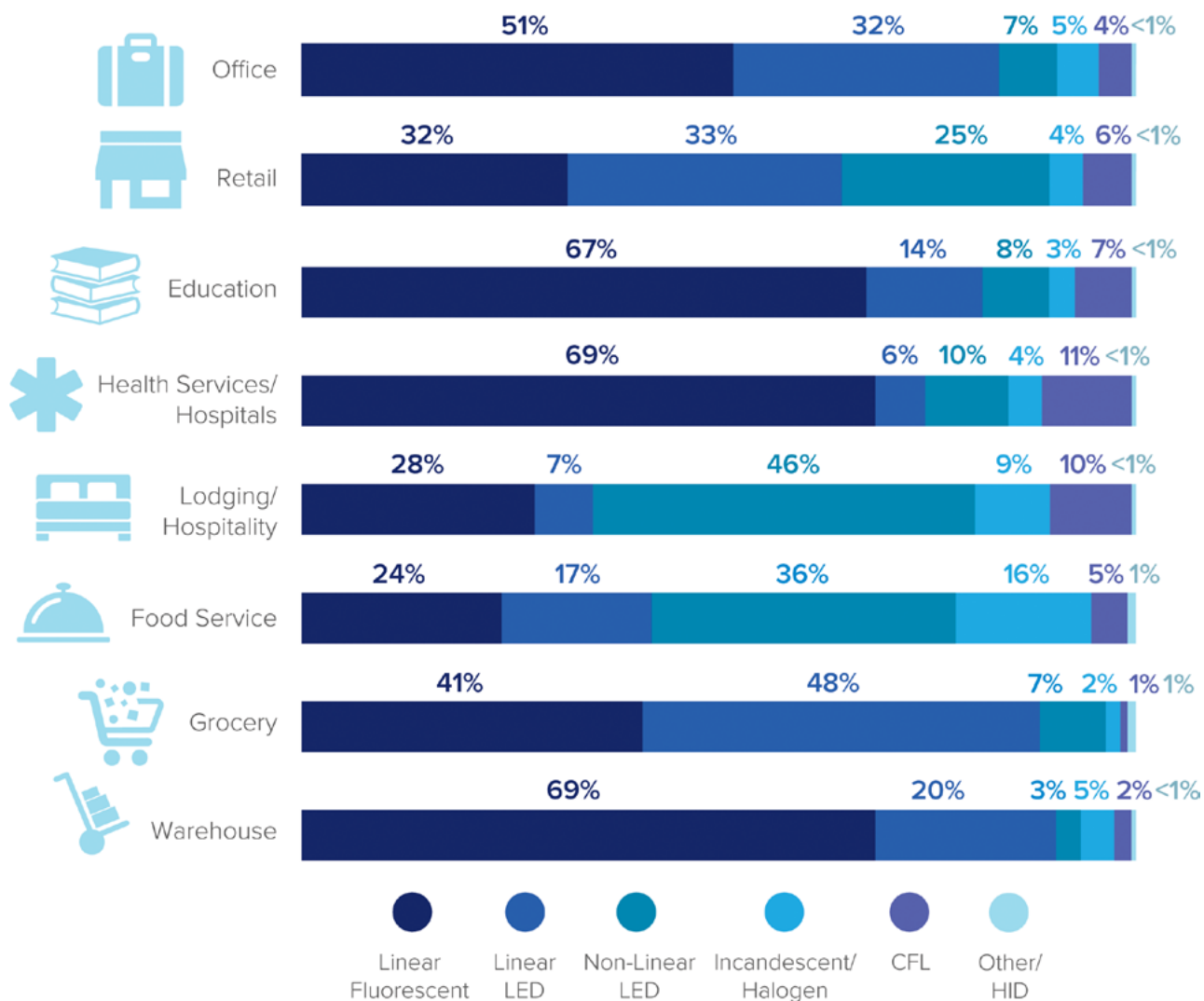
Exterior Lighting Saturation

- Non-linear LEDs account for the largest share of exterior lamps in New York businesses (46% of exterior lamps or 4 lamps per business).
- HID, CFL, and incandescent lamps each account for between 11% and 13% of exterior lamps (or 1 per business).

Socket Saturation of Exterior Lighting

Non-Linear LED	HID	CFL	Incandescent	Linear Fluorescent	Linear LED	Halogen	Other
46%	14%	12%	11%	9%	5%	4%	1%
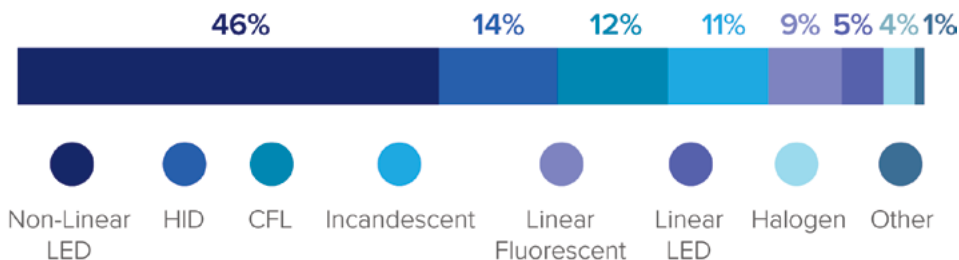
Spotlight: Linear Lighting

Linear lighting accounts for the majority of commercial lighting electricity usage nationwide. Historically, linear fluorescent lighting accounted for approximately 80% of all illuminated commercial building square footage.[3] Linear fluorescent lamps are classified by their diameter. T5 linear fluorescent lamps are 5/8th of an inch in diameter while T8 lamps are one inch (or 8/8th) in diameter. In addition, higher-efficiency T5 High Output (T5HO) lamps are sometimes categorized separately. Linear fluorescent lamps with smaller diameters are generally more efficient than those with larger diameters.

Breakout of Linear Lighting by Type (Share of Lamps)

7%
34%
34%
3%
3%

- Linear LED
- T5 Linear Fluorescent
- T5HO Linear Fluorescent
- T8 Linear Fluorescent
- T12 Linear Fluorescent
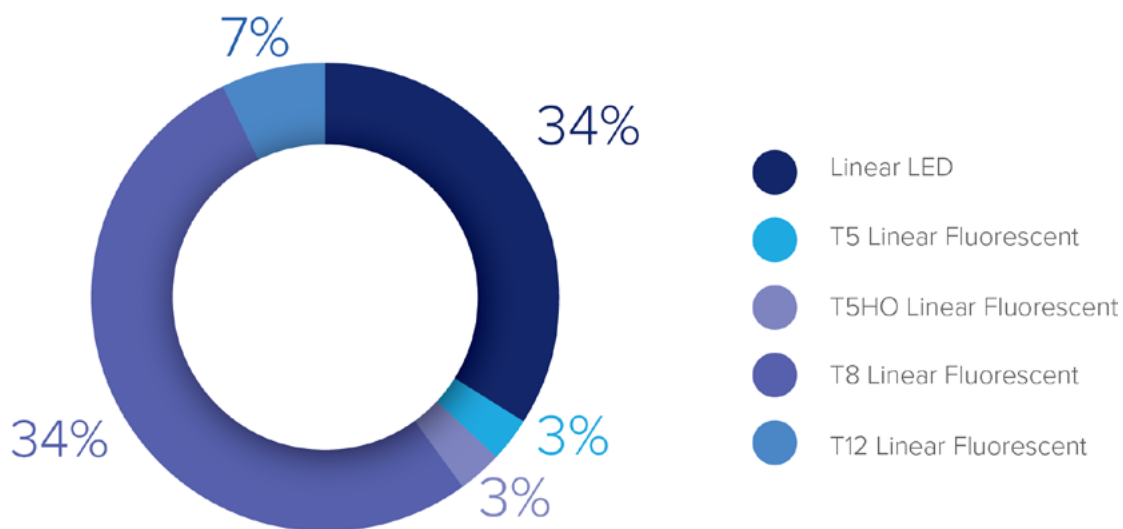
Recently, more efficient linear LEDs have begun to penetrate the commercial lighting market through:

- Lamp retrofits, where components of the linear fluorescent fixture are retained but the lamp itself is replaced with a linear LED lamp;
- The wholesale replacement of existing linear fixtures with new linear LED fixtures; and
- New installations.

Lighting Power Density

Lighting power density (LPD) is a measure of the lighting load of a building or space. It is expressed in watts per square foot and is a simple way of assessing a building's lighting efficiency. Benchmark allowable LPDs for new commercial buildings – by space and building type – are developed as part of ANSI/ASHRAE/IES Standard 90.1. The allowances are updated regularly and typically decrease over time as new efficient lighting and control technologies become available. Standard 90.1 allowances are a key basis for codes and standards around the world.

The figure below shows the observed mean LPDs in New York commercial businesses compared to the current (2016) Standard 90.1 allowances, by building type. For most segments, the LPDs are above the 2016, which is not surprising given that the standard applies to new buildings, rather than the existing buildings included in the baseline study. Notably, average LPDs in the grocery, lodging/hospitality, and education segments are already at or below the 2016 standards. For the remaining segments, a comparison of observed LPDs to the 2016 standards identifies key opportunities for efficiency improvements.

Lighting Power Density by Segment

● Mean Observed LPD   ● Standard 90.1 Allowance

Section 5 | Lighting

Hours of Use

- In addition to wattage, a fixture's hours of use is a key determinant of energy usage.

- Businesses use interior lighting an average of 72 hours per week. Hours of use vary from 57 hours per week for education businesses to 102 hours for businesses in the health services/hospitals segment.

- The hours of use for lighting vary considerably by lighting type for some segments, such as health services/hospitals and lodging/hospitality, suggesting different lighting needs in different parts of the businesses.

- The lighting hours of use in other segments, such as grocery and warehouse, do not vary substantially by lighting type, indicating a relatively uniform usage of lights across businesses that corresponds closely to the businesses' hours of operation.

Weekly Hours of Use

By Lighting Type — Average Hours 72 — By Segment

By Lighting Type	
Linear Fluorescent	75
Linear LED	75
LED	72
CFL	67
Halogen	58
Incandescent	49

By Segment	
Health Services/Hospitals	102
Grocery/Convenience	102
Lodging/Hospitality	97
Food Service	77
Office/Gov't	69
Retail	61
Warehouse	58
Education	57
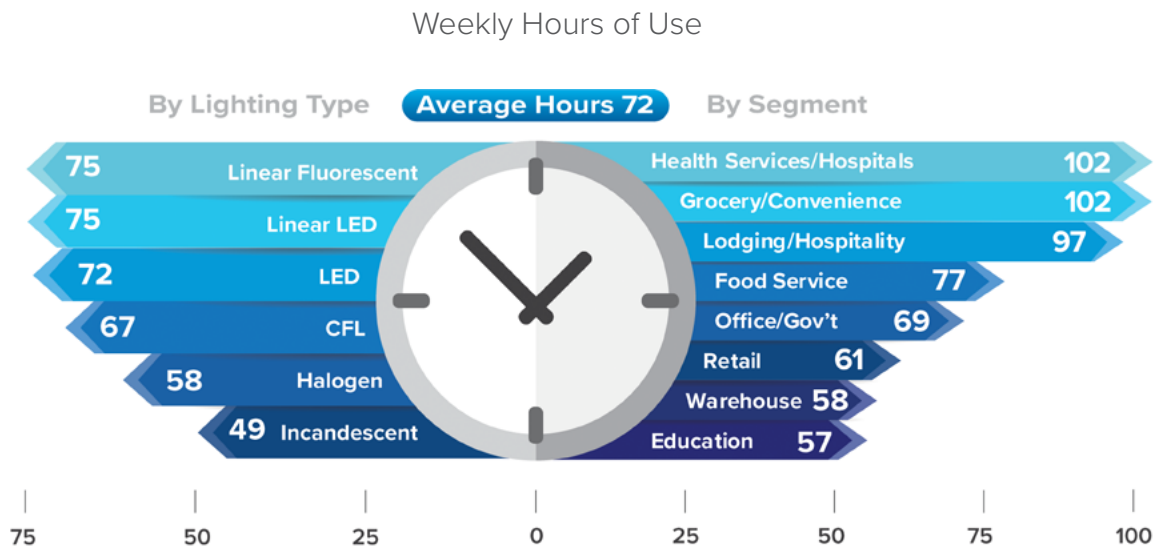
Fixtures vs. Lamps:

Most quantities in this section are shown in terms of lamps. However, for some applications, the number of fixtures might be useful. This table provides the cross-walk between lamps and fixtures for key interior lighting technologies.

Number of Lamps per Fixture by Major Lighting Type

	Lamps	Fixtures	Lamps Per Fixture
All Lighting	201	95	2.1
Linear Fluorescent	101	40	2.5
Linear LEDs	51	22	2.3
Screw-In LEDs	28	17	1.7
CFLs	11	8	1.5
Incandescent	8	5	1.5
Halogen	2	2	1.2
Metal Halide	<1	<1	1.0
Neon	<1	<1	1.0
Other	<1	<1	1.4

Section 5 | Lighting

Spotlight:
Lamp Base Types and Shapes

General service non-linear lamps come in a variety of base types, sizes, and shapes. The most common base is the Edison screw base, which is the base of a typical incandescent lamp. This base is also commonly found on halogen, CFL, and LED lamps, making these types of lamps easily interchangeable in screw-based fixtures. Screw bases come in various sizes to accommodate a range of lamp types. A second, relatively common base type is the pin or plug-in base, found most often on certain CFLs and halogens. Other base types – such as twist & lock, bayonet, or wedge bases – are relatively rare.

- In New York commercial businesses, the large majority of installed bulbs have a screw base. Only 11% of bulbs have a pin/plug-in base and 6% have another type of base.

- Of screw-based bulbs, over half are LEDs and 19% are CFLs, meaning that only one-quarter of general service non-linear bulbs have lower efficiency levels and present opportunities for realizing energy savings.

Characteristics of General Service Non-Linear Bulbs

6%

11%

Share of Non-Linear
Bulbs by Base Type

- Screw Base
- Pin/Plug in
- Other

83%
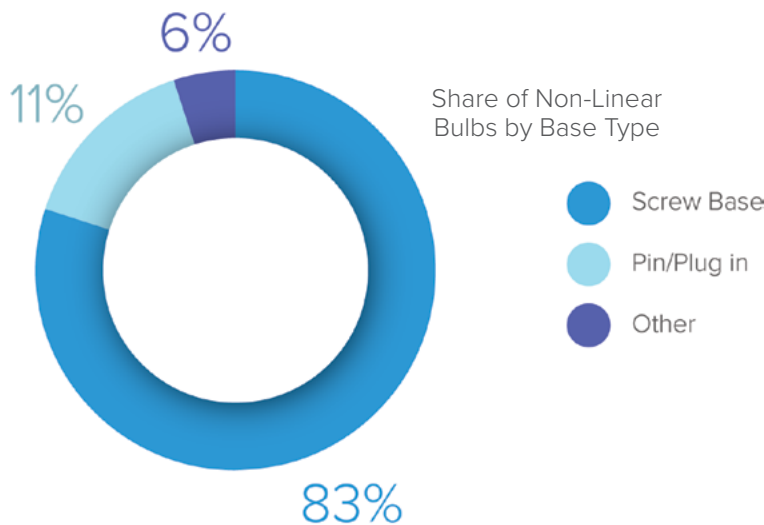
Share of Non-Linear Bulbs by Technology

	Incandescent	CFL	Halogen	LED
Screw Base	19%	19%	4%	58%
Pin/Plug In	0%	70%	11%	20%
Other	6%	0%	1%	93%

Non-linear lamps also vary by shape and are typically categorized as either "standard" or "specialty" bulbs. Standard bulbs are defined as the "classic" A-line shape of a typical incandescent bulb with a screw base. They represent the majority of all screw base general service non-linear light bulbs. Specialty bulbs include all other bulb shapes – for example, globes, reflectors, and candelabras – as well as A-line dimmable bulbs. Their share ranges from 9% of CFLs to 26% of halogens.

Share of Screw Base Blubs by Lighting Technology and Bulb Shape

Incandescent
23% Specialty
77% Standard

CFL
9% Specialty
91% Standard

Halogen
26% Specialty
74% Standard

LED
14% Specialty
86% Standard
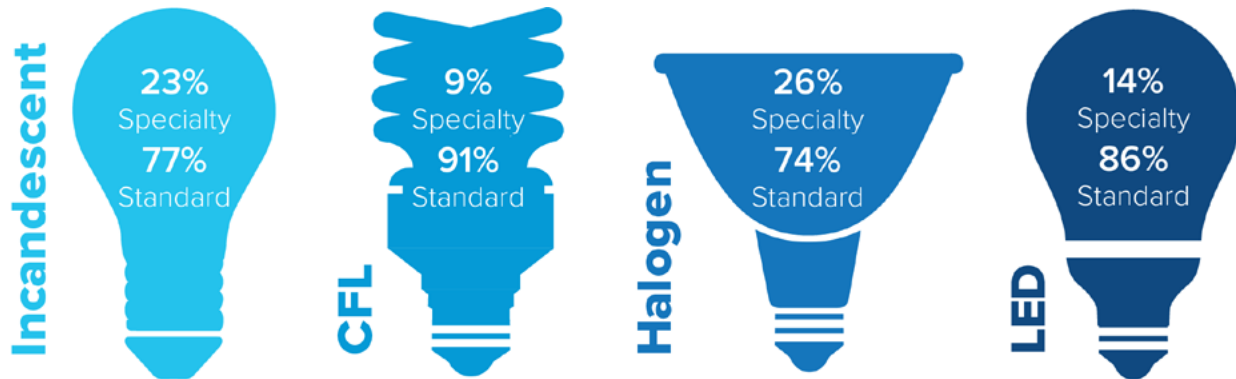
High Bay Lighting

- High bay lighting is defined as overhead lighting on ceilings over 20 feet.
- On average, 17% of commercial businesses in New York have high bay lighting.
- High bay lighting is most common in businesses in the education and warehouse segments (39% and 31% of businesses, respectively).
- 7% of interior lamps are installed in high bay fixtures.

Share of High Bay Fixtures by Lighting Type

65%
16%
8%
7%
3%
1%

Linear Fluorescent
Linear LED
Incandescent
LED
CFL
Other Types/HID

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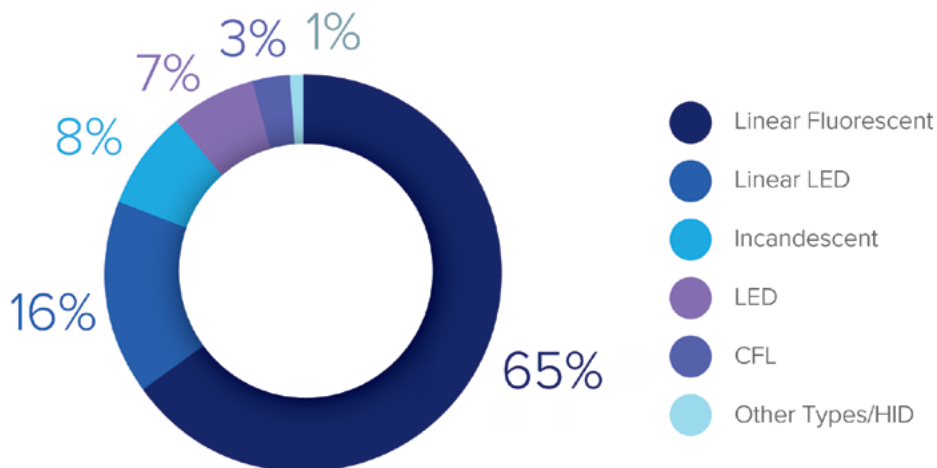
Lighting Controls

Lighting controls turn lights on and off, and some can adjust the level of lighting in a space. Lighting controls can be manual, requiring occupant actions to change lighting conditions (e.g., a traditional on/off switch), or they can be non-manual, responding to current space conditions. Non-manual lighting controls used in commercial buildings include:

OCCUPANCY SENSORS: Turn lights on when a space is occupied and off when it is not;

ENERGY MANAGEMENT SYSTEMS (EMS): Centralized hardware and software usually used for monitoring and/or controlling heating, ventilation, air conditioning, and lighting at a building-wide level to optimize energy use and occupant comfort;

TIMERS: A system that automatically turns lights on or off at predetermined times of the day; and

DAYLIGHT DIMMING: A system that automatically dims lights if enough natural light is detected by photosensors).

Other Key Findings

- Statewide, 80% of interior lighting fixtures are controlled manually.
- Small businesses have a higher share of manually controlled fixtures (87%) compared to medium and large businesses (73%).
- Occupancy sensors are the most common type of non-manual lighting controls, controlling 11% of all fixtures.
- Medium/large businesses are more likely to have occupancy sensors than small businesses (27% compared to 8%).
- Occupancy sensors are most commonly installed in education and warehouse businesses (21% and 18%, respectively).

Share of Fixtures Controlled by Non-Manual Interior Lighting Controls
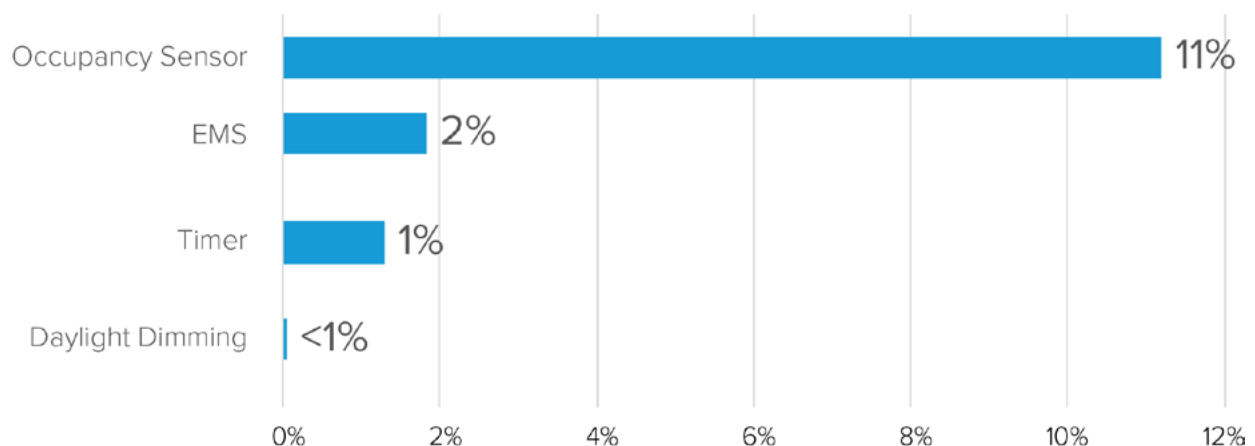
Exit Signs

- 50% of New York commercial businesses have lighted exit signs.
- Commercial businesses have a saturation of 3 signs per business.
- Business size is the primary driver for both the presence of exit signs and the number per business.
- Most signs (80%) are LED signs.

Share of Exit Sign Lighting Type by Region

	LED	CFL	Incandescent
Statewide	80%	13%	7%
Upstate	78%	11%	11%
Downstate	87%	8%	4%
Long Island/ Hudson Valley	73%	20%	6%
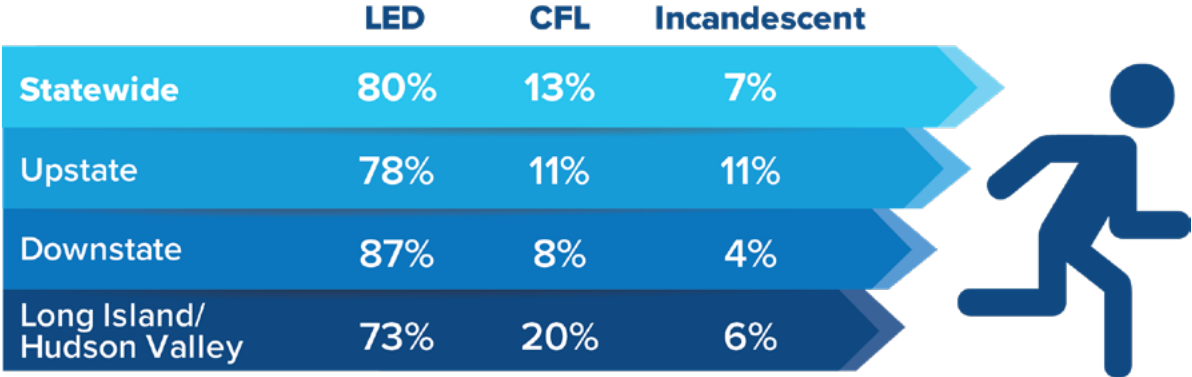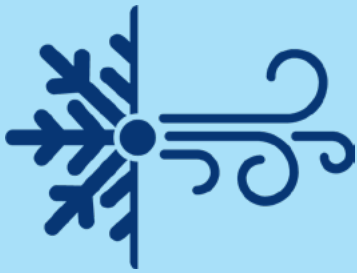
SECTION 6
Cooling

Cooling

Space cooling is one of the most energy intensive mechanical building systems in a business. Space cooling equipment can be classified into two major types:

CENTRAL COOLING systems generally provide space cooling to a whole building or major areas of a building. They are usually integrated with a building's heating and mechanical ventilation equipment and may or may not have ducts.

ROOM COOLING systems typically do not have ducts and serve smaller spaces than central cooling systems. These include window, wall, or packaged terminal air conditioning units, portable air conditioning (AC) units as well as ductless minisplit systems.

Central cooling systems can be further divided by their configuration into package systems, split systems, and chillers:

PACKAGE SYSTEMS combine all components of the refrigeration cycle – a compressor, condenser, and evaporator – in a single unit to cool air directly.

SPLIT SYSTEMS are "split" into two parts: an outdoor component typically consisting of the condenser and compressor and an indoor component typically consisting of the evaporator to cool air directly.

CHILLERS operate a refrigeration cycle to cool water that is then distributed through pipes around the building to terminal cooling equipment which then cools air. Chillers are generally found in very large buildings or on campuses.

Heat pumps (HP) are newer technology that provides heating as well as cooling. In addition to functioning like a typical air conditioner, heat pumps provide heat by reversing the direction of the refrigeration cycle to release heat into the conditioned space rather than outside. Like traditional AC systems, heat pumps can be configured as package or split systems.

Central Cooling Penetration

- Overall, 68% of commercial businesses in New York have central cooling systems.
- Split systems (37% of businesses) are more common than package systems (29%).
- Only 5% of businesses have a chiller.

Central Cooling	68%
Split System	37%
Split System AC	27%
Split System HP	12%
Package System	29%
Package System AC	29%
Package System HP	2%
Chiller	5%
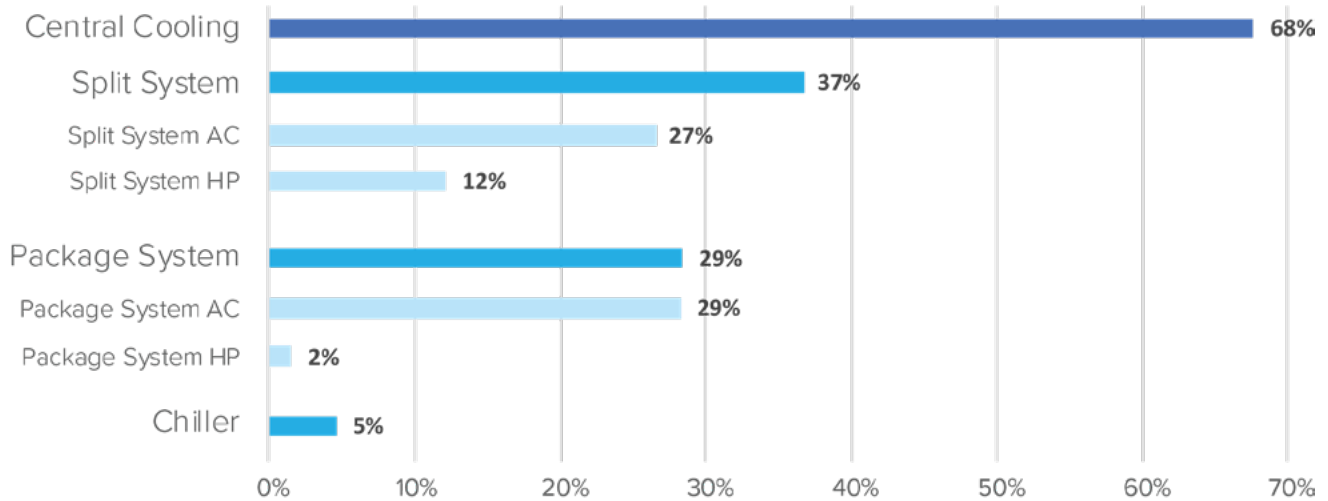
Central Cooling Average Quantities and Saturation

- On average, businesses have 2.8 package systems and 2.4 split systems (saturation of 0.8 and 0.9, respectively).
- Due to their smaller capacities, businesses have more package system heat pumps (5.2 on average) than package system AC systems (2.5 on average).

		Saturation
Package System	2.8	0.8
Package System HP	5.2	0.1
Package System AC	2.5	0.7
Split System	2.4	0.9
Split System AC	2.3	0.3
Split System HP	2.2	0.6
Chiller	1.0	<0.1

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Section 6 | Cooling
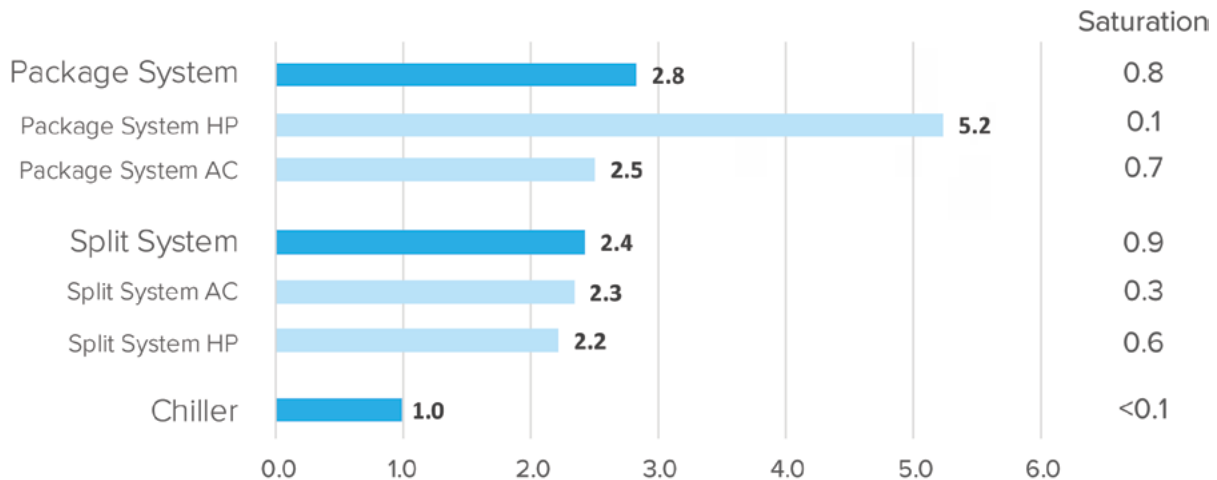
Room Cooling Penetration

- Nearly one-third of New York commercial businesses (29%) have a room cooling system.

- Window or wall AC units are the most commonly encountered type of room cooling equipment (26% of businesses).

- Only 2% of businesses have ductless minisplits.

Category	Percentage
Room Cooling	29%
Window or Wall Unit	26%
Window or Wall AC	25%
Window or Wall HP	2%
Portable AC	2%
Ductless Minisplit	2%
Ductless Minisplit AC	1%
Ductless Minisplit HP	<1%
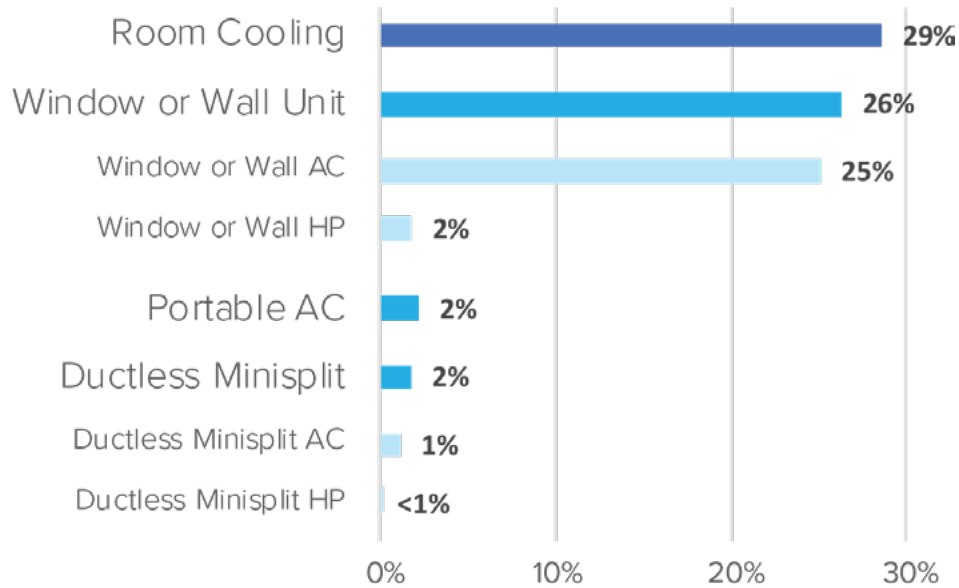
Other Key Findings

WINDOW OR WALL AC:

- The average number of window or wall units among New York businesses is 4.5.

- Over three quarters (78%) of window or wall units are under 14 kBTU/hour in capacity.

- Over two-thirds (69%) of window or wall units have efficiency ratings under 11 Energy Efficiency Ratio (EER).

Spotlight: Heat Pumps

- Considering both central and room cooling units, 13% of commercial businesses in New York have at least one heat pump.

- Split system heat pumps are the most common type. They can be found in 12% of all commercial businesses and make up over half (56%) of all heat pumps in New York.

- While only 2% of commercial businesses have a window or wall heat pump, they represent one-quarter (25%) of heat pump units in the state.

Heat Pump Penetration

Type	Percentage
Any HP	13%
Split System HP	12%
Window or Wall Unit HP	2%
Package System HP	2%
Ductless Minisplit HP	<1%

Distribution of Heat Pumps by Type

Type	Percentage
Split System HP	56%
Window or Wall Unit HP	25%
Package System HP	18%
Ductless Minisplit HP	2%
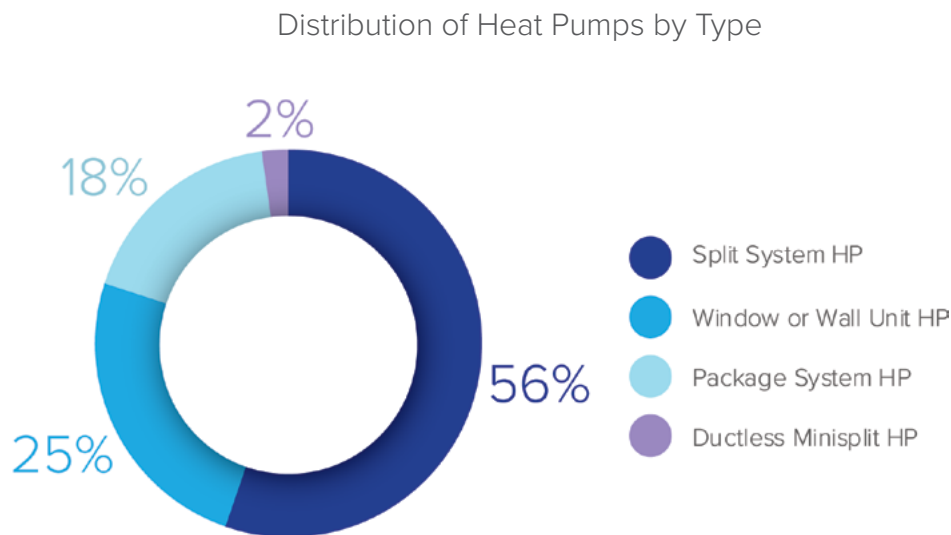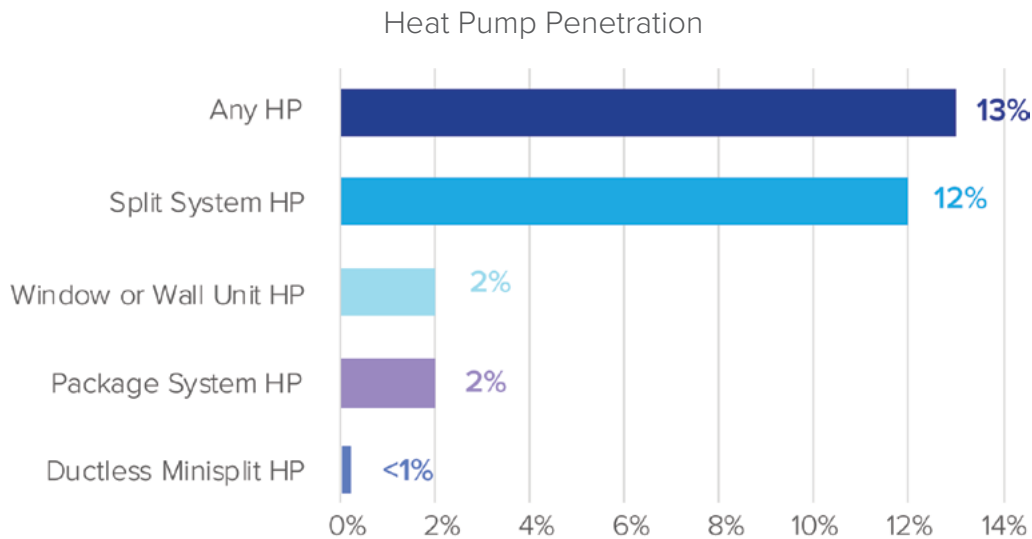
Other Key Findings

SPLIT SYSTEM HEAT PUMPS:
- Almost all split system heat pumps are air sourced (98%).
- Most split system heat pumps (68%) serve as primary heating systems.
- Very few split system heat pumps (6%) have auxiliary or secondary heating elements.

Penetration of Key Equipment by Region

- Penetration of central cooling is highest in the Long Island/ Hudson Valley region (76% of businesses).
- Penetrations of package system heat pumps and split system heat pumps are similar across all regions of New York.

	Any Central Cooling	Package System HP	Split System HP	Package System AC	Split System AC	Chiller
Downstate	64%	2%	11%	26%	23%	6%
Upstate	67%	1%	12%	25%	29%	4%
Long Island/ Hudson Valley	76%	2%	14%	38%	28%	4%

Key Equipment Distribution by Region

- In all three regions, heat pumps make up approximately 20% of central cooling units.

Region	Package System HP	Split System HP	Package System AC	Split System AC	Chiller
Downstate	5%	15%	37%	41%	1%
Upstate	5%	17%	43%	34%	2%
Lond Island/ Hudson Valley	5%	15%	43%	35%	2%

Package System HP   Split System HP   Package System AC   Split System AC   Chiller
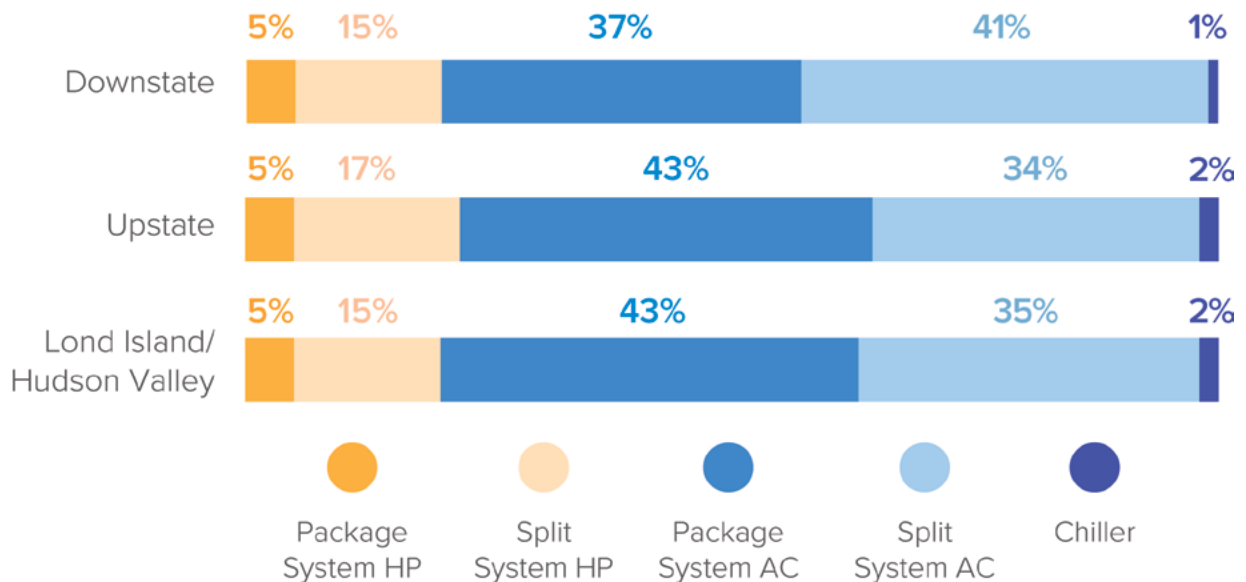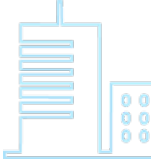
Penetration of Key Equipment by Business Size

- Medium/large businesses have a higher penetration of central cooling and all types of central cooling equipment than small businesses.

	Any Central Cooling	Package System HP	Split System HP	Package System AC	Split System AC	Chiller
Small	63%	1%	11%	25%	25%	3%
Medium/Large	87%	3%	16%	42%	33%	12%

Distribution of Key Equipment by Business Size

- Heat pumps comprise a similar proportion of all central cooling units in small businesses compared to medium/large businesses.

Small: 3% | 17% | 39% | 47% | <1%

Medium/Large: 8% | 14% | 45% | 30% | 4%

Package System HP — Split System HP — Package System AC — Split System AC — Chiller
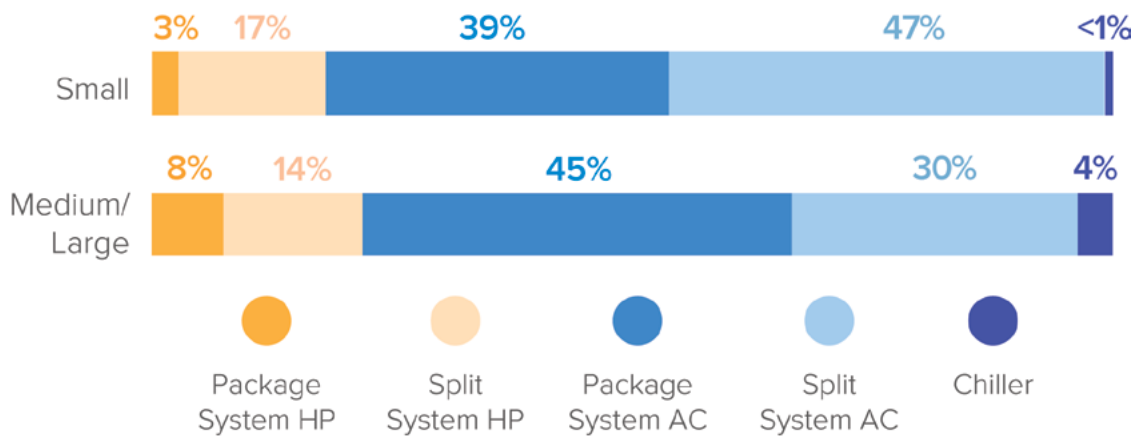
Penetration of Key Equipment by Business Segment

- The lodging/hospitality segment has the lowest penetration of central cooling (35%).

- The education, food service, and health services/hospital segments have the highest penetration of split system heat pump units.

	Any Central Cooling	Package System HP	Split System HP	Package System AC	Split System AC	Chiller
Office	71%	1%	11%	29%	26%	7%
Retail	61%	2%	9%	27%	25%	2%
Education	73%	2%	19%	31%	31%	9%
Health Services/ Hospitals	75%	1%	18%	23%	33%	5%
Lodging/ Hospitality	35%	1%	9%	11%	19%	3%
Food Service	85%	3%	17%	42%	29%	3%
Grocery	71%	3%	11%	35%	23%	1%
Warehouse	56%	1%	11%	20%	25%	3%

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Key Equipment Distribution by Business Segment

- Heat pumps make up the largest share of all central cooling units in the education and food service segments.

Office
| 4% | 15% | 41% | 37% | 2% |

Retail
| 8% | 10% | 44% | 38% | <1% |

Education
| 6% | 21% | 40% | 32% | 2% |

Health Services/Hospitals
| 4% | 13% | 36% | 42% | 5% |

Lodging/Hospitality
| 1% | 20% | 42% | 35% | 1% |

Food Service
| 6% | 20% | 46% | 28% | <1% |

Grocery
| 7% | 14% | 49% | 30% | <1% |

Warehouse
| 3% | 15% | 44% | 38% | <1% |

Legend:
- Package System HP
- Split System HP
- Package System AC
- Split System AC
- Chiller
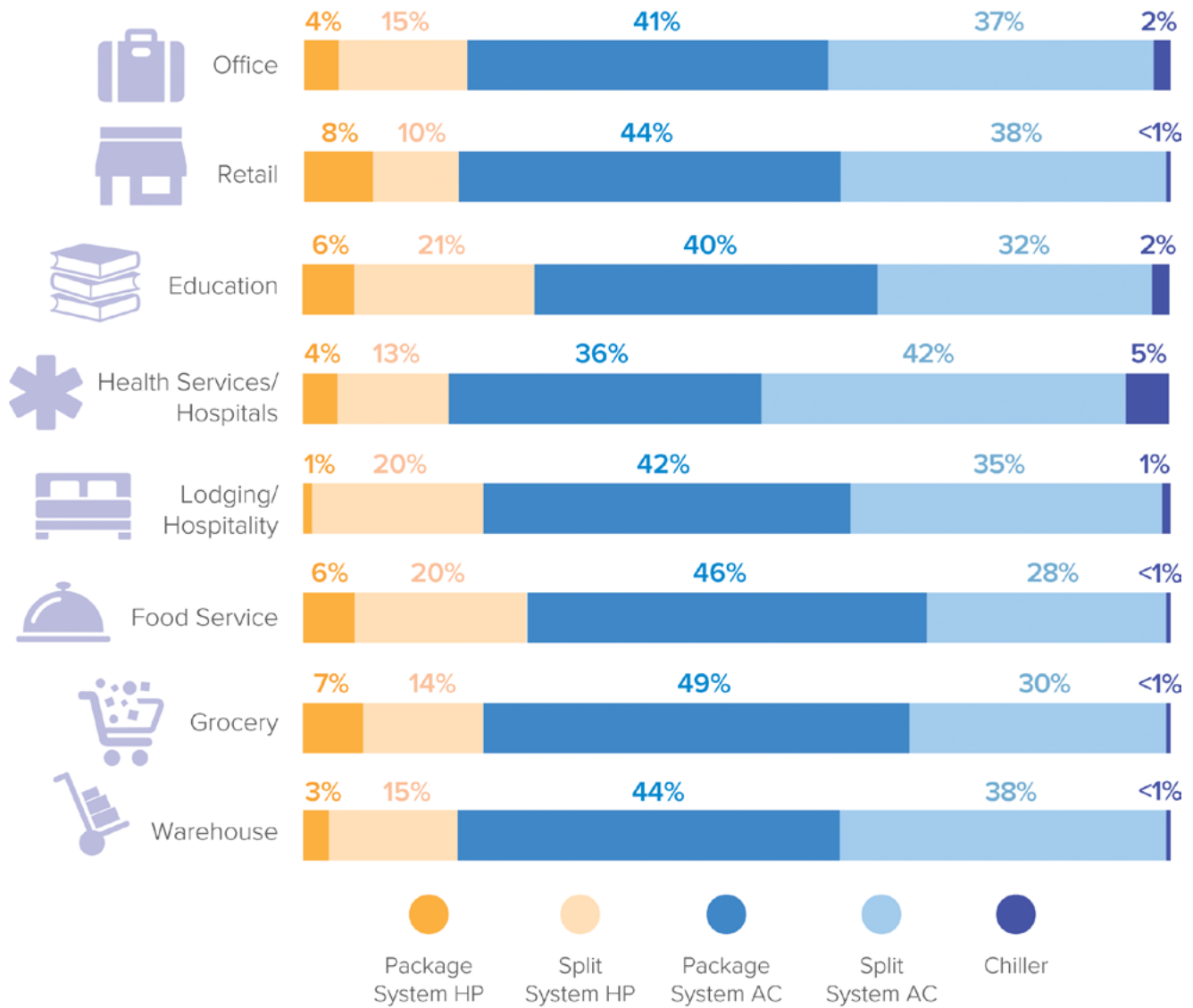
Other Key Findings

SPLIT SYSTEMS:
- Almost half of all split systems (42%) are ductless.
- Few split systems have economizers (7%), an electronically commutated fan motor (9%) or variable refrigerant flow (10%).
- Almost two-thirds of split systems (61%) have been serviced in the last two years.

PACKAGE SYSTEMS:
- Almost three-quarters of package systems (72%) are rooftop units.
- Over one-third of package systems (37%) have economizers.
- A small percentage of package systems have variable or multi-speed fan controls (12%) or EC fan motors (2%)
- Over three-quarters of package systems (82%) have been serviced in the last two years.

Package and Split System Cooling Capacity

- Over three-quarters of split systems (82%) are under 5 tons but only one-third of package systems.
- On average, package systems are larger than split systems (8.7 tons vs 3.2 tons).

17% **1%**

82%

Split System

19%

33%

47%

Package System

- 0-4.99 Tons
- 5-11.25 Tons
- 11.25+ Tons
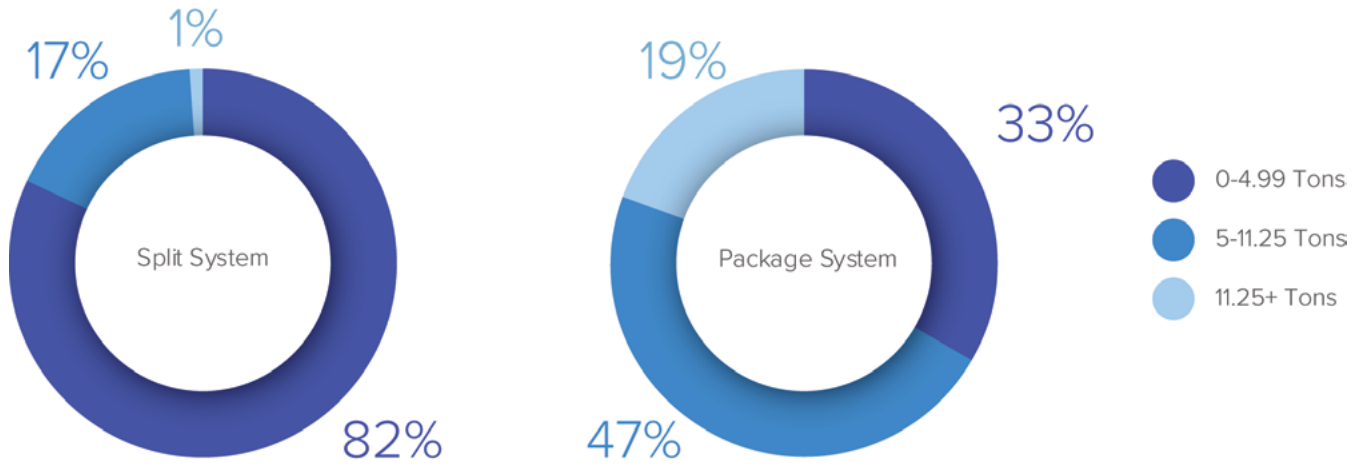
Average Cooling Capacity (Tons)

	AC Average	Overall Average	HP Average
Package System	8.9	8.7	5.9
Split System	3.7	3.2	2.5

- Package System
- Split System

Package and Split System Cooling Efficiency

- One-third of split systems (33%) are rated 12 EER or higher, and 12% are rated of 14 EER or higher.

- Under one-quarter of package systems (23%) are rated 12 EER or higher and only 2% are rated 14 EER or higher.

- One percent of split systems and 5% of package systems have an efficiency rating below 9 EER.

- Package system and split system heat pumps have the same average efficiency level (12.5 EER) and package system and split system AC units have a similar average (10.6 EER vs 10.8 EER). However, split systems have a higher average efficiency rating than package systems (11.5 EER vs 10.8 EER because a higher share of split system are heat pumps.
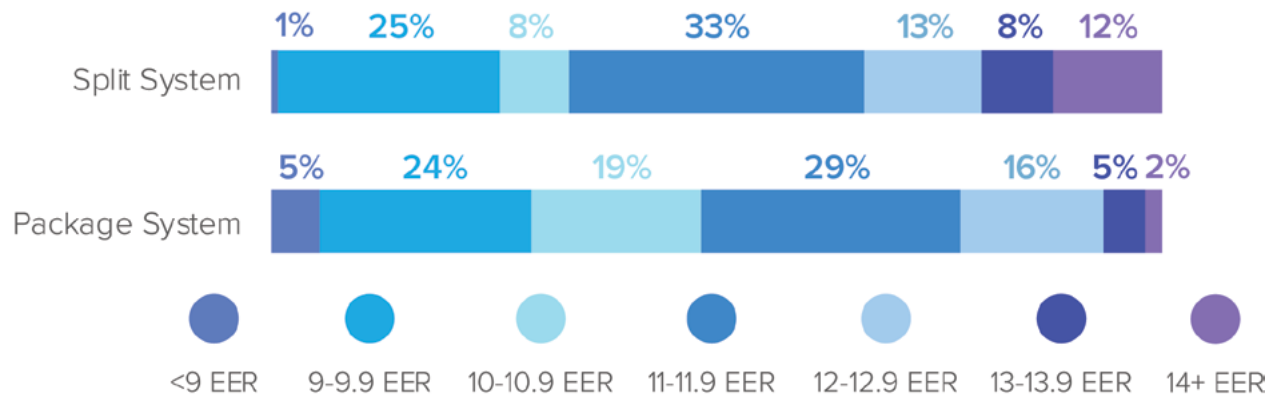
Average Cooling Efficiency (EER)
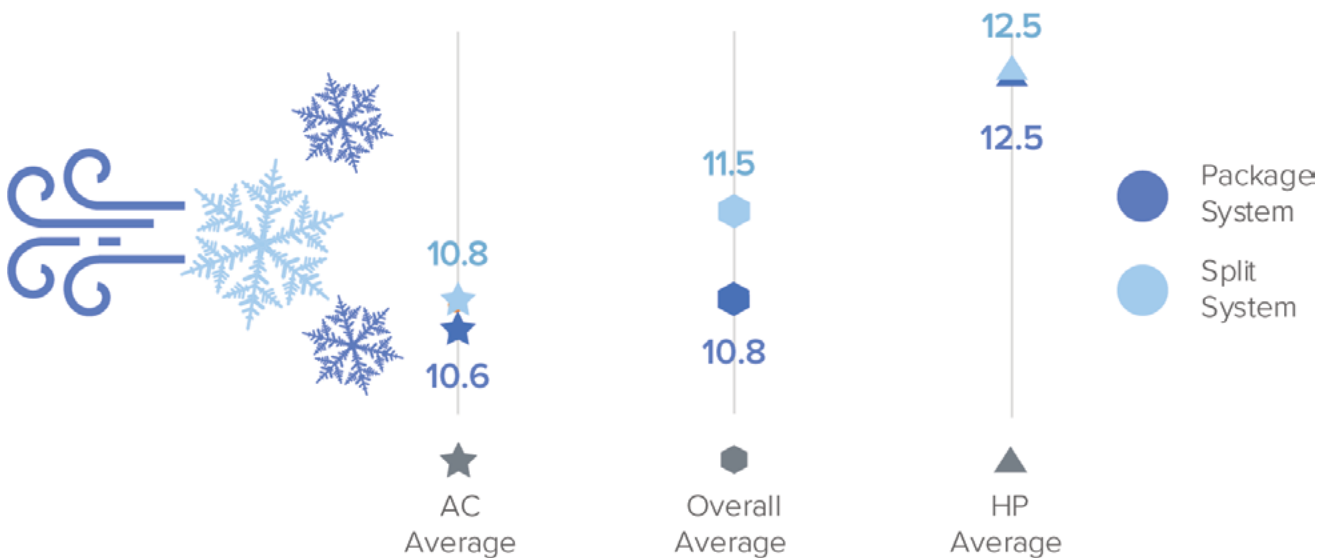
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Package and Split System Cooling Unit Age

- Split systems tend to be newer than package systems, with 45% being installed after 2010, compared to 30% of package systems.

- While split system and package system ACs are of similar average age (12.2 years vs. 12.5 years old) split system heat pumps tend to be much newer than package system heat pumps (6.9 years vs. 11.9 years).

	Split System			
	19%	36%	34%	11%

	Package System			
	19%	51%	23%	7%

Before 2001   2001-2010   2011-2016   After 2016
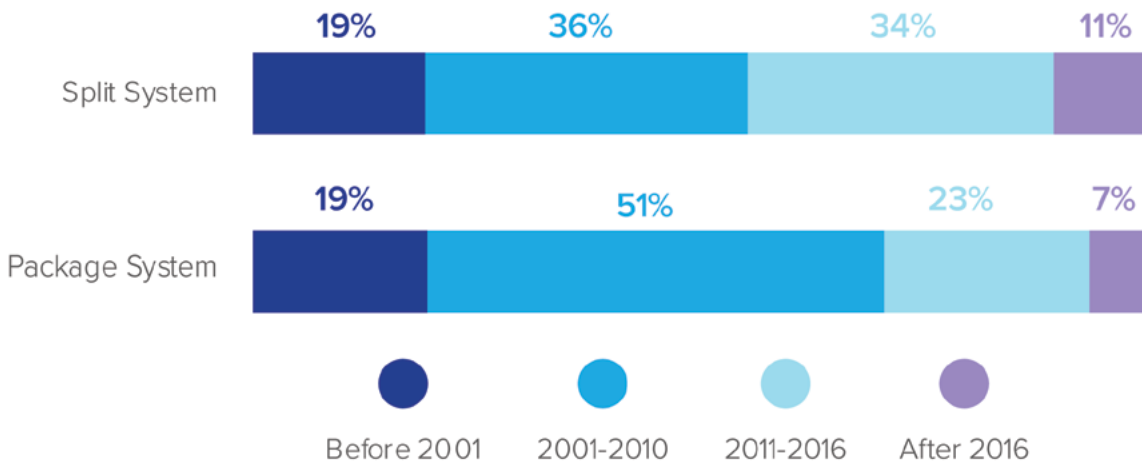
Average Cooling Unit Age (Years)

12.2
12.5
AC Average

12.0
10.2
Overall Average

11.9
6.9
HP Average

Package System

Split System

Key Results by Region:
Cooling Penetration

		Region		
	Statewide	Downstate	Upstate	Long Island/ Hudson Valley
Central Cooling	**68%**	**64%**	**67%**	**76%**
Package System	29%	26%	25%	38%
Package System AC	29%	26%	25%	38%
Package System HP	2%	2%	1%	2%
Split System	37%	33%	40%	37%
Split System AC	27%	23%	29%	28%
Split System HP	12%	11%	12%	14%
Chiller	5%	6%	4%	4%
Room Cooling	**29%**	**35%**	**27%**	**21%**
Window or Wall Unit	26%	33%	25%	19%
Window or Wall AC	25%	31%	24%	18%
Window or Wall HP	2%	2%	1%	2%
Portable AC	2%	3%	2%	2%
Ductless Minisplit	2%	2%	2%	2%
Ductless Minisplit AC	1%	1%	1%	1%
Ductless Minisplit HP	<1%	<1%	<1%	<1%
Other Room or Window Unit	<1%	1%	<1%	<1%

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Key Results by Region:
Cooling Average Quantities

	Statewide	Region		
		Downstate	Upstate	Long Island/ Hudson Valley
Package System	2.8	2.3	3.5	2.7
Package System AC	2.5	2.0	3.2	2.4
Package System HP	5.2	3.9	9.6	4.4
Split System	2.4	2.3	2.3	2.8
Split System AC	2.3	2.5	2.1	2.6
Split System HP	2.2	1.9	2.6	2.2
Chiller	1.0	1.0	1.0	1.0
Window or Wall Unit	4.5	4.5	4.9	3.8
Window or Wall AC	4.3	4.3	4.4	3.7
Window or Wall HP	6.7	6.1	18.8	2.6
Portable AC	1.2	1.0	2.4	1.0
Ductless Minisplit	1.9	1.3	2.5	2.1
Ductless Minisplit AC	2.0	1.6	2.6	1.7
Ductless Minisplit HP	34.8	23.0	53.2	37.2
Other Room or Window Unit	2.4	2.1	3.8	1.0

Key Results by Region: Cooling Saturation

	Statewide	Region		
		Downstate	Upstate	Long Island/ Hudson Valley
Package System	0.8	0.6	0.9	1.0
Package System AC	0.7	0.5	0.8	0.9
Package System HP	0.1	0.1	0.1	0.1
Split System	0.9	0.8	0.9	1.0
Split System AC	0.6	0.6	0.6	0.7
Split System HP	0.3	0.2	0.3	0.3
Chiller	<0.1	<0.1	<0.1	<0.1
Window or Wall Unit	1.2	1.5	1.2	0.7
Window or Wall AC	1.1	1.3	1.1	0.7
Window or Wall HP	0.1	0.1	0.1	0.1
Portable AC	<0.1	<0.1	0.1	<0.1
Ductless Minisplit	<0.1	<0.1	<0.1	<0.1
Ductless Minisplit AC	<0.1	<0.1	<0.1	<0.1
Ductless Minisplit HP	<0.1	<0.1	<0.1	<0.1
Other Room or Window Unit	<0.1	<0.1	<0.1	<0.1

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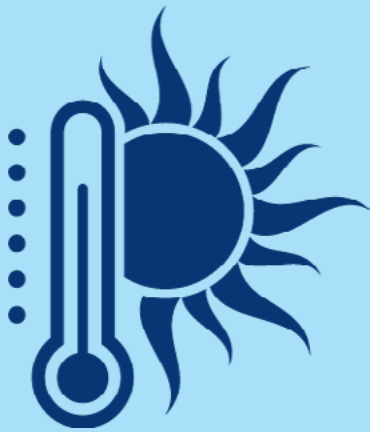
SECTION 7
Space Heating

Space Heating

Space heating is the most energy-intensive end use in commercial businesses. Nationwide, space heating represents 25% of major fuel consumption[1] in commercial businesses, but only 2% of electric consumption.[2] Common types of heating equipment include:

BOILERS heat water for distribution as hot water or steam throughout a business.

FURNACES heat air which is then forced throughout a building by fans. Some furnaces are packaged with a business' space cooling equipment.

UNIT HEATERS AND INFRARED HEATERS are exposed in the space to be heated. They are generally smaller in capacity and are often used as a secondary source of heating.

HEAT PUMPS are used for heating as well as cooling. Heat pumps provide heat by reversing the direction of the refrigeration cycle to release heat into the conditioned space rather than outside. (See also discussion of heat pumps in the Cooling section.)

ELECTRIC RESISTANCE HEATERS generally heat single rooms through baseboard, ceiling, or wall mounted heating units.

[1] Defined as electricity, fuel oil, natural gas, district steam, and district hot water.
[2] Energy Information Administration. 2012. Commercial Buildings Energy Consumption Survey, Tables E5 and E1.

Primary Heating Fuel Penetration

- Overall, 97% of businesses have at least one type of space heating equipment.
- Natural gas is the most prevalent heating fuel, used in 59% of businesses, followed by electric heating (28%) and oil heating (17%).
- While 28% of businesses have electric heat, only 13% of businesses use it as their primary heating fuel.

	Natural Gas Heating	Electric Heating	Oil Heating	Propane Heating	District Steam Heating	Wood Heating	Other Heating Fuel	No Heating
Any Heating Fuel	59%	28%	17%	5%	3%	1%	1%	3%
Primary Heating Fuel	59%	13%	16%	5%	3%	<1%	1%	3%
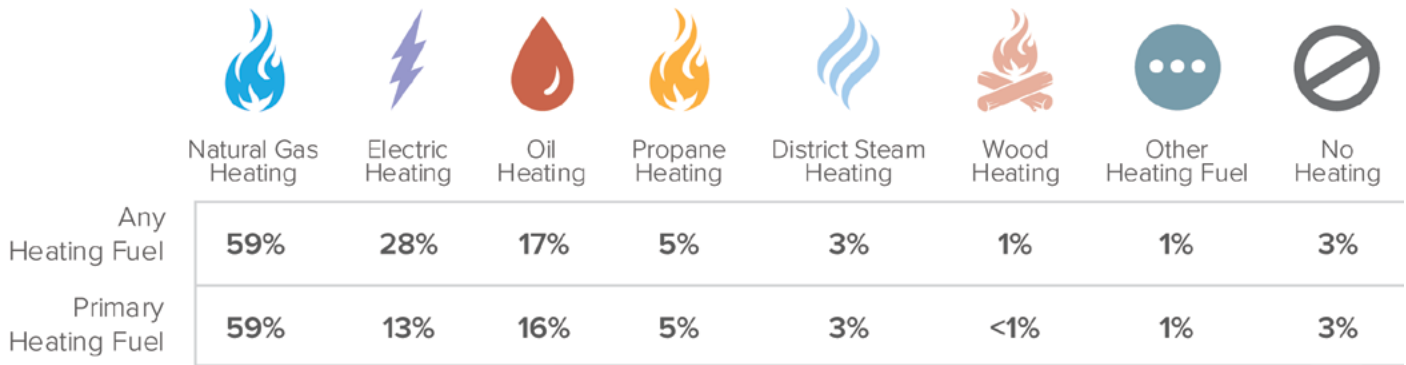
Other Key Findings

Statewide, 14% of natural gas furnaces have not been tuned up in the past two years, and 9% have not been tuned up at all!

Heating Equipment Penetration by Key Fuels

- Natural gas furnaces are the most common natural gas space heating equipment in commercial businesses (35% of businesses).
- Heat pumps are the most common electric space heating equipment in commercial businesses (13% of businesses).
- Oil boilers and oil furnaces have a similar statewide penetration in commercial businesses.

Natural Gas
- Any Heating: 59%
- Furnace: 35%
- Boiler: 21%
- Unit Heater: 12%
- Infrared Heater: 1%
- Other Heating Equipment: <1%

Electric
- Any Heating: 28%
- Heat Pump: 13%
- Unit Heater: 7%
- Resistance Heater: 5%
- Furnace: 1%
- Other Heating Equipment: <1%

Oil
- Any Heating: 17%
- Boiler: 9%
- Furnace: 7%
- Other Heating Equipment: <1%
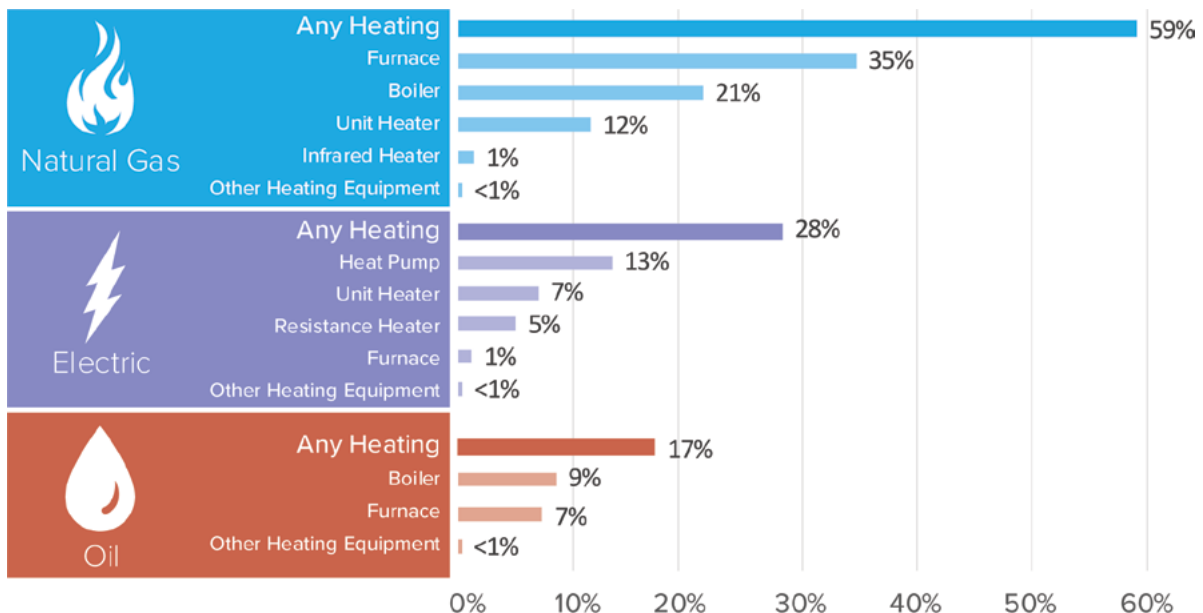
Heating Equipment Average Quantities and Saturation by Key Fuels

- Businesses have an average quantity of 1.9 natural gas furnaces per business, but natural gas furnaces are the most common type of commercial space heating equipment in New York (0.7 saturation).

- Statewide, there are an average of 3.6 heat pumps per business (0.5 saturation).

	Saturation
Natural Gas	
Furnace — 1.9	0.7
Boiler — 1.4	0.3
Unit Heater — 2.6	0.3
Infrared Heater — 2.3	<0.1
Electric	
Heat Pump — 3.6	0.5
Unit Heater — 4.0	0.3
Resistance Heater — 5.2	0.3
Furnace — 6.2	0.1
Oil	
Boiler — 1.5	0.1
Furnace — 1.3	0.1
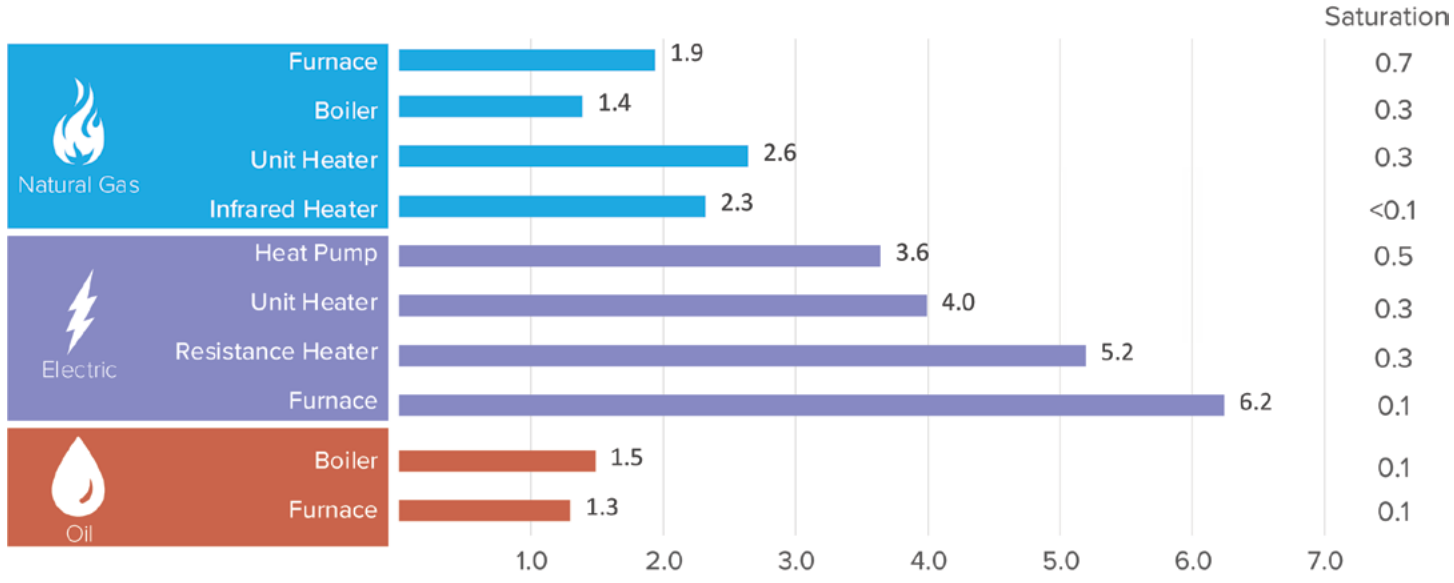
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Penetration of Key Equipment and Key Heating Fuel by Region

- Half of commercial businesses in the Upstate region have natural gas furnaces.

- Electric heating penetration is lowest in the Upstate region (23% of businesses) and highest in the Downstate region (33% of businesses).

- The Upstate region has a higher penetration of propane heating (11% of businesses) compared to the other two regions of the state.

	Key Fuel Penetration				Key Equipment Penetration					
	Natural Gas Heat	Electric Heat	Oil Heat	Propane Heat	Natural Gas Furnace	Natural Gas Boiler	Electric Heat Pump	Electric Resistance Heater	Oil Boiler	Oil Furnace
Downstate	53%	33%	18%	1%	19%	27%	15%	5%	13%	4%
Upstate	65%	23%	14%	11%	50%	17%	10%	6%	5%	9%
Long Island/ Hudson Valley	61%	28%	20%	5%	33%	20%	16%	4%	8%	10%

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Saturation of Key Equipment by Region

- Heat pumps are the most common type of heating equipment in the Downstate region (0.4 per business) and the second most common heating equipment in the Long Island/Hudson Valley region (0.5 per business) and the Upstate region (0.6 per business).
- There are almost twice as many natural gas furnaces per business in the upstate region (1.0 per business) than heat pumps (0.6 per business) or electric resistance heaters (0.6 per business).

	Natural Gas Furnace	Natural Gas Boiler	Electric Heat Pump	Electric Resistance Heater	Oil Boiler	Oil Furnace
Downstate	0.29	0.30	0.44	0.09	0.17	0.05
Upstate	1.03	0.24	0.55	0.55	0.08	0.11
Long Island/ Hudson Valley	0.64	0.37	0.49	0.18	0.12	0.14
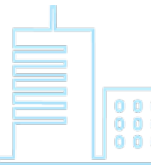
Penetration of Key Equipment and Key Heating Fuel by Business Size

- Medium/large businesses have a higher penetration of heat pumps (22%) than small businesses (12%).

	Key Fuel Penetration				Key Equipment Penetration					
	Natural Gas Heat	Electric Heat	Oil Heat	Propane Heat	Natural Gas Furnace	Natural Gas Boiler	Electric Heat Pump	Electric Resistance Heater	Oil Boiler	Oil Furnace
Small	58%	26%	18%	6%	35%	20%	12%	5%	8%	8%
Medium/ Large	64%	38%	15%	5%	33%	28%	22%	5%	10%	4%
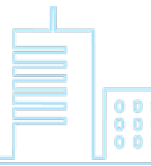
Saturation of Key Equipment by Business Size

- Electric heat pumps (1.3 per medium/large business and 0.3 per small business) and natural gas furnaces (1.2 per medium/large business and 0.6 per small business) are the most common key heating equipment.
- Medium/large businesses tend to have more of every type of key heating equipment than small businesses except for oil furnaces.

	Natural Gas Furnace	Natural Gas Boiler	Electric Heat Pump	Electric Resistance Heater	Oil Boiler	Oil Furnace
Small	0.56	0.21	0.30	0.23	0.11	0.10
Medium/ Large	1.20	0.65	1.30	0.40	0.20	0.07

Section 7 | Space Heating

Penetration of Key Equipment and Key Heating Fuel by Business Segment

- Natural gas is the most common heating fuel for all segments

- Educational and lodging/hospitality businesses have the highest penetration of oil heat (25% and 24%, respectively).

- Grocery businesses have the highest penetration of electric heat (40% of businesses).

	Key Fuel Penetration				Key Equipment Penetration					
	Natural Gas Heat	Electric Heat	Oil Heat	Propane Heat	Natural Gas Furnace	Natural Gas Boiler	Electric Heat Pump	Electric Resistance Heater	Oil Boiler	Oil Furnace
Office	60%	24%	18%	4%	35%	25%	11%	5%	10%	7%
Retail	60%	28%	16%	5%	38%	16%	12%	3%	7%	8%
Education	60%	30%	25%	7%	27%	39%	17%	6%	15%	9%
Health Services/ Hospitals	59%	33%	18%	4%	37%	22%	15%	6%	12%	6%
Lodging/ Hospitality	43%	33%	24%	21%	22%	25%	13%	11%	13%	9%
Food Service	64%	35%	9%	6%	37%	22%	22%	5%	5%	4%
Grocery	54%	40%	13%	4%	29%	13%	16%	6%	6%	6%
Warehouse	58%	26%	20%	7%	29%	12%	12%	4%	6%	13%

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Saturation of Key Equipment by Business Segment
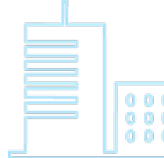
- On average, the Lodging/Hospitality segment has many more electric heat pumps (2.5 per business) and electric resistance heaters (2.3 per business) compared to every other business segment due to the prevalence of dedicated heating units for each guest room.

- Natural gas furnaces are the most common heating equipment in every business segment except in the Education and Lodging/Hospitality segments.

	Natural Gas Furnace	Natural Gas Boiler	Electric Heat Pump	Electric Resistance Heater	Oil Boiler	Oil Furnace
Office	0.64	0.31	0.33	0.22	0.14	0.08
Retail	0.73	0.17	0.26	0.10	0.08	0.10
Education	0.67	1.20	1.23	0.31	0.33	0.12
Health Services/ Hospitals	0.75	0.35	0.69	0.29	0.20	0.07
Lodging/ Hospitality	0.57	0.38	2.53	2.30	0.30	0.17
Food Service	0.62	0.22	0.59	0.13	0.07	0.04
Grocery	0.37	0.13	0.29	0.10	0.06	0.06
Warehouse	0.84	0.16	0.33	0.09	0.07	0.21

Other Key Findings

BOILERS:
- A higher proportion of natural gas boilers (22%) have O2 trim (which optimizes the air-to-fuel ratio to minimize excess combustion) compared to oil boilers (6%).

- Almost twice the proportion of natural gas boilers (42%) have reset controls compare to oil boilers (23%).

- Oil boilers are much more likely to be water tube (where flu gas surrounds tubes of water) (85%) than fire tube (where tubes of flu gas are surrounded by water) (15%) compared to natural gas boilers (54% water tube vs 46% fire tube).

FURNACES:
- Almost three-quarters of natural gas furnaces (71%) are associated with a cooling system compared to only half (47%) of oil furnaces.

Furnace and Boiler Heating Capacity

- Over half of oil boilers (55%) have a rated heating input capacity under 200 kBtu/hour, compared to just 38% of natural gas boilers.

- Almost one fifth of natural gas boilers (18%) have a rated heating input capacity of 1,500 kBtu/hour or higher.

- The average heating input capacity of natural gas boilers is almost three times that of oil boilers.

- The average heating input capacity as well as the distribution of systems over capacity bins more similar between oil and natural gas furnaces than oil and natural gas boilers.

Oil Boiler — Average Capacity (kBTU/Hr) 307

13% · 1% · 30% · 55%

Natural Gas Boiler — Average Capacity (kBTU/Hr) 820

18% · 37% · 21% · 23%

Legend (Boilers):
- 0-199 kBTU/Hr
- 200-499 kBTU/Hr
- 500-1,499 kBTU/Hr
- 1,500+ kBTU/Hr

Oil Furnace — Average Capacity (kBTU/Hr) 162

20% · 32% · 27% · 22%

Natural Gas Furnace — Average Capacity (kBTU/Hr) 146

17% · 1% · 27% · 17% · 38%

Legend (Furnaces):
- 0-99 kBTU/Hr
- 100-139 kBTU/Hr
- 140-199 kBTU/Hr
- 200-499 kBTU/Hr
- 500+ kBTU/Hr

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Section 7 | Space Heating

Furnace and Boiler Heating Efficiency

- Only a small share of natural gas boilers (2%) and oil furnaces (7%) are less than 80% efficient.

- 39% of natural gas furnaces have an efficiency rating of 90% AFUE or higher compared to just 10% of oil furnaces.

- Average efficient ratings are similar across both types of boilers and furnaces, ranging from 84% to 86%.

Oil Boiler
Average Efficiency (AFUE)
86%

20% / 80%

Natural Gas Boiler
Average Efficiency (AFUE)
85%

2% / 27% / 71%

Legend:
- 70%-79% AFUE
- 80%-89% AFUE
- 90%-99% AFUE

Oil Furnace
Average Efficiency (AFUE)
84%

10% / 7% / 83%

Natural Gas Furnace
Average Efficiency (AFUE)
85%

39% / 61%

Legend:
- 70%-79% AFUE
- 80%-89% AFUE
- 90%-99% AFUE
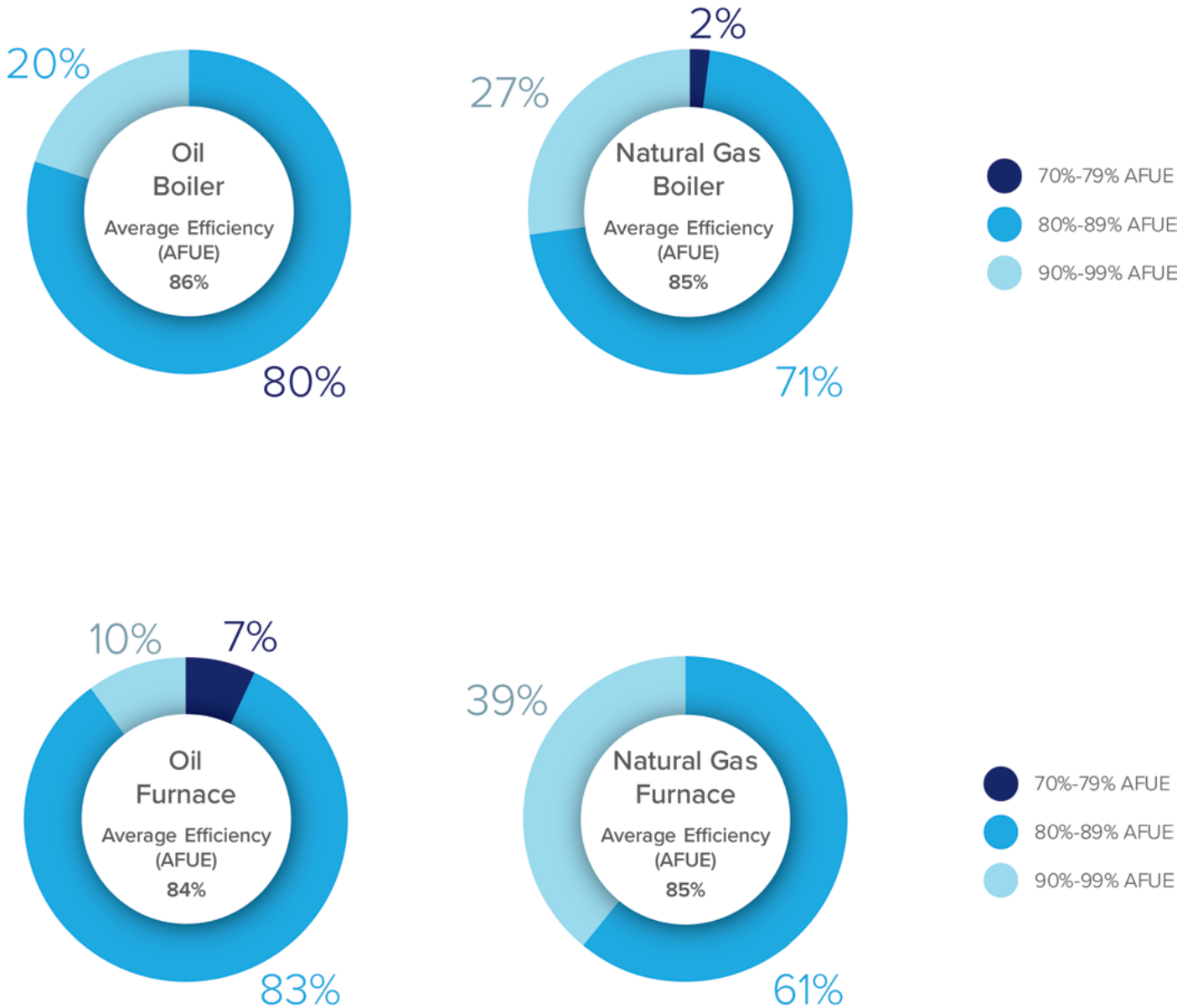
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Furnace and Boiler Age

- Almost two-thirds of oil boilers (60%) were installed between 2000 and 2009 compared to just under one quarter (23%) of natural gas boilers.

- 38% of natural gas boilers were installed after 2009.

- Almost one-quarter of oil furnaces (22%) were installed prior to 1980, compared to 5% of natural gas furnaces.

- The average age of major space heating equipment ranges from 15 years for oil boilers and natural gas furnaces to 19 years for oil furnaces.

Oil Boiler

Average Age (Years): 15

- 24%
- 59%
- 13%
- 2%
- 2%

Natural Gas Boiler

Average Age (Years): 16

- 32%
- 23%
- 35%
- 4%
- 6%

Legend:
- Before 1980
- 1980-1999
- 2000-2009
- 2010-2016
- After 2016

Oil Furnace

Average Age (Years): 19

- 22%
- 17%
- 36%
- 22%
- 4%

Natural Gas Furnace

Average Age (Years): 15

- 25%
- 32%
- 30%
- 7%
- 5%

Legend:
- Before 1980
- 1980-1999
- 2000-2009
- 2010-2016
- After 2016
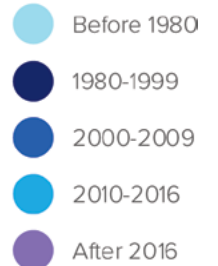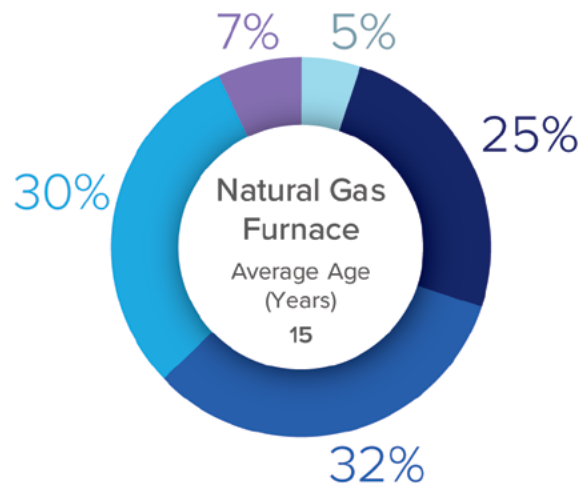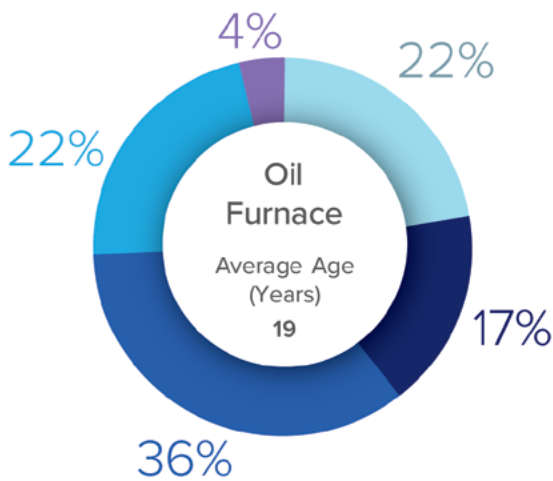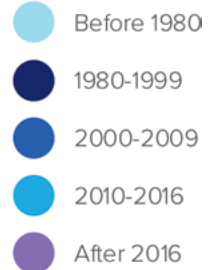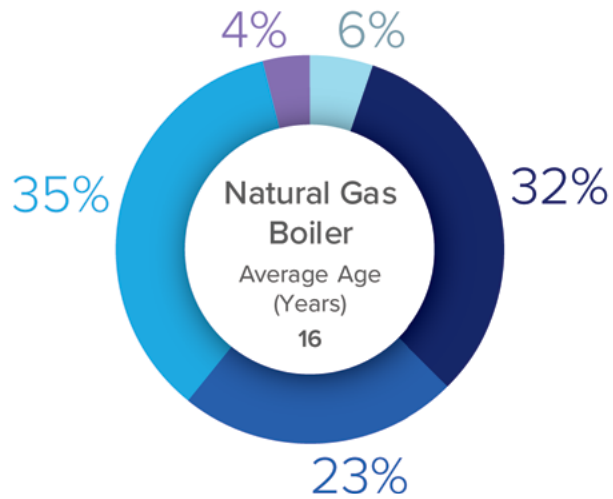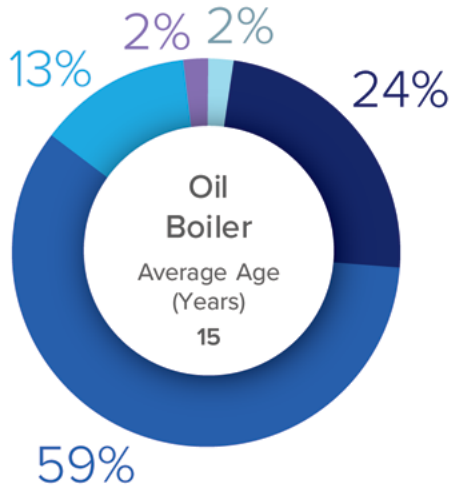
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SECTION 8
HVAC Controls

HVAC Controls

HVAC controls are auxiliary devices that facilitate the efficient use of HVAC equipment by adjusting equipment setpoints and runtimes to better match HVAC supply and demand within a business.

MAJOR TYPES OF HVAC CONTROLS:

MANUAL ON/OFF CONTROLS require the user to turn the equipment on when in use and off when not in use.

MANUAL THERMOSTATS allow the user to set the temperature by manually turning a dial or moving a lever; the temperature setting only changes when the user adjusts the thermostat.

PROGRAMMABLE THERMOSTATS use the built-in calendar and clock to adjust the temperature according to programmed settings by day and time but are not Wi-Fi-connected. These thermostats are also called "setback thermostats" or "clock thermostats."

SMART/WI-FI THERMOSTATS have all functionalities of a programmable thermostat but can also connect to the Internet, allowing the user to remotely adjust the temperature. Some automatically tailor settings based on occupant preferences, heating system type, and/or outdoor temperature.

ENERGY MANAGEMENT SYSTEMS (EMS) consist of centralized hardware and software. They are used for monitoring and/or controlling heating, ventilation, air conditioning, and lighting at a building-wide level to optimize energy use and occupant comfort.
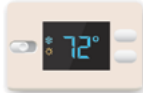
Other Key Findings

DEMAND CONTROLLED VENTILATION

Only 9% of commercial businesses have demand controlled ventilation, which adjusts the supply of fresh air depending on the level of occupancy in the space, using carbon dioxide sensors or other sensors.

HVAC Controls Penetration

- Programmable thermostats are the most common HVAC control in commercial businesses in New York, found in 53% of businesses.
- While 39% of businesses have a manual thermostat, only 25% of businesses use it to control their cooling system.
- Only 5% of NY commercial businesses have a smart/wifi thermostat.

	Has Equipment	Used for Cooling	Used for Heating
Manual On/Off	18%	15%	8%
Manual Thermostat	39%	25%	35%
Programmable Thermostat	53%	47%	48%
Smart/Wi-fi Thermostat	5%	4%	4%
Energy Management System (EMS)	3%	2%	2%
Other	2%	1%	1%

HVAC Controls Saturation

- Programmable thermostats control the largest share of commercial space (46% for cooling and 39% for heating).
- Even though EMS are found in only 3% of commercial businesses, they control 31% of cooled square footage and 29% of heated square footage, due to the size of the businesses they serve.
- 20% of cooled space and 29% of heated space is controlled manually (manual on/off and manual thermostats).

Heating and Cooling Controls by Square Footage

	Manual On or Off	Manual Thermostat	Programmable Thermostat	Smart or Wi-fi Thermostat	Energy Management System (EMS)	Other
Heated Sq. Ft.	6%	23%	39%	2%	29%	1%
Cooled Sq. Ft	7%	13%	46%	2%	31%	<1%
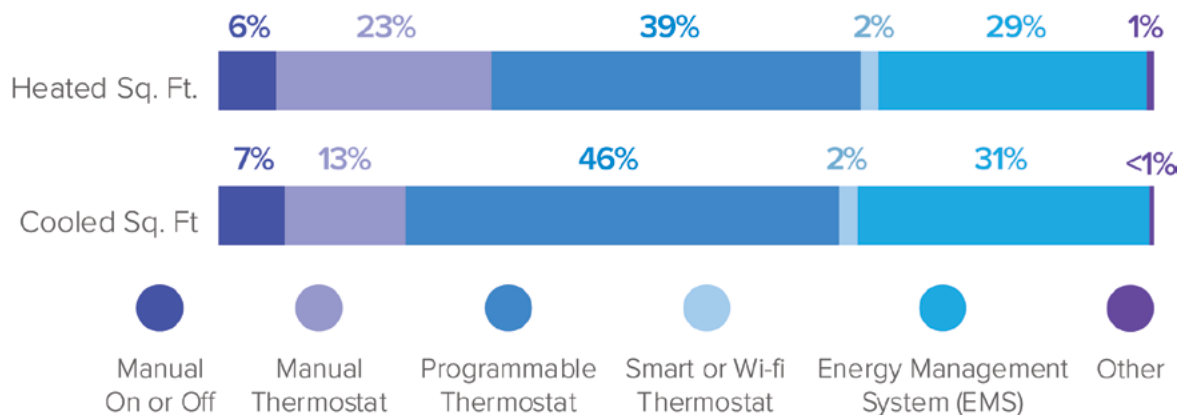
SECTION 9
Energy Management Systems

Energy Management Systems

Energy Management Systems (EMS) are technologies that can control systems at a building-wide level to optimize energy use and occupant comfort. These types of technologies are also referred to as BMS (building management systems), BEMS (building energy management systems), or BAS (building automation systems). EMS are typically integrated software and hardware systems that monitor and/or control some or all of energy-using building systems, most commonly HVAC and lighting systems. EMS are generally found in larger businesses or businesses with more complex equipment.

Volume 4: EMS Market Assessment of this Commercial Baseline Study provides a more detailed overview of EMS in New York.

EMS Penetration

- Statewide 3% of commercial businesses in New York have an EMS. This proportion is constant across all three regions.
- EMS are most common in medium/large businesses (13%) and the education segment (17%).

Category		Value
Statewide		3%
Region	Upstate	4%
	Long Island/ Hudson Valley	3%
	Downstate	3%
Usage Category	Medium/Large (≥75 MWh/Year)	13%
	Small (<75 MWh/Year)	1%
Segment	Education	17%
	Food Service	6%
	Health Services/ Hospitals	4%
	Grocery	4%
	Office	2%
	Retail	2%
	Lodging/ Hospitality	2%
	Warehouse	2%
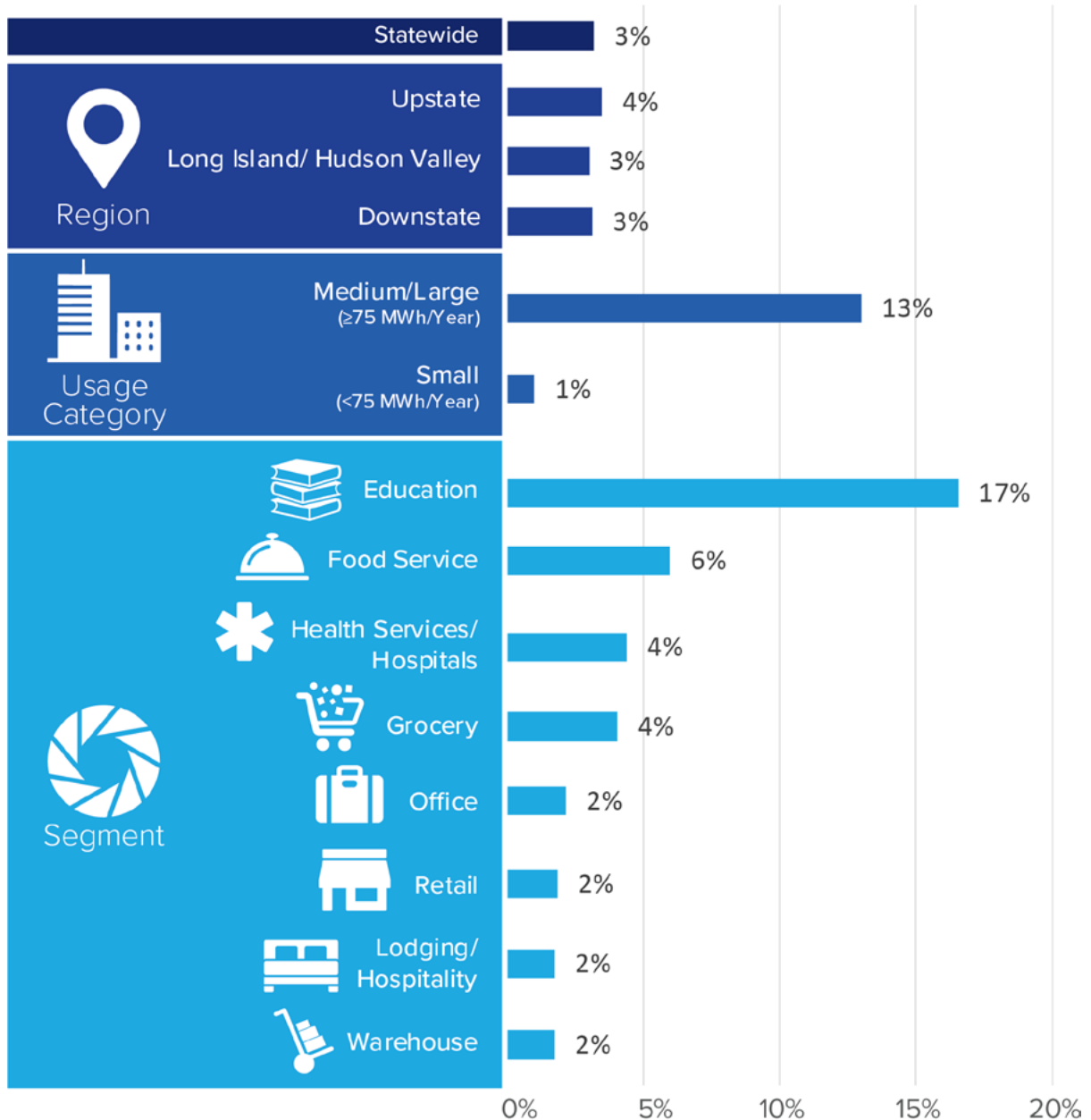
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Equipment Controlled by EMS

- Of businesses with an EMS, most use it to control their heating (83%) and cooling (77%).
- Over one third (36%) of commercial businesses with an EMS use it to control their lighting.

Heating 83%	Lighting 36%	Motors or Industrial Processes 11%	On-Site Generation 6%
Cooling 77%	Refrigeration 19%	District Steam System 6%	Other Equipment 7%
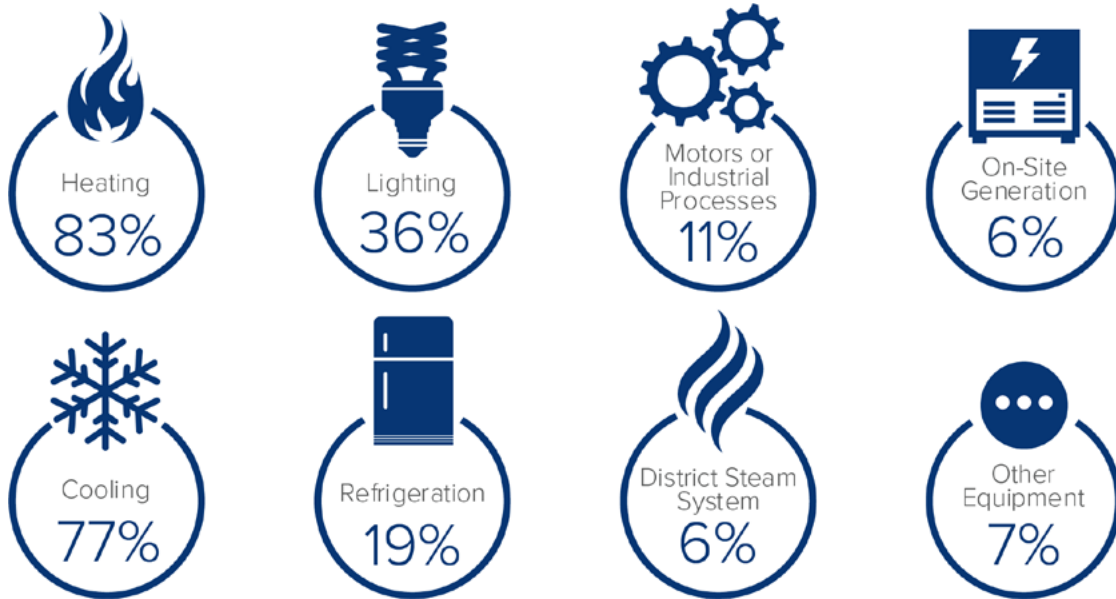
EMS Age

- The average age of EMS in New York commercial businesses is 10 years.
- 38% of EMS were installed in the past 5 years, while 10% were installed over 20 years ago.

10%

17%

38%

17%

18%

- 0 - 5 Years
- 6 - 10 Years
- 11 - 15 Years
- 16 - 20 Years
- Over 20 Years
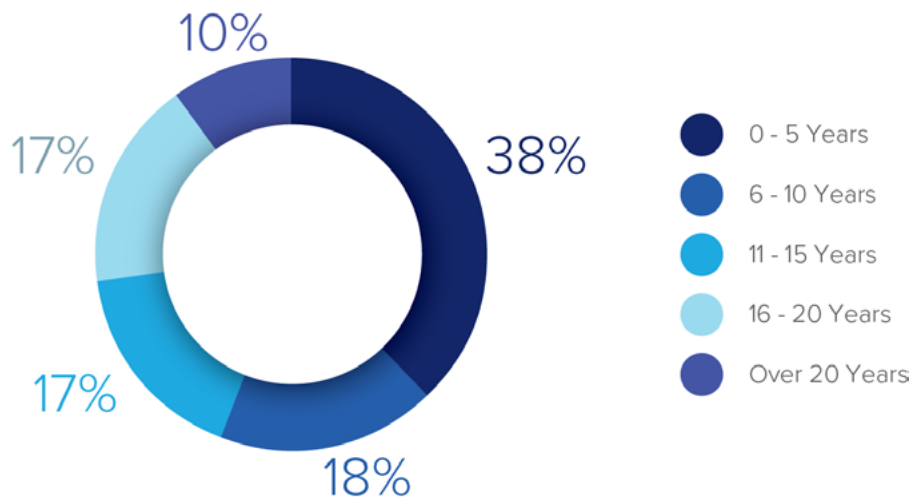
Other Key Findings

- Most businesses with an EMS employ basic controls (94%), such as scheduling and HVAC setpoints.
- The vast majority of EMS systems use digital controls (96%) compared to pneumatic controls (4%).
- On average EMS control approximately 60,000 square feet per business, or 57% of the total square footage of the businesses in which they are located.

SECTION 10
Water Heating

Water Heating

Water heating equipment is defined as "automatically controlled, thermally-insulated equipment designed for heating water at temperatures less than 180 degrees Fahrenheit for other than space heating purposes."[1] There are four major types of commercial water heating equipment:

STORAGE TANK WATER HEATERS are the conventional water heaters often found in residential buildings. They heat and store water at a preset temperature using a dedicated electric heating element or a gas, oil, or propane burner.

HEAT PUMP WATER HEATERS are electric storage tank water heaters that use heat pump technology to move heat from the air to the water in the tank. These systems are more efficient than other electric storage tank water heaters.

INDIRECT STORAGE WATER HEATERS heat a tank of stored water through hot water or steam from a boiler rather than directly using a burner or heating element.

TANKLESS WATER HEATERS do not have a storage tank. They instantly heat water as it flows through the device. Tankless water heaters save energy because they do not store water that needs to be kept hot when not needed.

While an efficient hot water heater can reduce the amount of energy used to heat water, hot water control devices are designed to reduce water flow. These devices are applied to water fixtures such as faucets, showerheads, and spray nozzles and save energy by reducing the amount of hot water that is used. Common types of water fixture control devices include:

LOW FLOW FAUCET AERATORS are devices that reduce a faucet's water flow while maintaining appropriate water pressure and flow.

LOW FLOW SPRAY NOZZLES – also called pre-rinse spray valves – are often used in commercial kitchens to remove food waste from dishes prior to dishwashing.

LOW FLOW SHOWERHEADS save energy by limiting the flow of hot water.

[1] https://www.eia.gov/consumption/commercial/terminology.php#W

Water Heating Penetration

- A large majority of businesses (81%) have water heating equipment.

- Storage tank water heaters are the most common type of water heater, found in 67% of businesses. All other types are present in less than 10% of businesses.

- Nearly all businesses (85%) have faucets in their space, but other water fixtures are less common (found in less than 10% of businesses).[2]
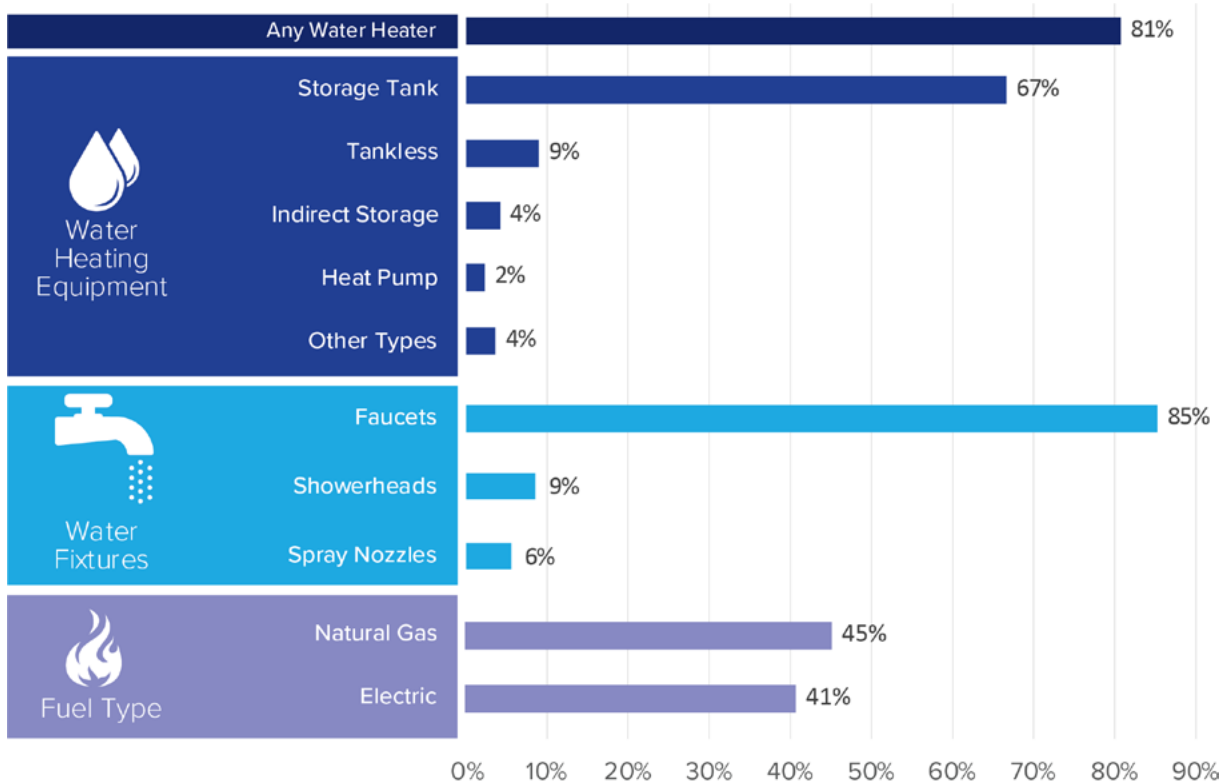
Penetration by Fuel Type

- Natural gas and electricity are the most common fuels used for water heating. Similar proportions of businesses have water heating fueled by natural gas (45%) and electricity (41%).

- All other fuel types are found in less than 5% of businesses.

Natural Gas Heating	Electric Heating	Propane Heating	Oil Heating	Other Heating Fuel
45%	41%	4%	3%	1%
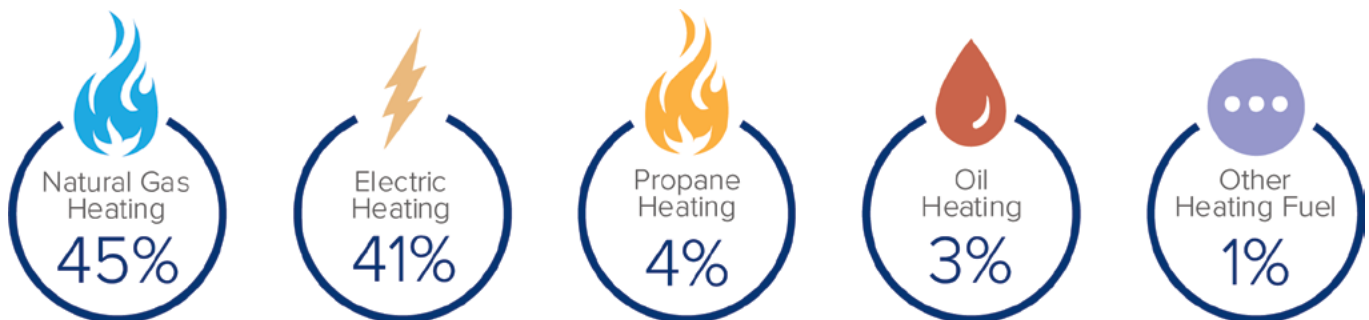
[2] The penetration of faucets is higher than the penetration of water heating equipment because some businesses use hot water but do not have water heating equipment in their business (i.e., included in their utility bills). To avoid double counting of equipment, the penetration of water heating equipment does not include businesses that receive hot water from shared equipment located in other businesses.

USE OF WATER HEATING EQUIPMENT

- A large majority of businesses with water heating (84%) use it for restrooms and showers.

- Dishwashing, food preparation, and laundry are less common uses (23%, 18%, and 12%, respectively) and are typically found in specific segments or businesses.
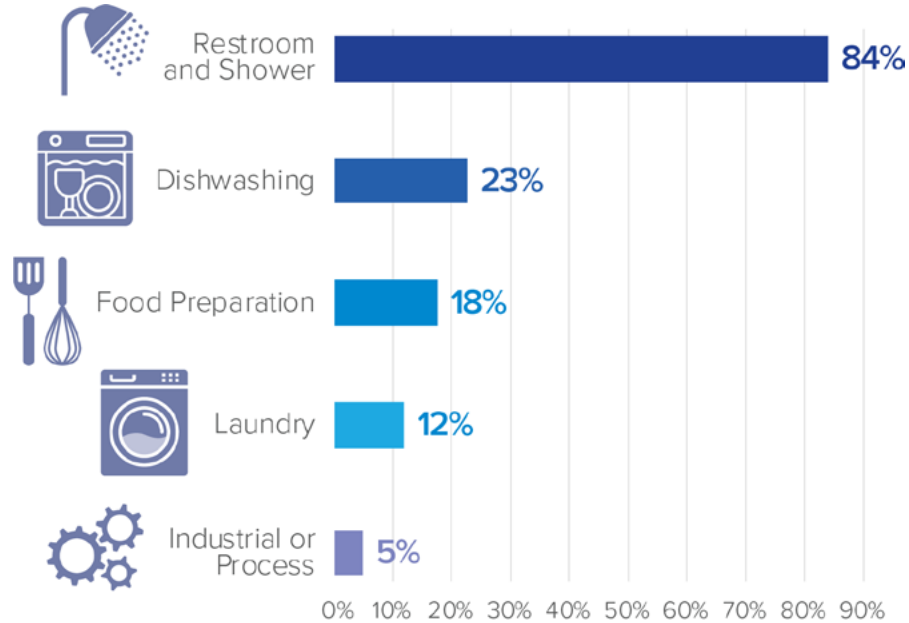
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Penetration of Key Equipment and Key Heating Fuel by Region

- The penetration of water heating equipment is much lower in businesse in the Downstate region (70%) than in the Upstate (89%) or Long Island/Hudson Valley (86%) regions.

- Natural gas is the most prevalent water heating fuel type in all regions. However, it is more common in the Upstate region (51%) than in the other regions.

	Water Heating Equipment Penetration	Key Fuel Penetration		Key Equipment Penetration			
		Natural Gas Water Heat	Electric Water Heat	Storage Tank	Tankless	Indirect Storage	Heat Pump
Downstate	70%	39%	35%	56%	7%	5%	3%
Upstate	89%	51%	44%	78%	10%	4%	2%
Lond Island/ Hudson Valley	86%	46%	45%	68%	11%	5%	2%

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Section 10 | Water Heating
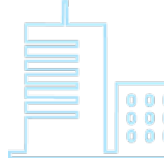
Penetration of Key Equipment and Key Heating Fuel by Business Size

- Nearly all medium/large businesses (89%) have water heating equipment compared with 79% for small businesses.

- Nearly equal shares of small businesses have natural gas and electric water heating equipment. In contrast, the penetration of natural gas water heating equipment in medium/large businesses is much higher than electric equipment (56% compared to 38%).

	Water Heating Equipment Penetration	Key Fuel Penetration		Key Equipment Penetration			
		Natural Gas Water Heat	Electric Water Heat	Storage Tank	Tankless	Indirect Storage	Heat Pump
Small	79%	42%	41%	65%	9%	4%	2%
Medium/Large	89%	56%	38%	73%	10%	5%	4%

Penetration of Key Equipment and Key Heating Fuel by Business Segment

- Water heating equipment is most commonly found in businesses in the lodging/hospitality (92%), education (91%), and food service (90%) segments.

- The penetration of tankless and indirect storage water heaters is highest in the lodging/hospitality and education segments, as businesses in these segments likely need multiple or more custom solutions for their high demand for hot water.

	Water Heating Equipment Penetration	Key Fuel Penetration		Key Equipment Penetration			
		Natural Gas Water Heat	Electric Water Heat	Storage Tank	Tankless	Indirect Storage	Heat Pump
Lodging/Hospitality	92%	46%	35%	76%	17%	9%	3%
Education	91%	55%	39%	76%	12%	7%	1%
Food Service	90%	65%	28%	79%	10%	4%	3%
Grocery	84%	43%	47%	69%	9%	3%	4%
Warehouse	80%	34%	53%	68%	8%	4%	1%
Retail	78%	42%	43%	61%	11%	4%	1%
Health Services/Hospitals	78%	46%	34%	66%	6%	4%	3%
Office	77%	41%	41%	64%	7%	4%	3%

Water Heating Saturation

- Commercial businesses in New York have an average of 1.1 water heaters.
- Storage water heaters account for 80% of all installed water heaters, or 0.9 per business.

Saturation — Average Quantity

Water Heating Equipment	Saturation	Average Quantity
Any Water Heating Equipment	1.1	1.3
Storage Tank	0.9	1.3
Tankless	0.1	1.4
Indirect Storage	0.1	1.5
Heat Pump	<0.1	1.0
Other Types	<0.1	1.0
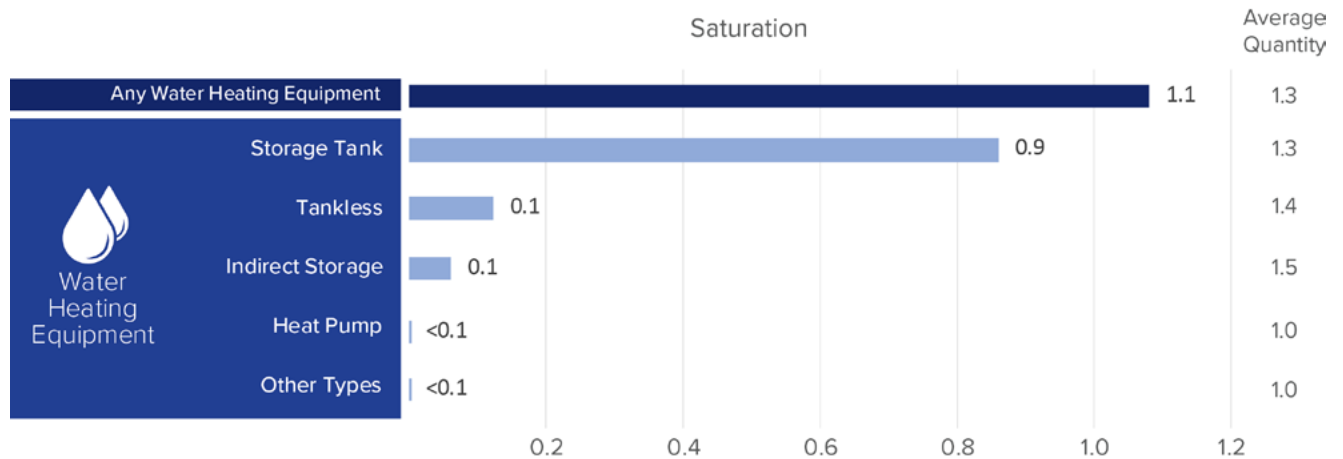
Water Heating Equipment Age

- Storage tank water heaters are older, on average, than tankless water heaters (8.7 years compared to 7.2 years).
- 40% of tankless water heaters were installed in 2015 or later compared to 21% of storage water heaters.

Storage Tank — Average Age (Years) 8.7
21%, 1%, 9%, 6%, 26%, 37%

Tankless — Average Age (Years) 7.2
2%, 5%, 3%, 14%, 35%, 40%

Legend:
- Before 1990
- 1990-1999
- 2000-2004
- 2005-2009
- 2010-2014
- 2015 or later
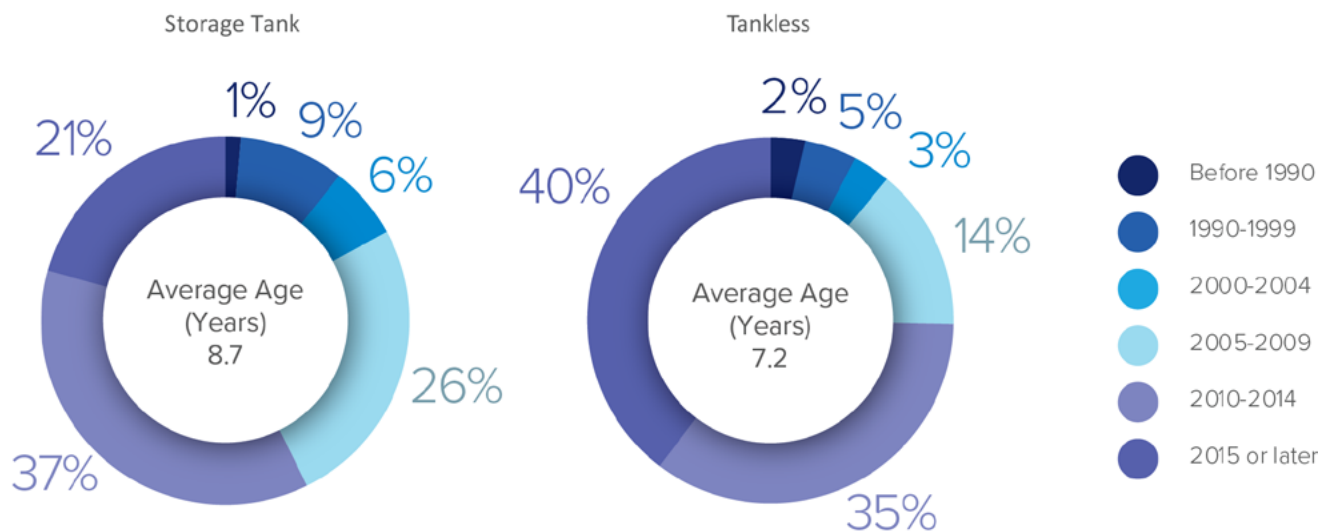
Other Key Findings

WATER FIXTURES

- Two-thirds of faucets in New York commercial businesses (67%) have a low flow aerator. These energy-saving fixtures are common in faucets in the Long Island/Hudson Valley (86%) and Downstate regions (79%) but are relatively rare in the Upstate region (39% of faucets).
- A similar share of showerheads (66%) are low flow showerheads.
- Spray nozzles are found in 21% of businesses in the food service segment but are much less common in other segments due to their specialized application.

WATER HEATERS

- Pipe insulation is present for one quarter (26%) of water heaters.
- Only 3% of water heaters have drain water heat recovery.

Storage Tank Water Heaters

Capacity

- The mean capacity of storage tank water heaters is 47.1 gallons.

- More than half of storage tank water heaters (54%) have a capacity of between 40 and 99 gallons.

- 16% of storage tank water heaters are very small (a capacity of less than 10 gallons) and 11% are very large (a capacity of 100 gallons or more).

Average Size (Gallons) 47.1

8% 3% 16% 20% 54%

Legend:
- Less than 10 Gallons
- 10-39 Gallons
- 40-99 Gallons
- 100-139 Gallons
- More than 140 Gallons
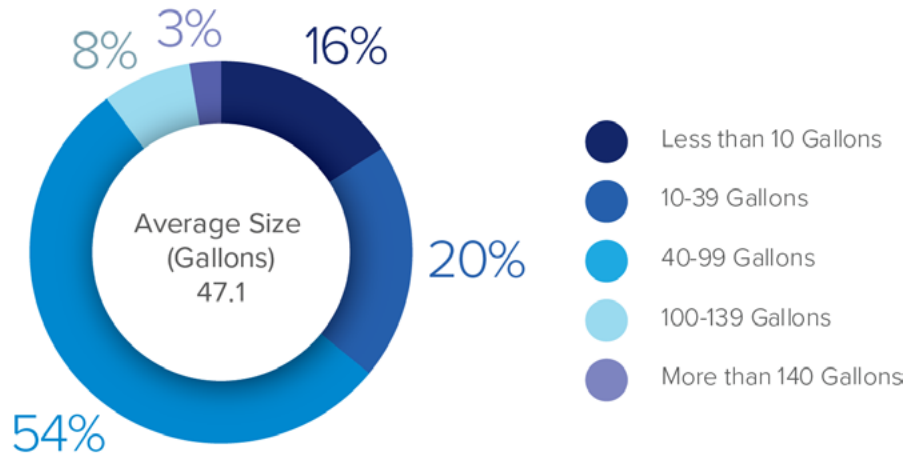
Temperature Setting

- More than one-third of storage tank water heaters (39%) have medium or high temperature settings (125° F or greater).

9% 30% 61%

Legend:
- Low (90-125°F)
- Medium (125-135°F)
- High (136-150°F)
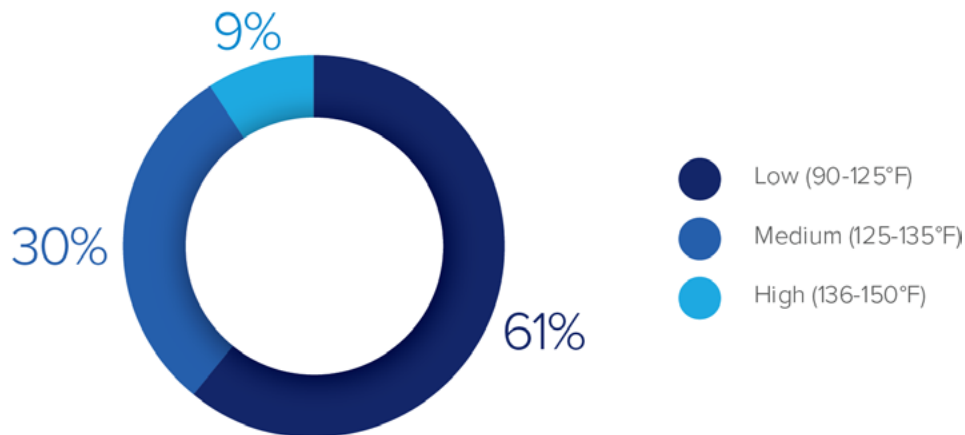
Other Key Findings

STORAGE TANK WATER HEATERS

- Just under half of storage tank water heaters (47%) are in unconditioned spaces.

- Less than one-third of storage tank water heaters (30%) in unconditioned spaces have an insulation blanket.

- 10% of storage tank water heaters have a recirculating system. These systems ensure hot water is always available at the point of use and save energy by reducing the need for the user to let the partially heated water run until it has reached the desired temperature.

Spotlight: Clothes Washers

- Almost three-quarters of clothes washers in commercial businesses (71%) are commercial front-loading washers.

- Residential style washers account for 26% of washers.

- Clothes washers in commercial businesses have an average capacity of 6.4 cubic feet.

- Nearly half of clothes washers (47%) have a capacity of less than 4 cubic feet.

Types of Washers

3%
18%
8%
71%

Commercial Front Loading
Residential Front Loading
Residential Top Loading
Commercial Top Loading

Capacity of Washer

3%
4%
13%
47%
33%

Average Capacity
(Cubic Feet)
6.4

0-3.9 Cu. Ft.
4-7.9 Cu. Ft.
8-14.9 Cu. Ft.
15-29.9 Cu. Ft.
30+ Cu. Ft.
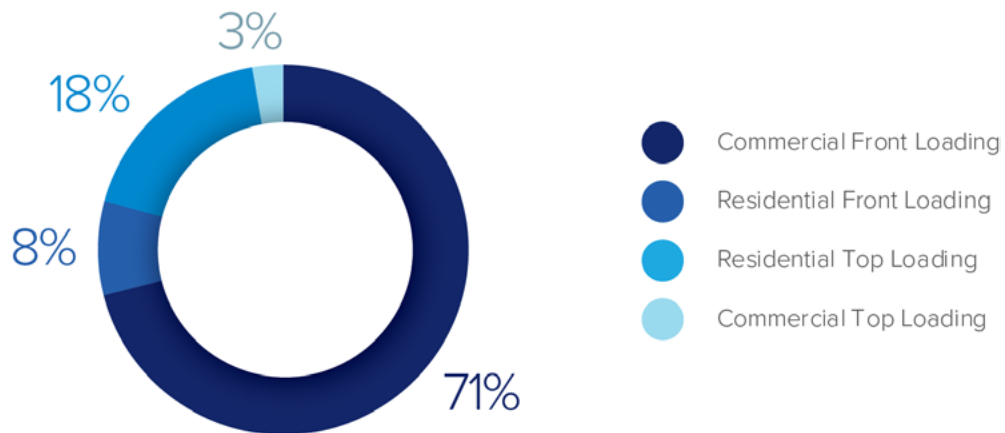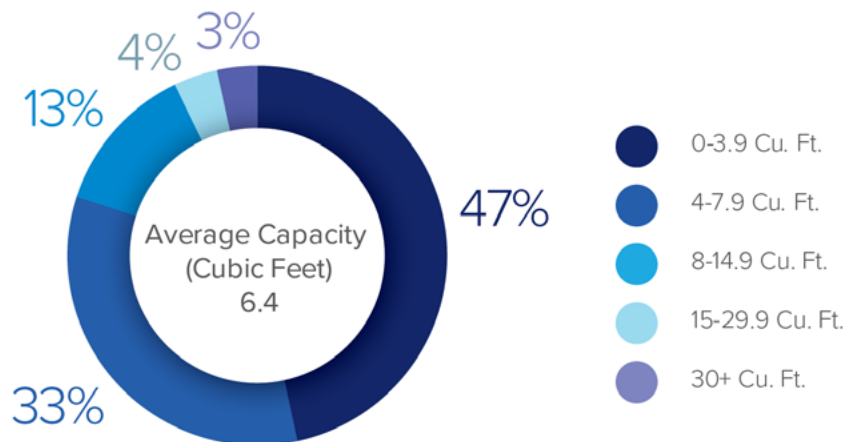
Other Key Findings

LAUNDRY EQUIPMENT

- Clothes washers run an average of 108 cycles per month.
- 15% of washers are ENERGY STAR® certified.
- Very small shares (1% or less) of clothes washers use Xeros beads or ozone.

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SECTION 11
Commercial Refrigeration

Commercial Refrigeration

Commercial refrigeration is among the most energy intensive end uses due to the need to constantly keep perishable products cold. Commercial refrigeration equipment differs from residential equipment in terms of size, layout, cooling ability, and appearance. Refrigerated cases and walk-in coolers/freezers are the most common — and most energy-intensive — types of commercial refrigeration equipment used by New York businesses.

REFRIGERATED CASES include both display cases (either open or with doors) designed to display products to customers and non-display cases such as reach-in units (found in kitchens) and under-the-counter units.

WALK-IN COOLERS OR FREEZERS are closet- or room-sized cold storage areas into which a person can walk. In addition to the primary access door, these units may have additional doors through which the stored products can be accessed.

Other commercial refrigeration equipment covered in this section includes ice machines and refrigerated vending machines.

Commercial Refrigeration Penetration

- Overall, 27% of commercial businesses in New York have commercial refrigeration.
- Most businesses with commercial refrigeration have refrigerated cases.

Category	Penetration
Commercial Refrigeration	27%
Refrigerated Cases	25%
Walk-In Refrigeration	16%
Ice Machines	13%
Refrigerated Vending Machines	8%
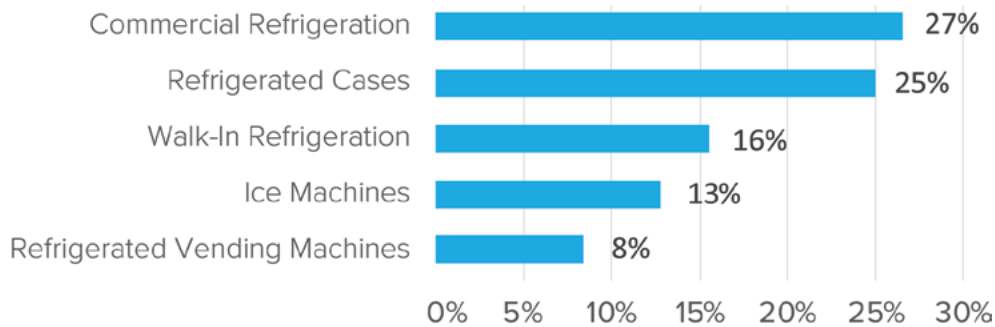
Commercial Refrigeration Penetration by Key Segments

- Due to its high electric load, the penetration of commercial refrigeration equipment is much higher in medium/large businesses (61%) than in small businesses (19%).
- Penetration of commercial refrigeration equipment is highest in the food service (>99%) and grocery (93%) segments, where refrigerated cases are ubiquitous and walk-in refrigeration is very common.

Region
Upstate	29%
Long Island/ Hudson Valley	24%
Downstate	28%

Usage Category
Medium/Large (≥75 MWh/Year)	61%
Small (<75 MWh/Year)	19%

Segment
Food Service	>99%
Grocery	93%
Lodging/ Hospitality	39%
Education	24%
Retail	21%
Warehouse	16%
Health Services/ Hospitals	12%
Office	6%
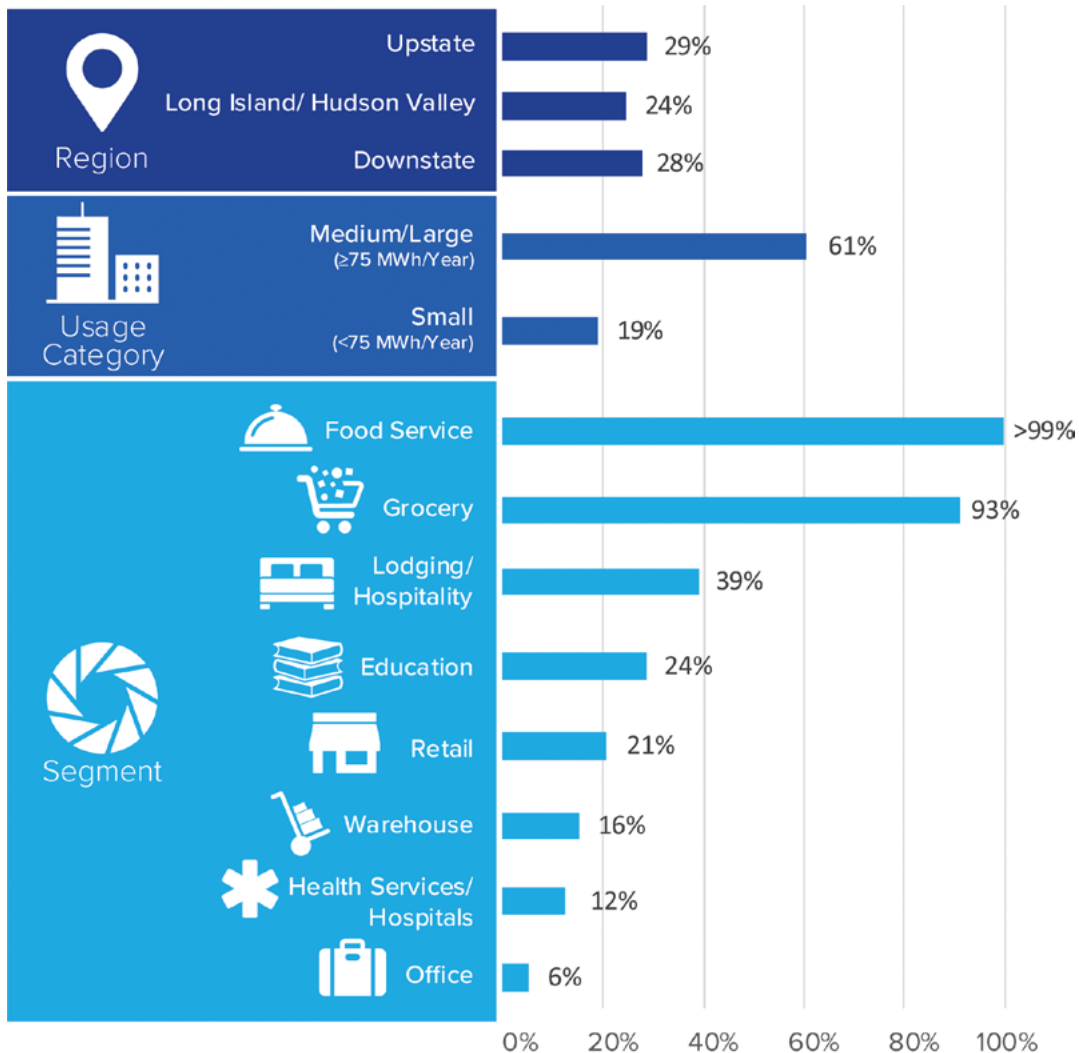
Refrigerated Cases

Saturation

- New York commercial businesses have an average of 1.7 refrigerated cases per business.

- The grocery/convenience and food service segments have the highest average number of refrigerated cases per business (7.7 and 7.1, respectively).

Category		Value
Statewide		1.7
Region	Upstate	2.0
	Long Island/ Hudson Valley	1.5
	Downstate	1.5
Usage Category	Medium/Large (≥75 MWh/Year)	5.2
	Small (<75 MWh/Year)	0.8
Segment	Grocery	7.7
	Food Service	7.1
	Lodging/ Hospitality	4.3
	Education	1.2
	Health Services/ Hospitals	1.2
	Retail	0.4
	Office	0.4
	Warehouse	0.2
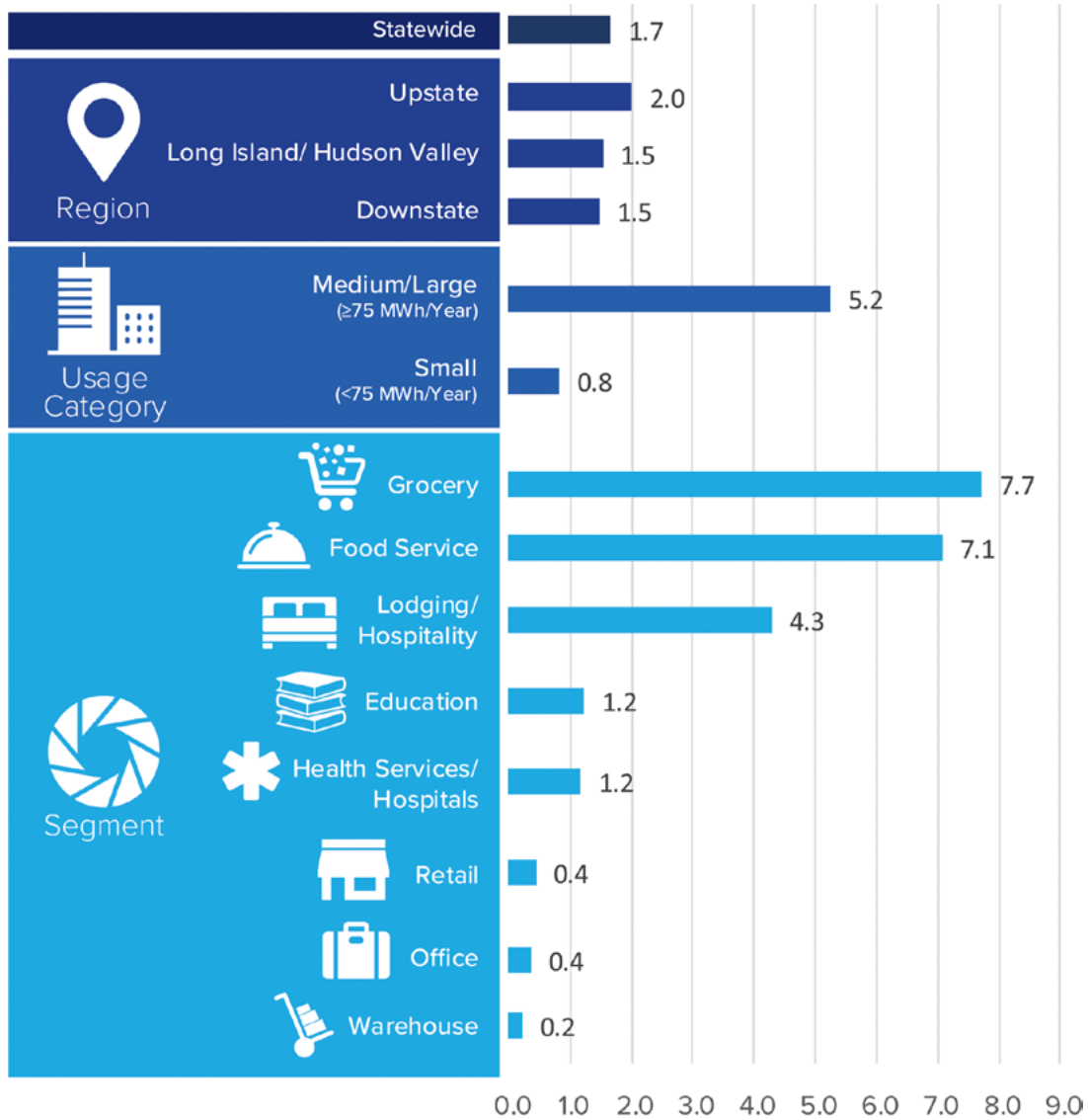
Length of Refrigerated Cases

- The average length of refrigerated cases in New York businesses is 5.4 linear feet.

- Display cases tend to be longer than non-display cases, and freezer cases tend to be longer than cooler cases.

- Refrigerated cases in the grocery/convenience segment have nearly twice the average linear feet of refrigerated cases (9.1) than the statewide mean (5.4).

	0-2.9 Ft.	3-5.9 Ft.	6-12 Ft.	Over 12 Ft.	Mean (Ft.)
All Refrigerated Cases	34%	41%	19%	6%	5.4
Display Cases - Freezer	12%	23%	40%	25%	14.2
Display Cases - Cooler	12%	37%	34%	17%	10.5
Non-Display Cases - Freezer	22%	54%	21%	3%	5.0
Non-Display Cases - Cooler	39%	40%	16%	6%	4.5
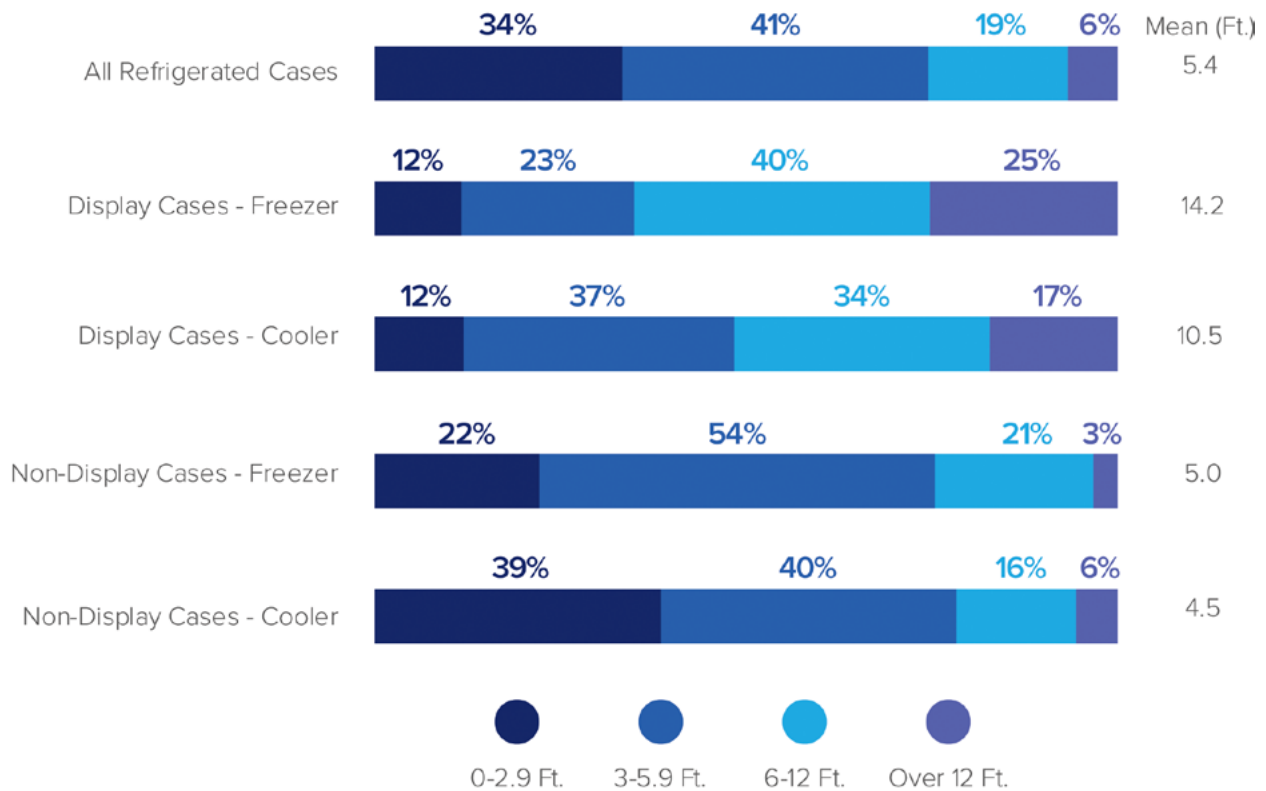
Age of Refrigerated Cases

- The average year of installation for refrigerated cases in New York commercial businesses is 2009.

- Nearly half (49%) of cases were installed in 2010 or later.

- New energy efficiency standards came into effect in 2010 and 2017.

Average Installation Year: 2009

7% 2% 4% 43% 45%

- 1990 or earlier
- 1991-2000
- 2001-2009
- 2010-2016
- 2017 or later
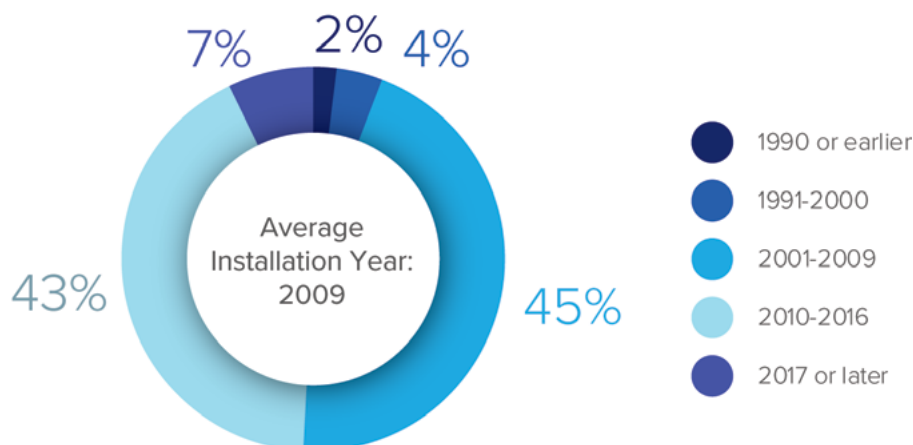
Refrigerated Case Lighting

- Just over half (53%) of refrigerated cases have lighting.

- LED lamps are the most common lighting type, found in 26% of cases.

- Among linear fluorescent lighting, T8s are most prevalent (10% of cases) compared to T12s (3%).

26%
47%
10%
3%
13%

- LED
- T8 Linear Fluorescent
- T12 Linear Fluorescent
- Other Lighting
- No Lighting Present
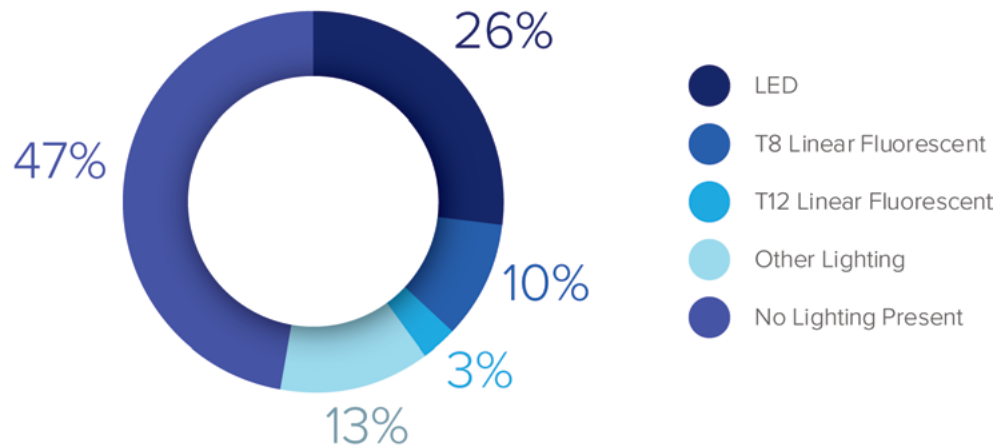
Lighting Controls

- Approximately one-third (30%) of refrigerated cases with lighting have no control present, i.e., the lights are always on.

- The most common type of lighting controls is door-activated controls (47%), followed by manual switch controls (22%).

- Other control types, such as motion sensors and timers, are found in only 1% of lighted cases in New York businesses.

30%
47%
1%
22%

- Door-activated
- Manual Switch
- Other Control Type
- No Control Present
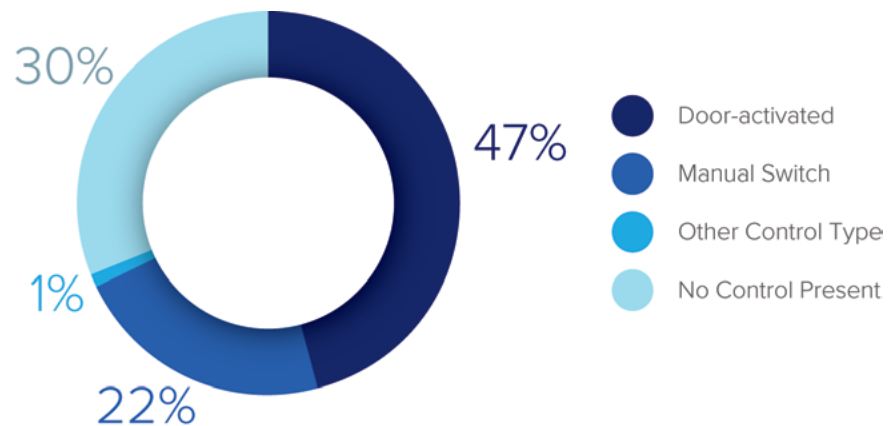
Other Key Findings

REFRIGERATED CASE DOORS

- Statewide, 70% of refrigerated display case coolers and 85% of refrigerated display case freezers have doors.

- 12% of open display cases coolers have night covers and 4% have strip curtains.

- Very few display cases have missing or damaged door gaskets (between 1% and 3%, depending on the case type).

Anti-Sweat Door Heater Controls

Refrigerated display cases often have door heaters to reduce condensation, but these heaters do not need to run constantly. Anti-sweat door heater controls reduce energy use of the heaters by only running them during periods of high humidity. Because the run-time of the heaters is lowered, these controls also save energy by reducing the required cooling load of the refrigerated case.

- One-third (34%) of refrigerated display case freezers and 11% of refrigerated display case coolers have anti-sweat door heater controls.
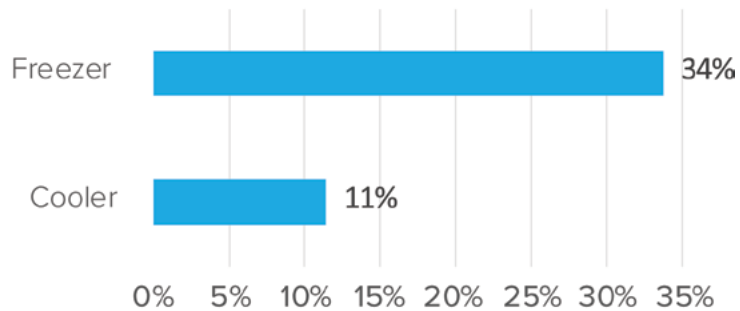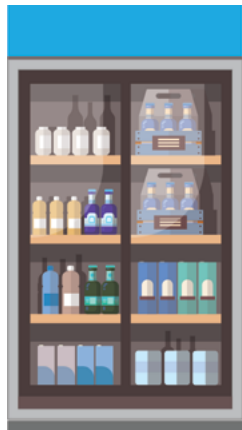
Refrigerated Case Freezer Defrost Controls

Freezers need to be defrosted periodically to prevent the build-up of ice. If a refrigeration coil is not defrosted, system performance may suffer due to ice blocking airflow.

- Most refrigerated cases (52% of display case freezers and 87% of non-display case freezers) do not have defrost controls.

- Timers are the most common defrost control and are used in 41% of display case freezers and 7% of non-display case freezers.

- Electronic controls are less common and used in 6% of display case freezers and 5% of non-display case freezers.
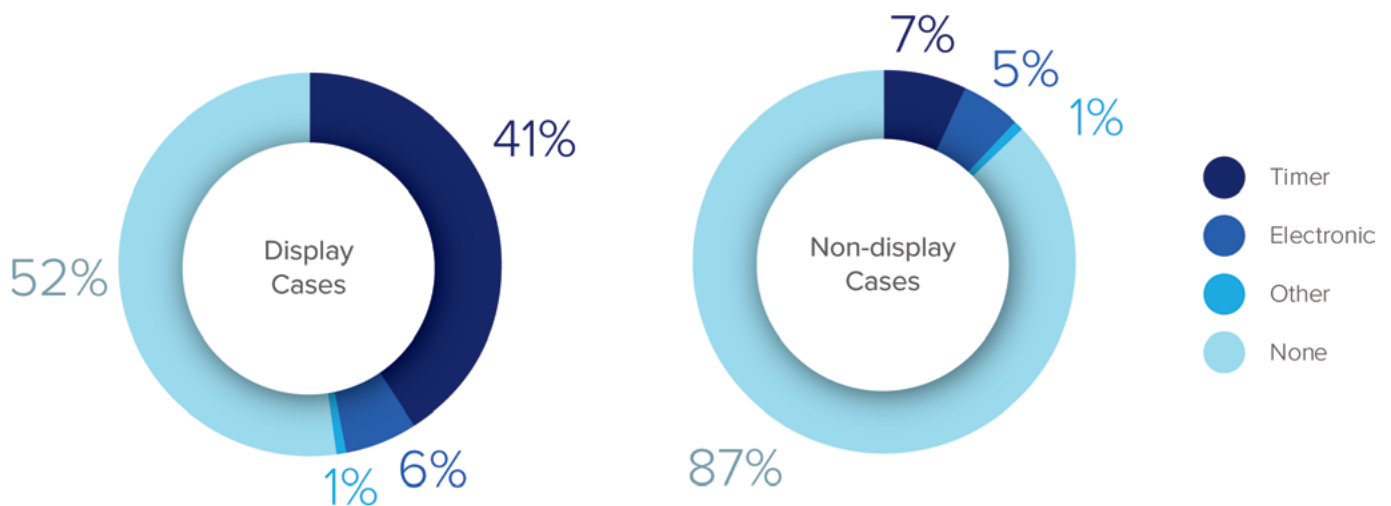
Walk-In Refrigeration

Saturation

- Businesses in New York have an average of 0.3 walk-in coolers and freezers per business.

- Businesses in the food service and grocery/convenience segments have the most walk-in refrigeration (1.3 and 1.2 walk-ins per business, respectively).

	Value
Statewide	0.3
Region	
Upstate	0.3
Long Island/ Hudson Valley	0.3
Downstate	0.3
Usage Category	
Medium/Large (≥75 MWh/Year)	1.0
Small (<75 MWh/Year)	0.1
Segment	
Food Service	1.3
Grocery	1.2
Lodging/ Hospitality	0.4
Warehouse	0.4
Education	0.2
Retail	0.1
Health Services/ Hospitals	0.1
Office	0.0
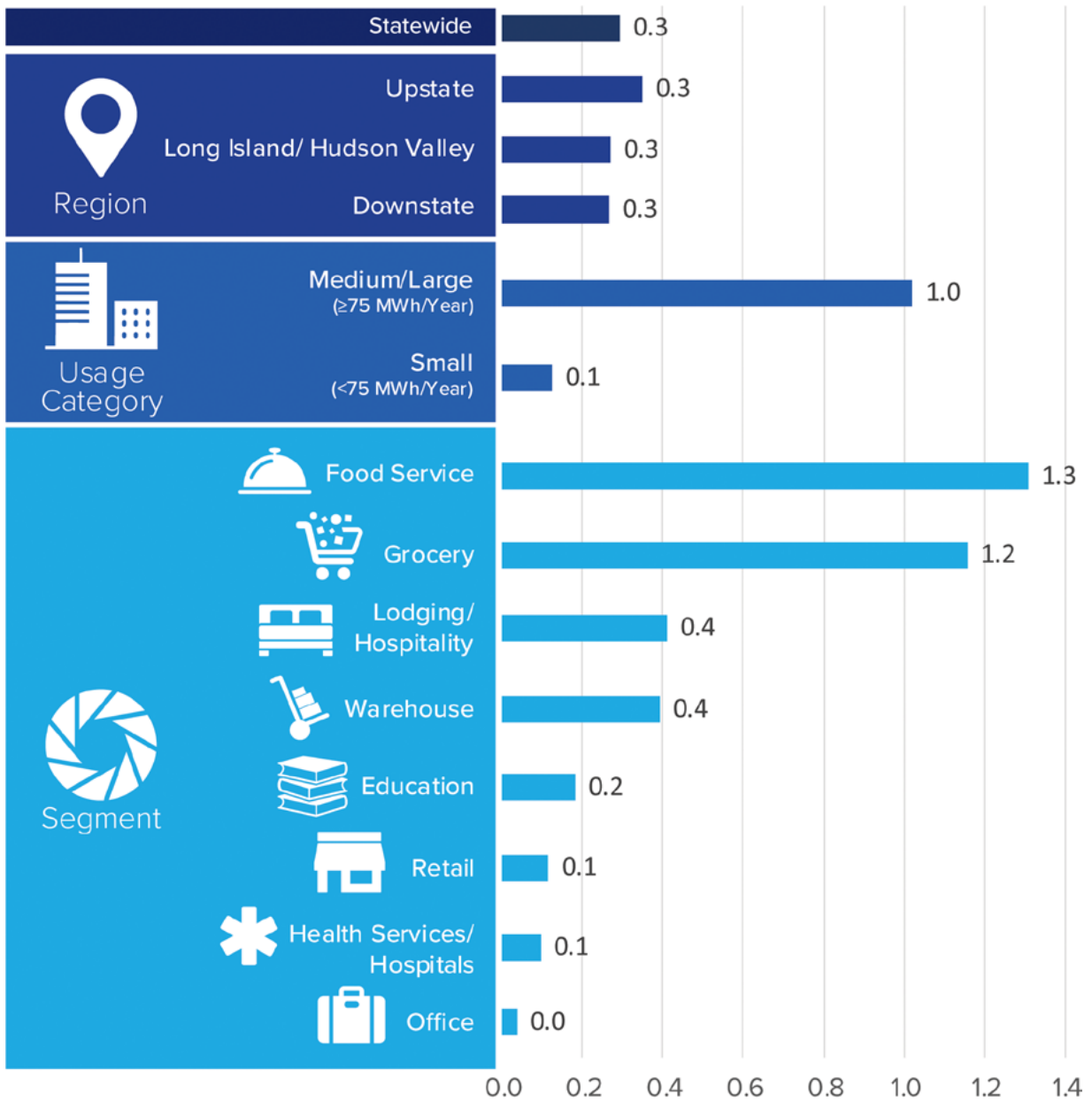
Floor Area of Walk-In Refrigeration

- Two-thirds of walk-in coolers and freezers (68% and 66%, respectively) have floor areas of 100 SF or less.

- While few walk-ins (13% of coolers and 14% of freezers) are larger than 200 SF, those that are tend to be very large.

	Less than 50 SF	51-100 SF	101-200 SF	Over 200 SF	Mean SF
Walk-In Cooler	29%	39%	19%	13%	417
Walk-In Freezer	34%	31%	20%	14%	383
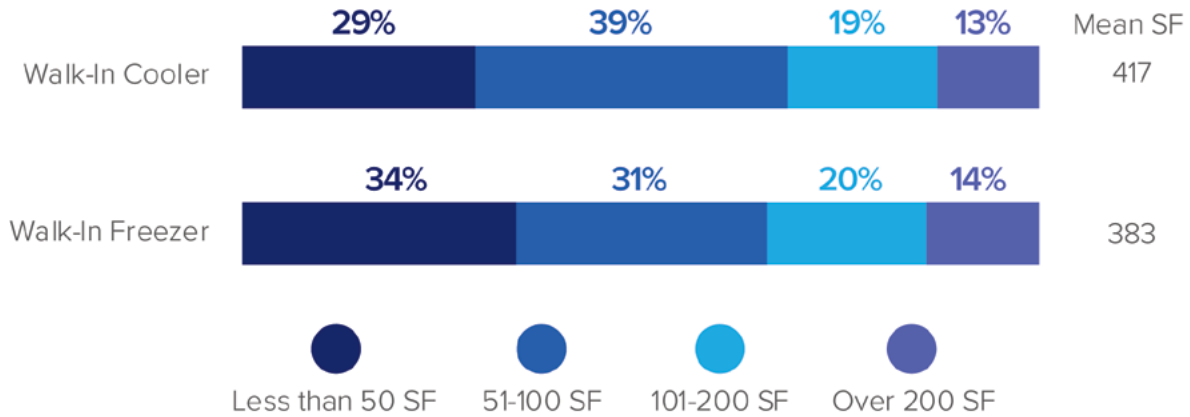
Floor Area of Walk-In Refrigeration by Segment

- While walk-in coolers and freezers are relatively uncommon in the warehouse segment (penetration of 11%), those that are present are much larger than in other segments and often account for large portions of the business.

Floor Area in Square Feet

	Coolers	Freezers
Warehouse	3,918	2,090
Lodging/ Hospitality	162	73
Grocery	156	117
Office	121	166
Retail	90	267
Food Service	83	93
Health Services/ Hospitals	83	128
Education	61	124

Spotlight: Refrigeration Systems

Most commercial refrigeration units are standalone or self-contained, with all refrigeration components (e.g., compressor, condenser, and evaporator) built into the unit. However, some refrigerated cases and walk-ins are not self-contained and are part of a larger system. These "refrigeration systems" include the evaporator (located in the refrigerated cabinet) and the condenser and compressor (located in a separate unit but connected to the cabinet by a coolant line).

- Half of businesses with commercial refrigeration (50%) have refrigerated cases or walk-in refrigeration units that are not self-contained, i.e., they are part of a larger system with a remote condenser.

- Nearly two-thirds of refrigeration systems (63%) have a capacity of 12,000 BTU/hr or less

- The mean capacity of systems (16,613 BTU/hr) is driven by the high capacity of systems in the grocery/convenience and food service segments.

Average Capacity: 16,613 BTU/hr

Legend:
- 0-3,000 BTU/hr
- 3,001-6,000 BTU/hr
- 6,001-9,000 BTU/hr
- 9,001-12,000 BTU/hr
- 12,001-18,000 BTU/hr
- 18,001-36,000 BTU/hr
- Over 36,000 BTU/hr
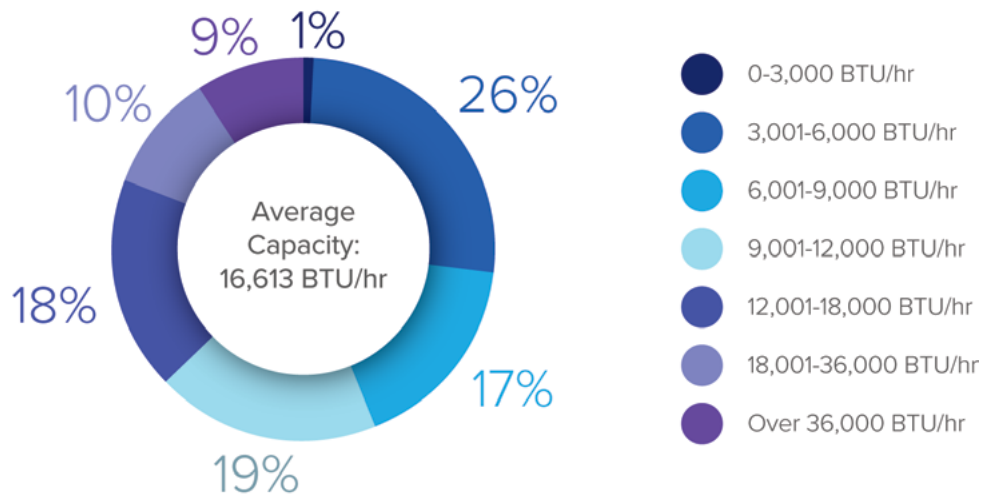
Other Key Findings

- Nearly all systems (93%) have only one compressor. The average compressor size is 5.0 horsepower.

- Reciprocating compressors, including semi-hermetic (44%), hermetic (25%), and open (25%), are present in the vast majority (94%) of refrigeration systems.

- Air-cooled condensers are the most common type of condenser in refrigerated systems. They are found in 67% of systems.

- 14% of refrigeration systems have floating head pressure.

- 4% of refrigeration systems are rack systems with multiple refrigeration units.

- Only 2% of businesses have refrigeration systems with ammonia refrigerant.

RESIDENTIAL-STYLE REFRIGERATORS

- More than half of commercial businesses in New York (59%) have residential-style refrigerators, often in their kitchen or employee break room.

- On average, New York businesses have 1.6 residential-style refrigerators per business. The saturation is highest in the lodging/hospitality (8.6) and education (3.7) segments.

- Thirteen percent of these refrigerators are ENERGY STAR®-certified.

REFRIGERATED VENDING MACHINES

- Refrigerated vending machines are found in 8% of New York commercial businesses and are most common in the education (20%) and lodging/hospitality (17%) segments.

- Commercial businesses have an average of 0.1 refrigerated vending machines. Saturation of refrigerated vending machines is highest in the education segment (0.6).

- 17% of refrigerated vending machines are ENERGY STAR® certified.

- Statewide, 17% of refrigerated vending machines have vending misers, which power down the unit when the surrounding area is vacant, and 1% have a shut-off timer.

ICE MACHINES

- Ice machines are present in 13% of New York commercial businesses. They are most commonly found in the food service (72%) and lodging/hospitality (37%) segments.

- New York commercial businesses have an average of 0.2 ice machines. Saturation of this equipment is highest in the food service (0.8) and lodging/hospitality segments (0.6). All other segments have an average of 0.2 or fewer ice machines per business.

- Statewide, 22% of ice machines are ENERGY STAR® certified.

- The large majority of ice machines (83%) are stand-alone units, with the remaining shares consisting of ice making heads that require other equipment to store and dispense the ice. Ice machine heads are typically self-contained (17% of ice machines) but can also have remote condensers (1%).

Section 11 I Commercial Refrigeration

SECTION 12
Commercial Kitchen Equipment

Commercial Kitchen Equipment

Overall, commercial kitchen equipment represents a minor proportion of overall energy use. However, high per-unit input capacities help make the food service segment among the most energy intensive segments of the commercial building population. Kitchen equipment can be fueled by electricity, natural gas, or propane.

Major types of commercial kitchen equipment include:

Convection ovens move hot dry air over the surface of the food.

Combination ovens can cook in three different modes: convection hot air, steam, or a combination of both.

Conveyor ovens cook food by moving it on a belt through a heated chamber.

Rack ovens are large ovens in which a rack is wheeled and can be rotated during the cooking process.

Fryers contain oils that are heated. Food is cooked by being submerged in the hot oil.

Griddles are flat hot surfaces on which food is cooked in oil or its own juices. Griddles can be smooth or have ridges or channels.

Steam cookers cook foods with steam heat.

Holding cabinets maintain the temperature of hot food cooked in other appliances.
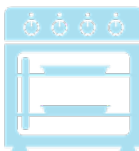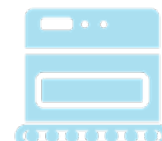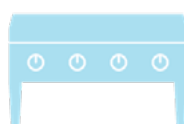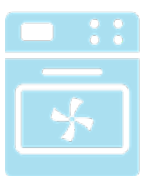
Commercial Kitchen Penetration by Fuel Type

- Overall, only 19% of commercial businesses in New York have commercial kitchen equipment.

- Similar proportions of commercial businesses have natural gas and electric kitchen equipment (13% and 11%, respectively).

- Commercial fryers and griddles are among the most common types of commercial kitchen equipment for all fuel types.

- Holding cabinets are the most commonly found type of electric kitchen equipment.

- Ovens of all types are the most often fueled by natural gas.
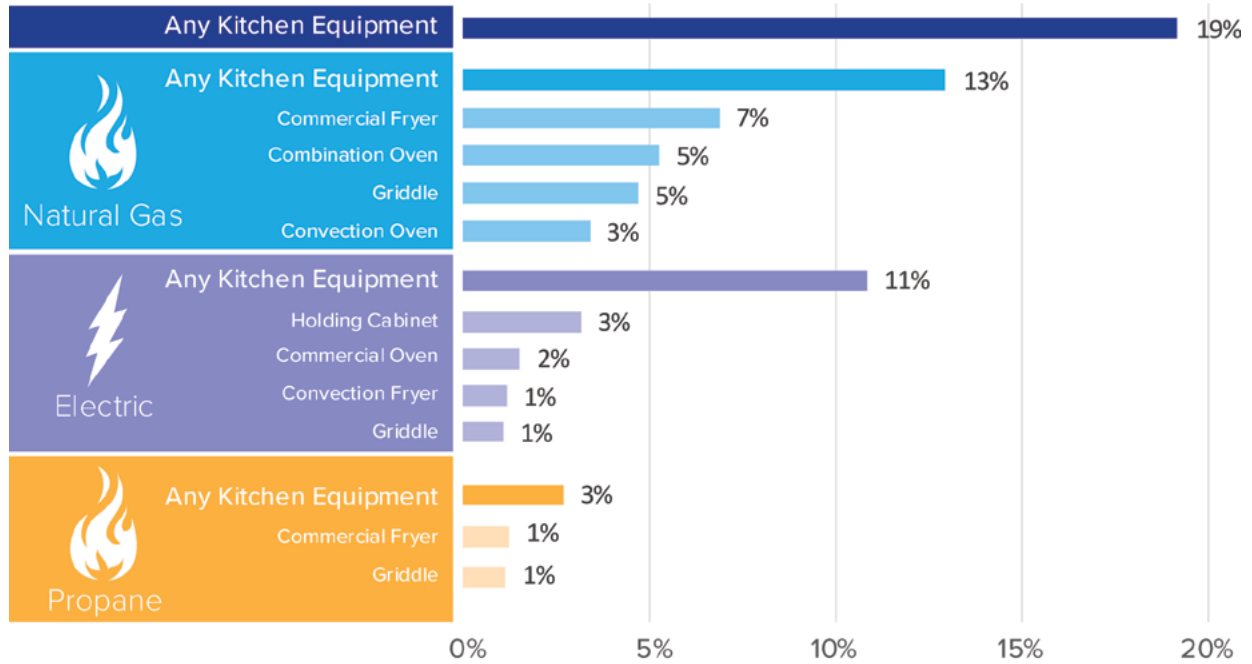
Note that equipment with penetration of less than 1% is not shown in this figure.

Other Key Findings

DISHWASHERS

- Statewide 8% of commercial businesses have a commercial dishwasher.

- The most common type of commercial dishwasher is an under counter dishwasher (53%), followed by a single tank dishwasher (45%).

Commercial Kitchen Saturation

- The most common types of commercial kitchen equipment are convection ovens (0.17 per business) and commercial fryers (0.16 per business).

- Most types of commercial kitchen equipment in New York State are predominantly fueled by natural gas.

- The highest share of holding cabinets (85%), conveyor ovens (51%), and steam cookers (48%) are electric.

- Small shares of commercial kitchen equipment use propane or other fuels, such as wood or butane.

Equipment	Natural Gas	Electricity	Propane & Other Fuels	Total
Convection Oven	0.11	0.05	0.01	0.17
Commercial Fryer	0.14	0.02	0.01	0.16
Combination Oven	0.08	0.01	0.02	0.11
Griddle	0.07	0.02	0.01	0.09
Holding Cabinet	0.01	0.05		0.06
Conveyor Oven	0.01	0.01		0.02
Steam Cooker	0.01	0.01		0.02
Rack Oven	0.01			0.01

Legend: Natural Gas, Electricity, Propane & Other Fuels, Total
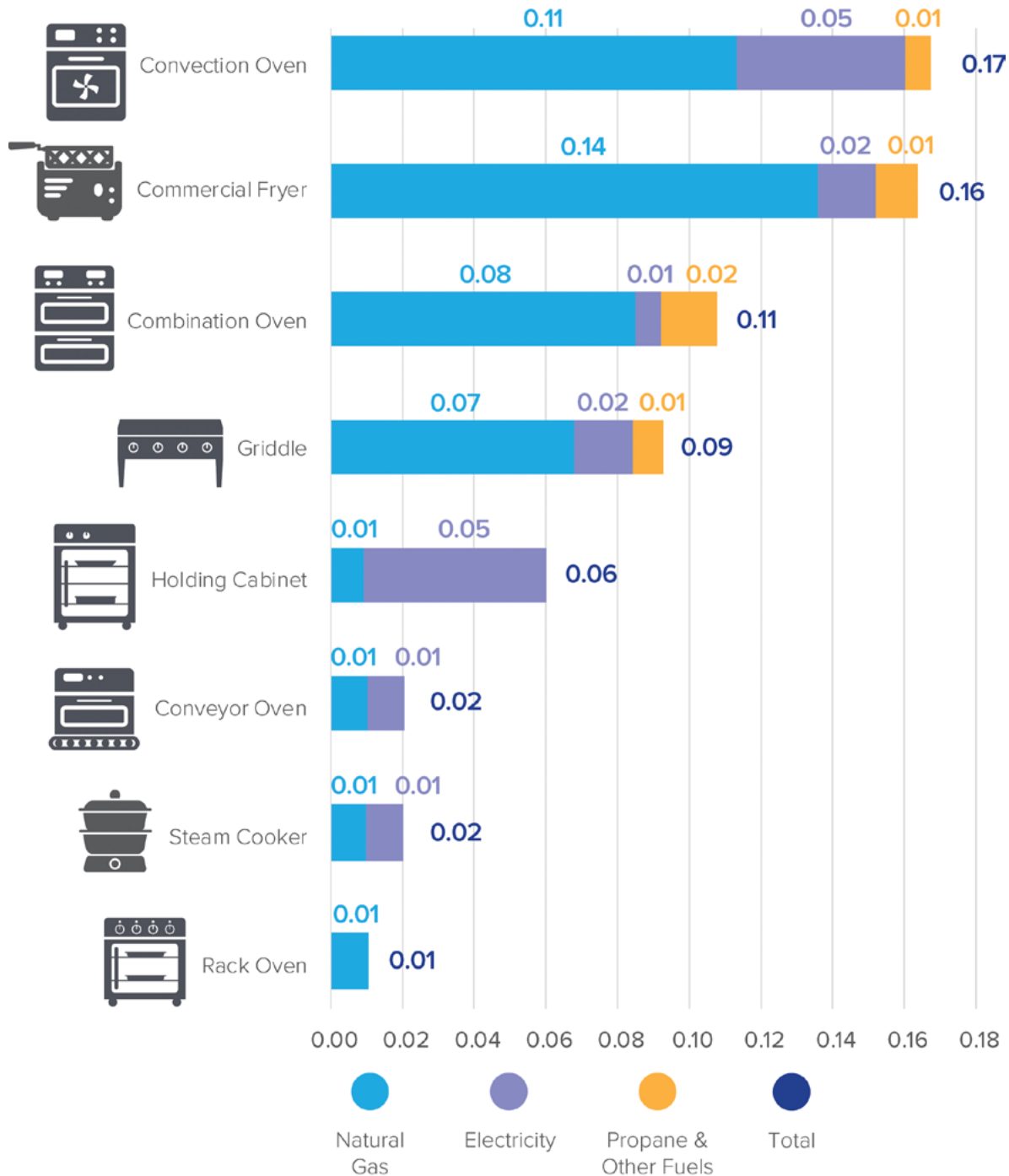
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Commercial Kitchen Equipment Penetration by Key Segments

- The Upstate region has a significantly higher penetration of commercial cooking equipment than other regions. While the share of businesses in the food service segment is similar in all regions, the Upstate region has relatively more businesses in the lodging/hospitality and education segments which tend to have high penetrations of cooking equipment.

- Penetration of commercial kitchen equipment is high among medium/large businesses (48%) because it is correlated with the presence of refrigeration equipment, which is a large user of electricity.

- Penetration of commercial kitchen equipment is highest in the food service segment (82% of businesses).

Region
- Upstate — 23%
- Long Island/ Hudson Valley — 18%
- Downstate — 17%

Usage Category
- Medium/Large (≥75 MWh/Year) — 48%
- Small (<75 MWh/Year) — 12%

Segment
- Food Service — 82%
- Lodging/ Hospitality — 35%
- Grocery — 32%
- Education — 30%
- Health Services/ Hospitals — 9%
- Office — 7%
- Retail — 6%
- Warehouse — 4%
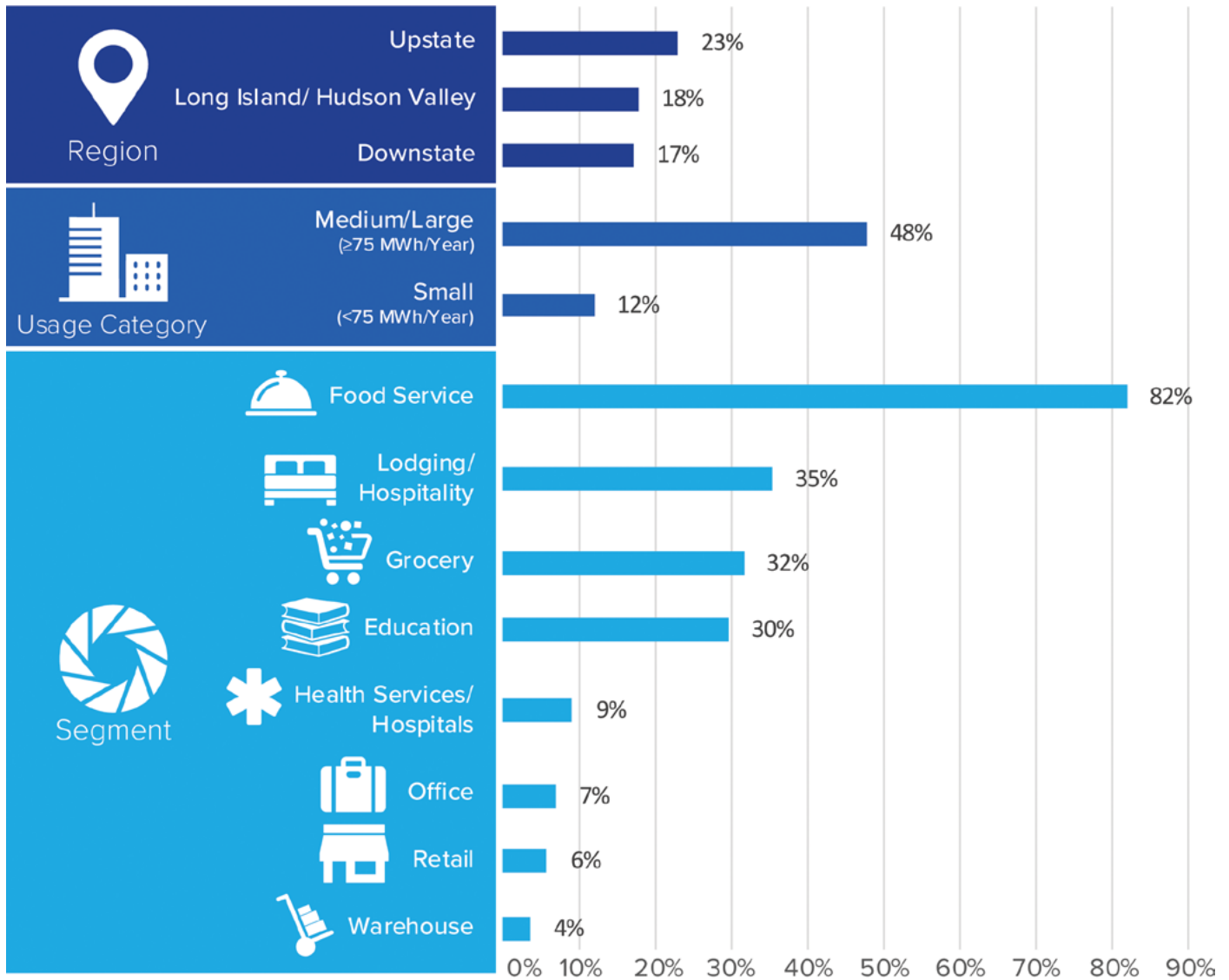
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SECTION 13

Motors

Motors

Compared to the industrial sector, motors are less common in commercial businesses and account for less energy use. This section covers motors that perform single tasks and are used in applications such as pumping, conveyors, hydraulics, and process exhaust or ventilation fans. Not included in this section are motors used in HVAC systems or in other end uses or motors that are part of specialized equipment where the motor cannot be easily swapped (e.g., a mixer in a commercial kitchen).

This section also includes information on variable frequency drives (VFDs), which allow motors to operate more efficiently by adjusting the speed of the motor to the required load.
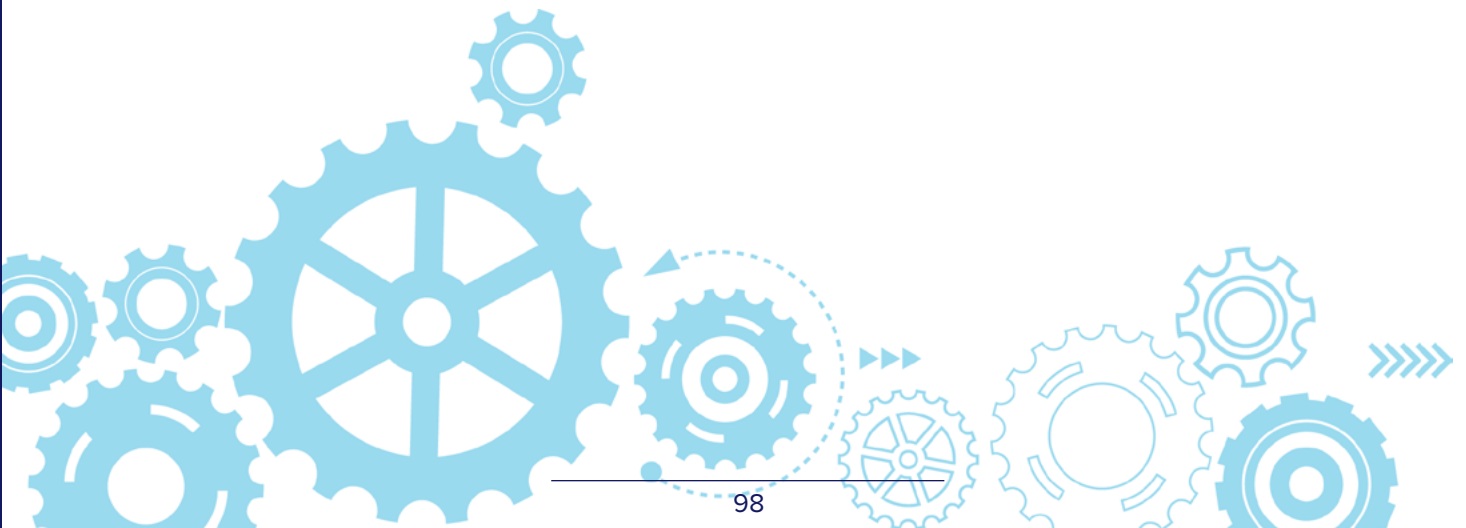
Motor Penetration

- Overall, 7% of commercial businesses in New York have motors.

- Penetration of motors is similar in all regions, but lowest in the Downstate region (5%).

- Medium/large businesses are twice as likely to have motors than small businesses (12% compared to 6%).

- The health services/hospitals and lodging/hospitality segments have the highest penetration of motors. In these segments, motors are commonly used for pumping water or other liquids.

Category		Penetration
Statewide		7%
Region	Upstate	8%
	Long Island/ Hudson Valley	7%
	Downstate	5%
Usage Category	Medium/Large (≥75 MWh/Year)	12%
	Small (<75 MWh/Year)	6%
Segment	Health Services/ Hospitals	11%
	Lodging/ Hospitality	10%
	Warehouse	9%
	Grocery	9%
	Food Service	8%
	Retail	7%
	Education	5%
	Office	4%
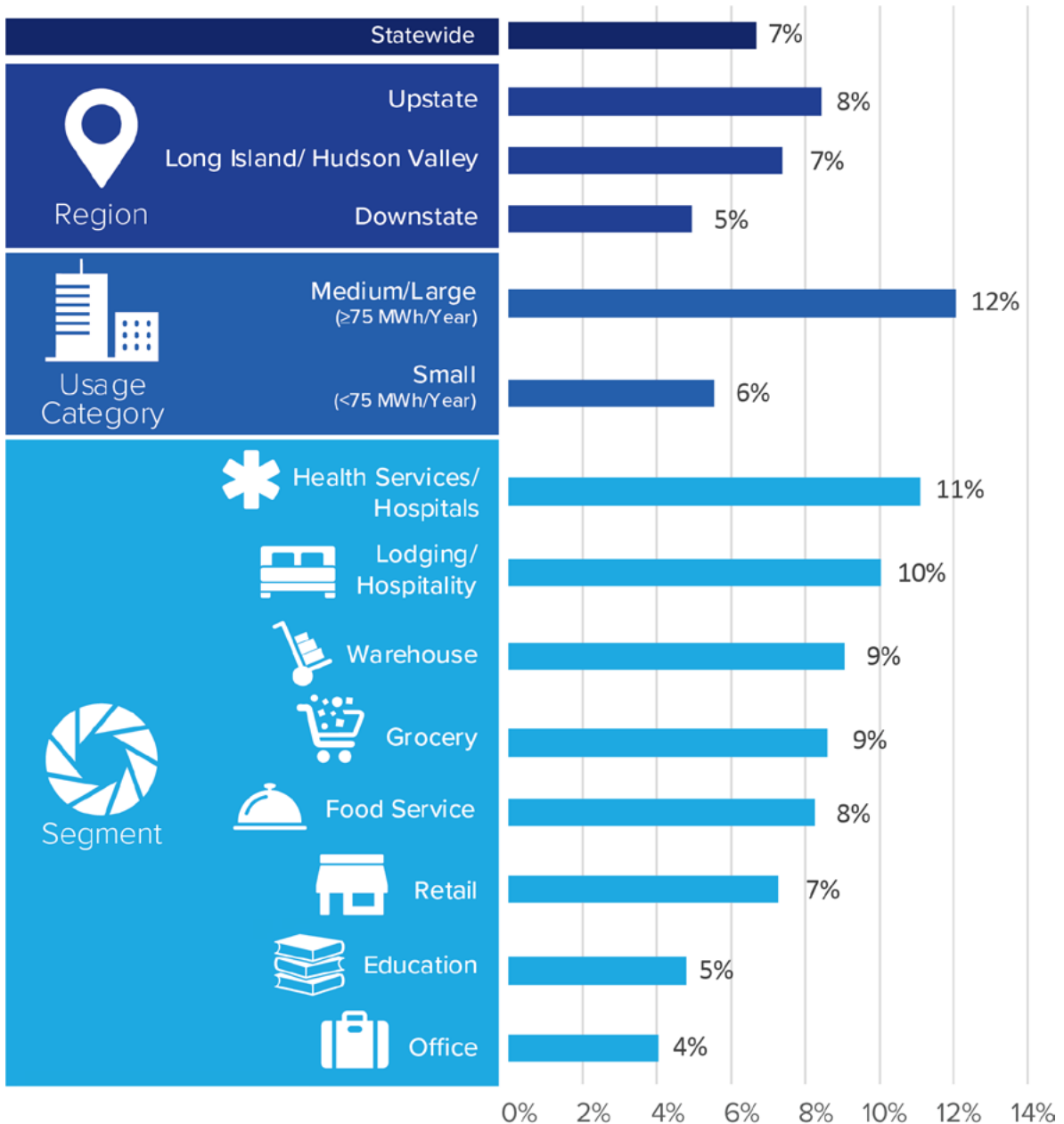
Motor Saturation

- Businesses in New York have an average of 0.4 motors per business.

- The Downstate region has fewer motors per business (0.1) compared to the Upstate or Long Island/ Hudson Valley regions (0.7 and 0.6, respectively).

- The saturation of motors in medium/large businesses (1.3) is much greater than in small businesses (0.2).

- Businesses in the warehouse segment have an average of 1.6 motors while all other segments have 0.6 motors per business or fewer.

	Saturation	Average Quantity
Statewide	0.4	6.4
Region		
Upstate	0.7	8.1
Long Island/ Hudson Valley	0.6	8.0
Downstate	0.1	2.9
Usage Category		
Medium/Large (≥75 MWh/Year)	1.3	10.8
Small (<75 MWh/Year)	0.2	4.0
Segment		
Warehouse	1.6	17.8
Grocery	0.6	7.2
Retail	0.6	8.3
Health Services/ Hospitals	0.5	4.4
Education	0.4	7.4
Lodging/ Hospitality	0.3	2.9
Food Service	0.2	2.2
Office	0.1	3.1

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8
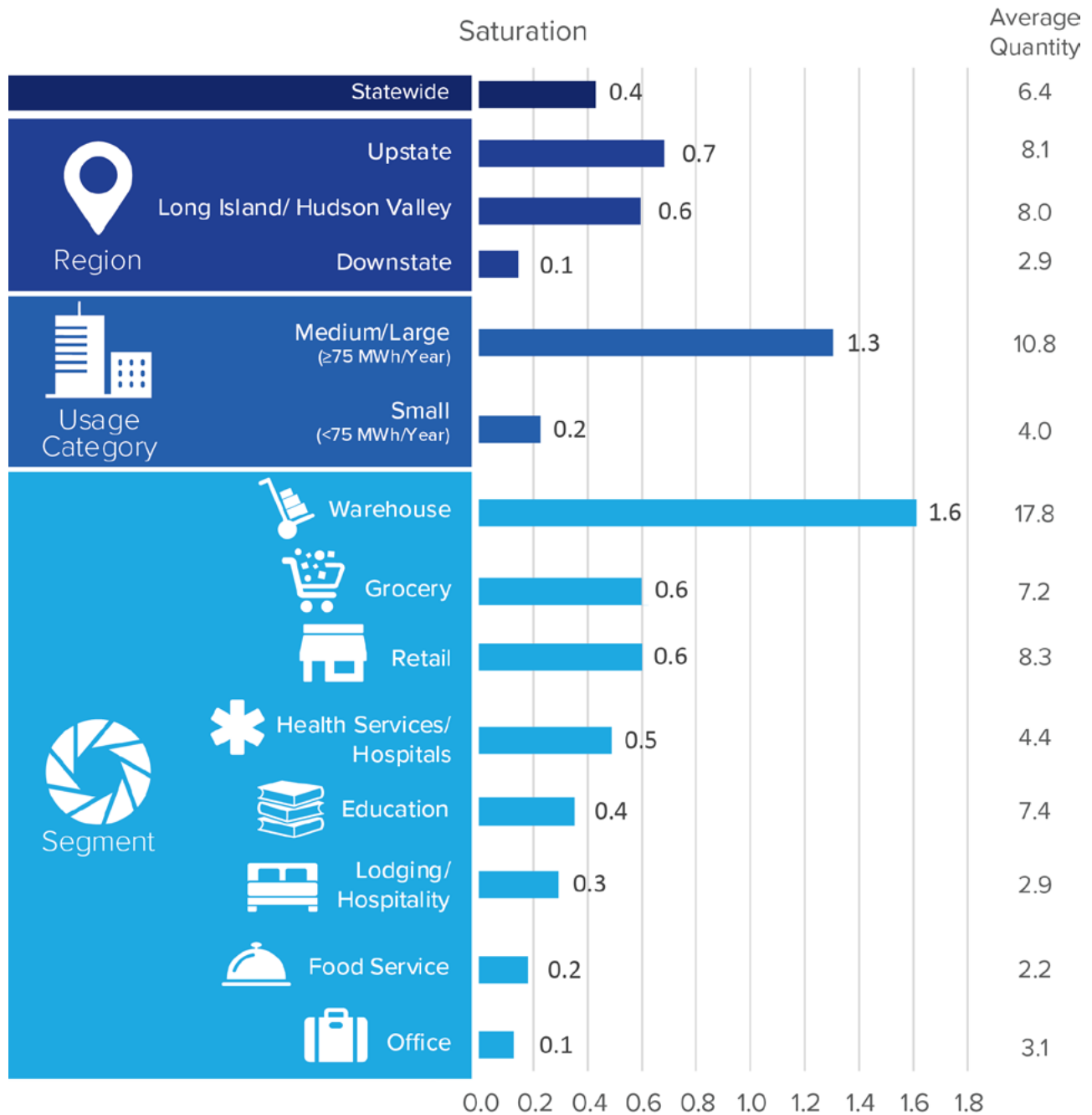
Age of Motors

- More than half of motors in New York commercial businesses (59%) are 20 or more years old.

- 5% of motors were installed after 2017 and 6% were installed between 2015 and 2017. New efficiency standards for motors went into effect in these years.

- The average age of motors is 18.7 years.

Average Age: (Years) 18.7

3% 5% 6% 15% 14% 56%

Legend:
- 0-1 Year
- 2-3 Years
- 4-8 Years
- 9-19 Years
- 20-39 Years
- 40+ Years
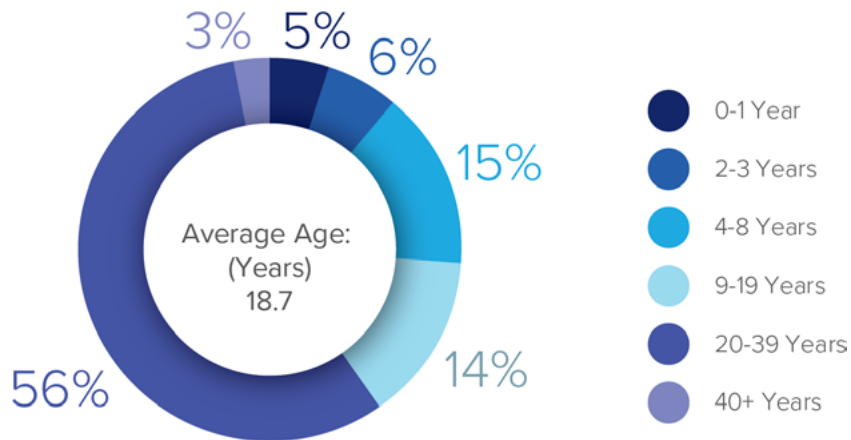
Capacity of Motors

- More than half of motors (54%) have a capacity of less than 5 horsepower (HP).

- The average capacity of motors in commercial businesses is 9.6 HP.

Average Capacity: (HP) 9.6

7% 6% 19% 17% 35% 17%

Legend:
- 0-0.9 HP
- 1-4.9 HP
- 5-9.9 HP
- 10-19.9 HP
- 20-39.9 HP
- 40+ Hp
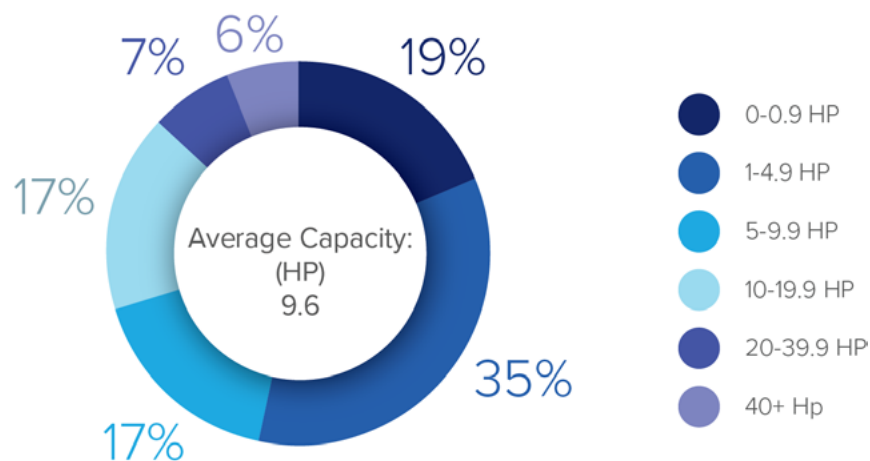
Efficiency of Motors

- Most motors in New York commercial businesses (61%) are between 81% and 90% efficient; another 30% are more than 90% efficient.

- The mean efficiency of motors is 88%.

- More than three-quarters of motors (78%) meet the NEMA Standard Efficiency standard.[1]

1% 8%

30%

Average
Efficiency:
88%

61%

- ● 61-70%
- ● 71-80%
- ● 81-90%
- ● 90-100%
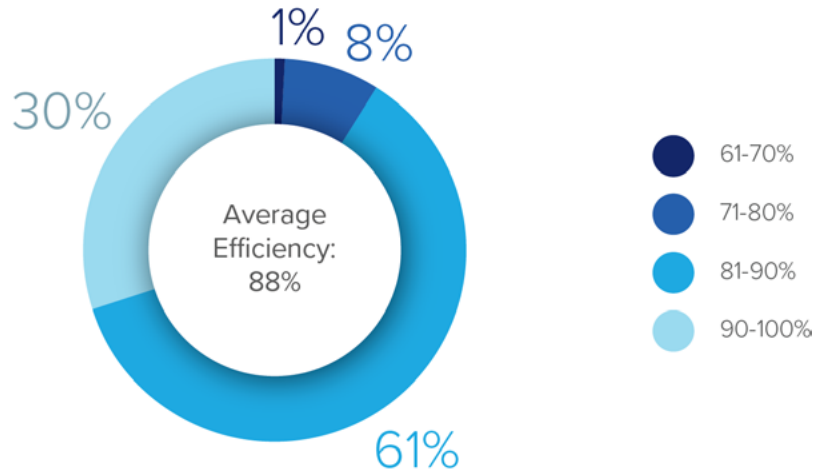
Hours of Use

- Motors in New York businesses run an average of 6 hours per day.

- More than half (58%) of motors have a run time of 4 hours or less per day; only 6% run between 21 and 24 hours per day.

2% 2% 6%

6%

Average Hours
per Day:
6.04

27%   58%

- ● 0-4 Hours
- ● 5-8 Hours
- ● 9-12 Hours
- ● 13-16 Hours
- ● 17-20 Hours
- ● 21-24 Hours
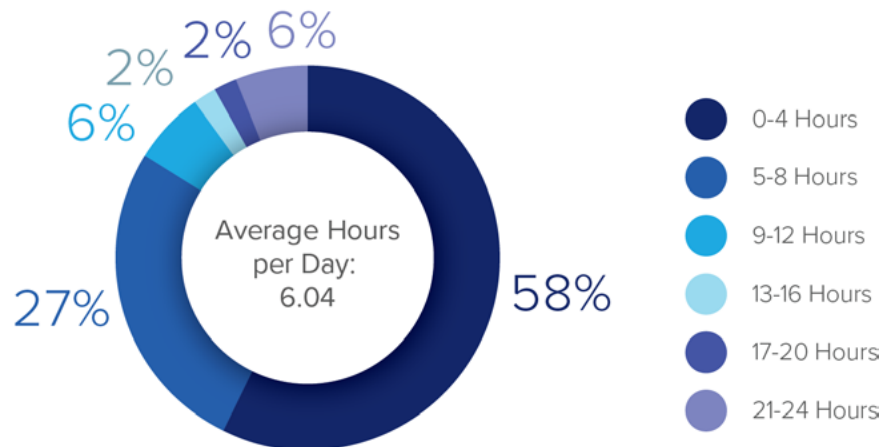
[1] NEMA has three tiers of efficiency: Standard Efficiency, Energy Efficient, and Premium Efficiency. The Standard Efficiency standard applies to motors with rated capacities of 1 HP to 500 HP and requires them to have an efficiency of at least 85.5%. The other tiers have higher efficiency requirements. For all three tiers, the efficiency requirement increases as the motor horsepower increases.

Variable Frequency Drives

Motors may not need to run at the maximum design speed to the meet the needs of the system they serve. Variable frequency drives (VFD) can be used to slow down the motor to meet the required load. This approach is more energy efficient than running the motor at a constant speed or slowing down the output mechanically (e.g., by using valves to bypass or restrict the flow of a pump). However, VFDs are not applicable to all motors: for some motors, a VFD is not possible to install (e.g., for DC motors) while for others VFD installation is possible but not practical (e.g., single-phase or constant torque motors).

- Statewide, 10% of motors have VFDs.

- It is possible to implement VFDs for 27% of all motors, but only practical for 18% of all motors.
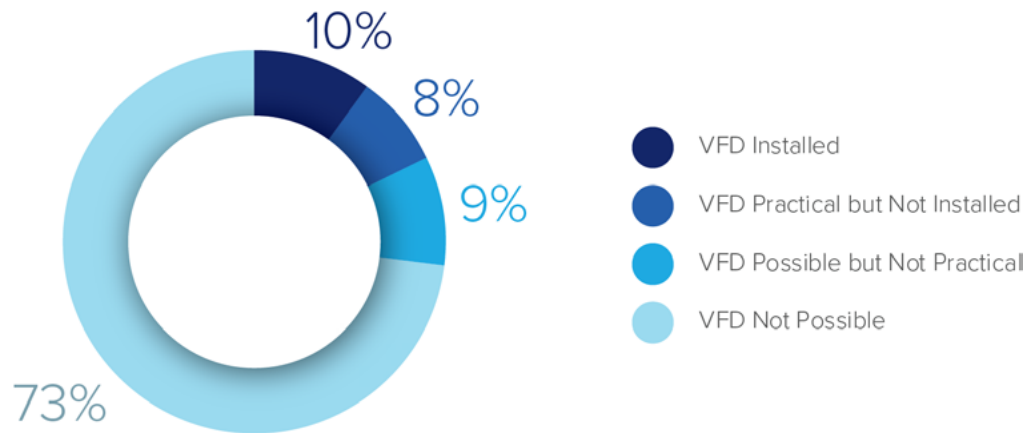
SECTION 14
Compressed Air

Compressed Air

Compressed air is used in a variety of commercial applications, including: powering pneumatic tools; conveying materials; atomizing, spraying, or cooling; operating controls; and creating medical grade air. Compressed air systems are typically composed of a supply side, containing one or more compressors and air treatment (air dryer and air filters), and a demand side, containing the distribution, storage, and end use components. System efficiency can be improved by addressing both the supply side, through more efficient compressors, dryers, and filters, and the demand side, through leak detection and efficient nozzles. Additional efficiency gains may be made by optimizing the system's sizing and control strategy for its intended application.

Compressed Air Penetration

- Overall, 12% of commercial businesses in New York State have a compressed air system.

- Compressed air systems are most commonly found in the warehouse segment (28%; used for process-related applications) and the health services/hospitals segment (26%; used for powering tools – e.g., dentist drills – and distributing medical grade compressed air).

Category		Value
Statewide		12%
Region	Upstate	16%
	Long Island/ Hudson Valley	11%
	Downstate	9%
Usage Category	Medium/Large (≥75 MWh/Year)	15%
	Small (<75 MWh/Year)	11%
Segment	Warehouse	28%
	Health Services/ Hospitals	26%
	Retail	14%
	Education	10%
	Grocery	8%
	Lodging/ Hospitality	8%
	Office	7%
	Food Service	3%
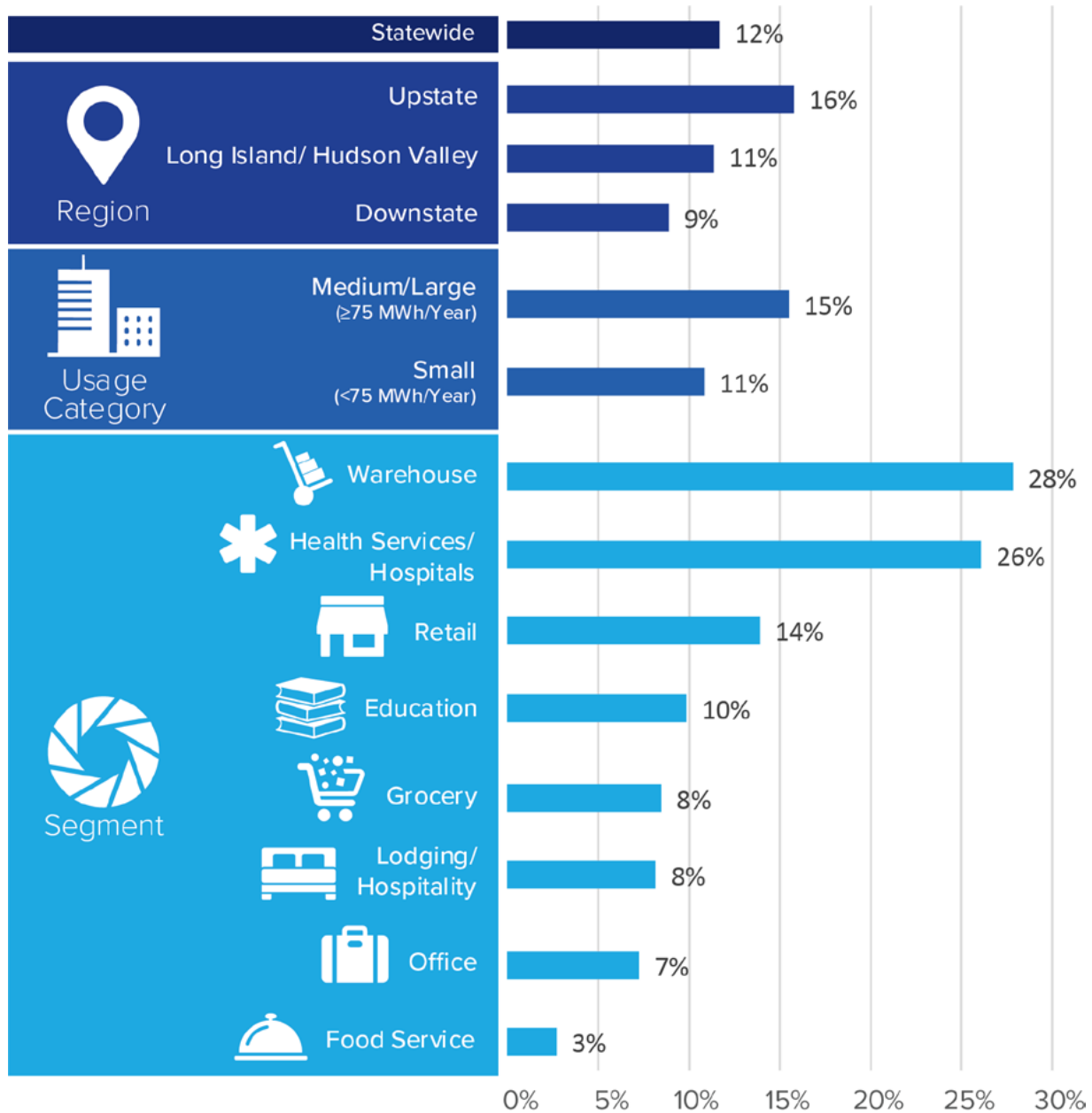
Other Key Findings

- 6% of systems have low pressure drop filters, which prevent dirt from entering the system, restricting airflow and causing pressure drops.

- 7% of systems have adjustable nozzles.

Number of Compressors per System

- Most compressed air system (83%) have only one compressor

- Few systems (17%) have multiple in-line compressors to meet the needs of the size of the system, for redundancy, or for other application-specific reasons.

- The average number of compressors per system is 1.2.

Average Number of Compressors 1.2

- 1 Compressor
- 2-3 Compressors
- 3+ Compressors
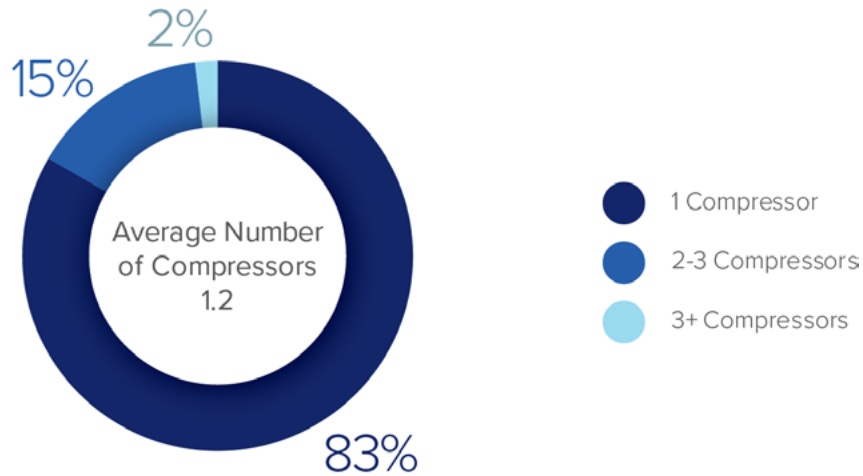
Type of Compressor

- Half of compressors in New York commercial businesses (50%) are reciprocating.

- Screw compressors are the next most common compressor type (31%), followed by centrifugal types (19%).

- Reciprocating
- Screw
- Centrifugal
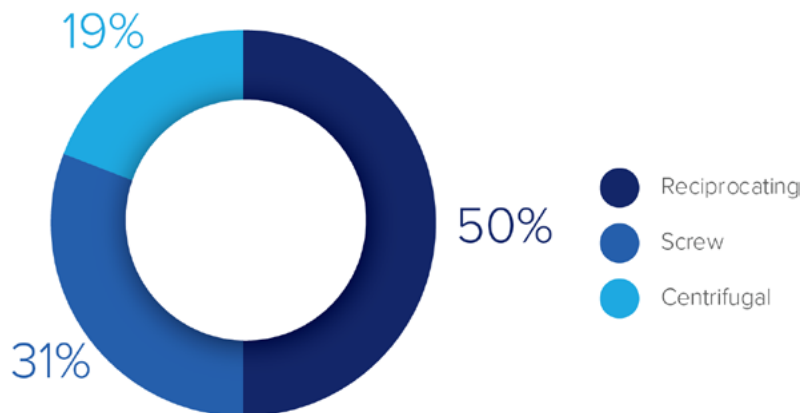
Compressor Motor Size

- The vast majority of compressor motors (88%) are under 10 horsepower and 40% are under 2.5 HP.

- The mean compressor motor size of New York commercial businesses is 6.8 HP.

5%
8%
40%

Average Size:
6.8 HP

39%

9%

Less than 2.5 HP

2.5-4.9 HP

5-9.9 HP

10-19 HP

20 HP or More
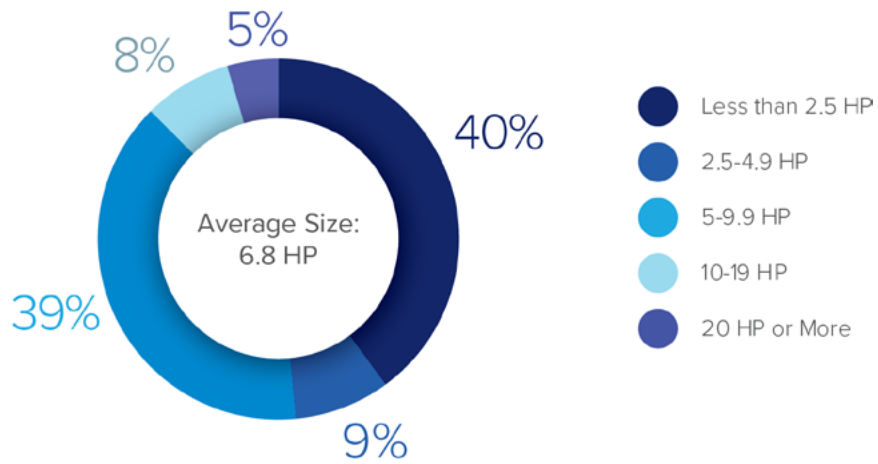
Air Receiver Tank Size

- The average air receiver tank size in commercial businesses is 59 gallons.

- While nearly half of receivers (45%) are between 50 and 99 gallons, a notable share (25%) are small tanks of less than 25 gallons.

11%
25%

Average Size:
59 Gallons

45%

19%

Less than 25 Gallons

25-49 Gallons

50-99 Gallons

100+ Gallons
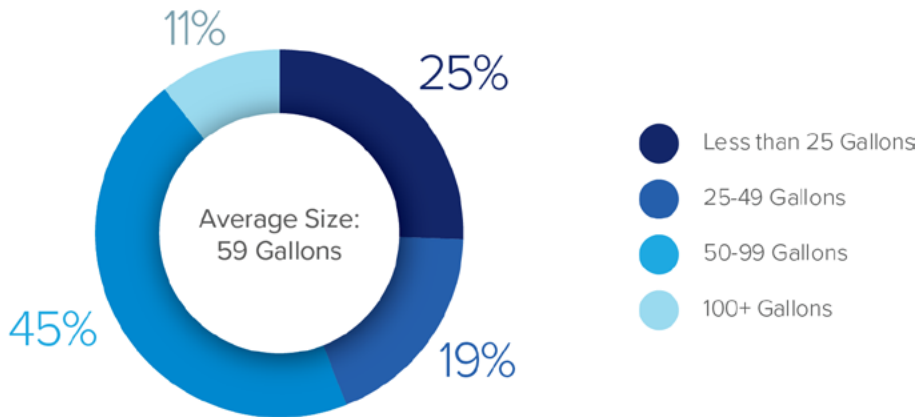
Hours per Week

- Businesses run their compressed air systems an average of 31 hours per week.

- Most systems (60%) run less than 30 hours per week with more than one-quarter (27%) running less than 10 hours per week.

Average Hours per Week: 31

- Less than 10 Hours/Week
- 10-29 Hours/Week
- 30-49 Hours/Week
- 50-99 Hours/Week
- 100+ Hours/Week
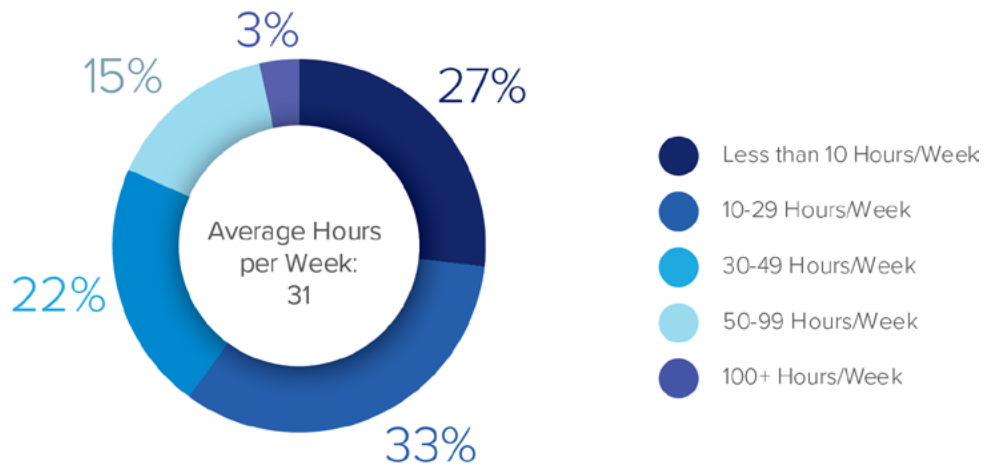
Air Dryers

Air dryers remove moisture from the compressed air before it is distributed. This process creates more sanitary and usable air for both workers and products. There are several types of dryers. Each type has advantages and disadvantages depending on the environment and application in which they are used.

- Three-quarters of compressed air systems in commercial businesses (77%) do not have a dedicated air dryer, typical of small systems.

- Eight percent have refrigerated dryers and another 8% have purge dryers. Lesser shares had centrifugal (5%) or desiccant (2%) dryers.

- No Dryer
- Refrigerated
- Purge
- Centrifugal
- Desiccant
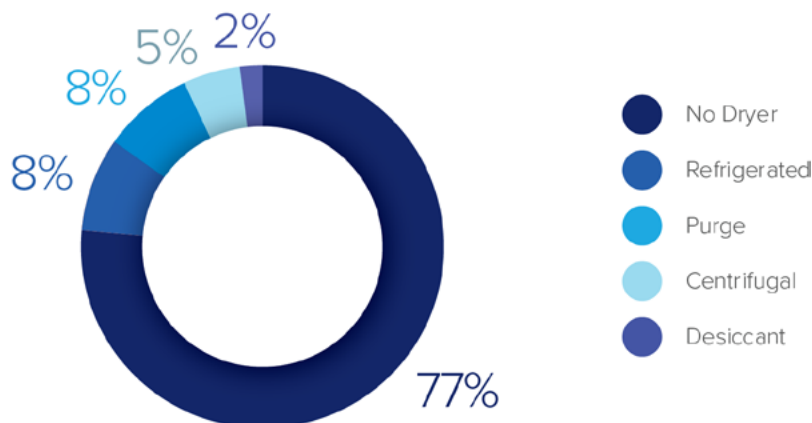
SECTION 15
Office Equipment

Office Equipment

Computers and other office equipment are frequently present in New York commercial businesses. Common types of office equipment include:

- Computers, including laptop and desktop models

- On-Site Rack-Mounted Servers

- Printers, Copiers, and Imaging Equipment, including both small workstation units and large shared/networked equipment

- Televisions

Penetration of Office Equipment

- The vast majority (89%) of commercial businesses in New York has computers.

- Most businesses with computers also have printers, copiers, or imaging equipment (71%).

- On-site servers (7% penetration) are less common.

Equipment	Percentage
Computers	89%
Printers, Copiers or Imaging Equipment	71%
Televisions	54%
On-Site Computer Servers	7%
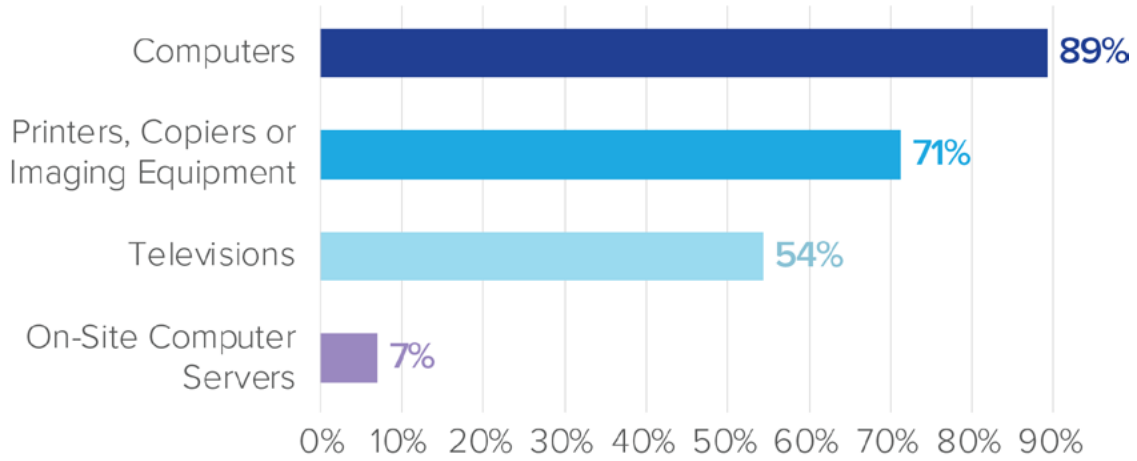
Penetration of Office Equipment by Key Segments

- The penetration of computers and servers is similar among the three regions, but businesses in the Long Island/Hudson Valley region have a lower penetration of printers/copiers/imaging equipment (57%) than other regions.

- Medium/large businesses have a higher penetration of major types of office equipment compared to small businesses, except for televisions.

- The health services/hospitals, office, and education segments have the highest penetration of computers (between 95% and 97%) and servers (between 9% and 12%).

		Computers	Printers, Copiers or Imaging Equipment	Televisions	On-Site Servers
Region	Upstate	92%	78%	55%	8%
	Long Island/ Hudson Valley	86%	76%	50%	7%
	Downstate	88%	57%	58%	6%
Usage Category	Medium/Large (≥75 MWh/Year)	88%	70%	66%	6%
	Small (<75 MWh/Year)	95%	76%	52%	15%
Segment	Food Service	96%	81%	57%	10%
	Grocery	85%	65%	45%	4%
	Lodging/ Hospitality	95%	90%	50%	9%
	Warehouse	97%	77%	56%	12%
	Education	77%	62%	63%	3%
	Retail	78%	51%	67%	4%
	Health Services/ Hospitals	86%	57%	66%	5%
	Office	81%	68%	43%	7%

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Saturation of Office Equipment

- Businesses in New York have an average of 10.4 computers each.

Saturation

Equipment		Average Quantity
Computers	10.4	11.6
Printers, Copiers or Imaging Equipment	2.6	3.7
Televisions	2.1	3.9
On-Site Computer Servers	0.7	9.6
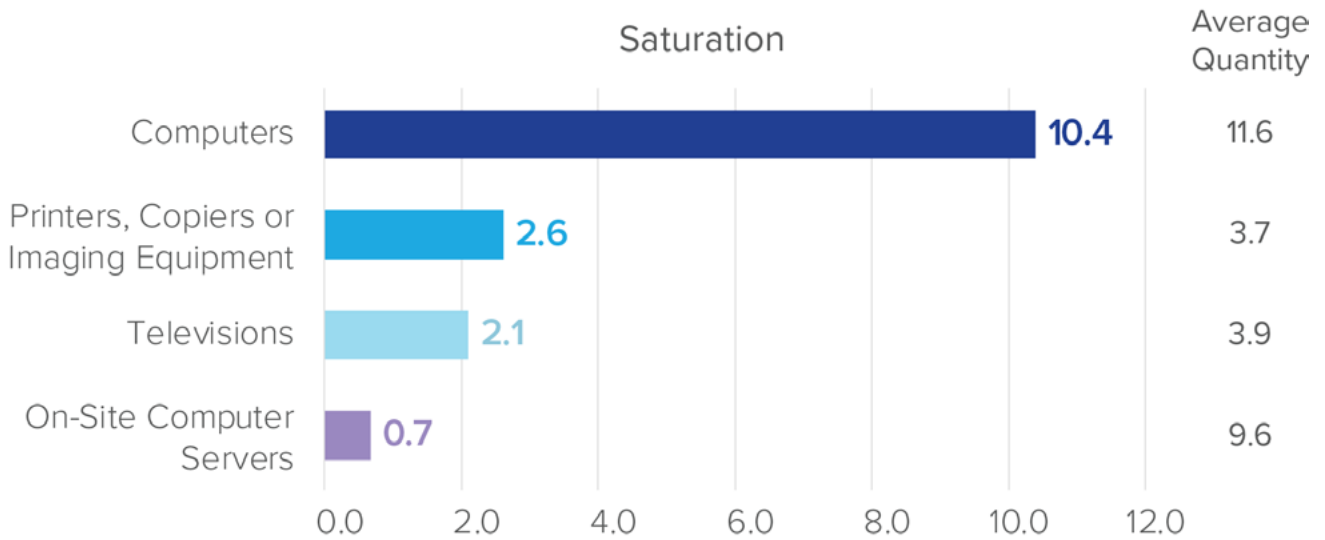
Other Key Findings

- 77% of printers/copiers are small workstation units, while the remaining 23% are large shared/networked equipment.

- 71% of servers are served by dedicated cooling systems (i.e., computer room air conditioning or CRAC) with the rest cooled by the business's general use cooling equipment. The share of servers cooled by CRAC units is highest in those segments where servers are most common, such as the health services/hospitals, office, and education segments.

- The average number of monitors per computer is 1.2 among New York businesses. This number is highest in the health services/hospitals, office, and warehouse segments.

Saturation of Office Equipment by Key Segments

- The average number of computers, and printers/copiers is similar across regions.

- On average, medium/large businesses have much larger quantities of office equipment than small businesses.

- The average number of computers per business is much higher for the education segment (66.0) than any other segment.

		Computers	Printers, Copiers or Imaging Equipment	Televisions	On-Site Servers
Region	Upstate	9.7	2.3	1.8	0.7
	Long Island/ Hudson Valley	10.5	3.0	2.9	1.1
	Downstate	10.9	2.7	1.8	0.4
Usage Category	Medium/Large (≥75 MWh/Year)	37.6	4.7	5.9	3.0
	Small (<75 MWh/Year)	4.9	2.1	1.2	0.1
Segment	Food Service	1.8	0.8	3.1	<0.1
	Grocery	2.6	1.1	1.4	0.1
	Lodging/ Hospitality	2.9	1.2	12.2	<0.1
	Warehouse	6.3	2.4	0.5	0.3
	Education	66.0	4.6	2.2	0.9
	Retail	2.9	1.2	0.9	0.1
	Health Services/ Hospitals	16.9	2.8	5.8	1.6
	Office	13.8	4.3	1.2	1.2

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Spotlight: Advanced Power Strips

Advanced power strips save energy by preventing electronics from drawing electricity when they are off or not in use but still plugged in. The most common type of advanced power strip cuts power to controlled outlets for peripheral equipment (e.g., monitors and printers) when the primary equipment plugged into the master outlet (e.g., a computer) is turned off. Other types can turn off outlets based on timers, motion detectors, or remotes.

- Overall, 5% of businesses have one or more pieces of equipment connected to advanced power strips.
- The share of devices connected to advanced power strips is small, ranging from 2% for televisions to 5% for printers/copiers.
- The share of equipment connected to advanced power strips is highest in the Upstate region, where 9% of computers and 10% of printers/copiers are connected.

Percent of Units Connected to Advanced Power Strips

Category	Percent
Printers or Copiers or Imaging Equipment	5%
Computers (Excluding Servers)	3%
Televsions	2%

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Section 14 | Office Equipment
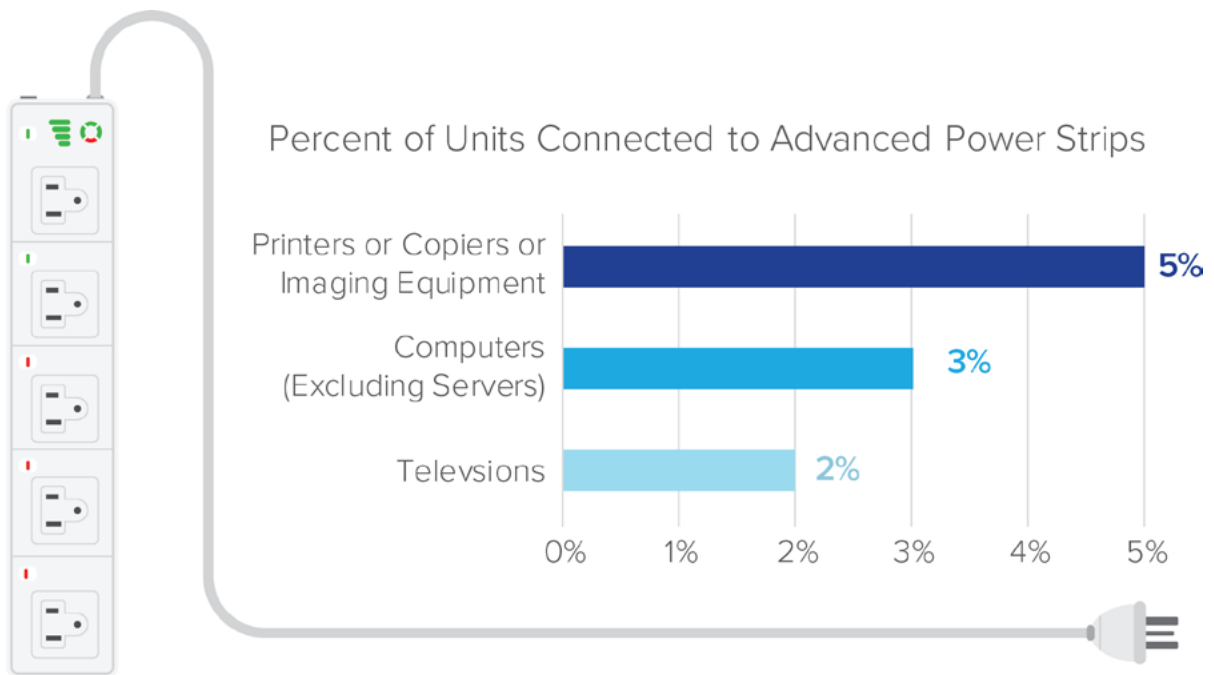
SECTION 16
Building Shell

Building Shell

The building shell – also referred to as the building envelope – consists of the building's components that separate its inside from the outside: the building's roof, floor, walls, windows, and doors. Because the building shell separates conditioned indoor spaces from the unconditioned outdoors, building shell characteristics are important determinants of overall heating and cooling load.

Statewide, 65% of businesses have at least one double-pane window and 31% of businesses have at least one single-pane window. Gas-filled double-pane windows (6% of businesses) and single-pane windows with storm windows (3%) are less common.

Nearly half of businesses have a light colored roof (49%).

The majority of businesses occupy standalone buildings have roof insulation (76%) and wall insulation (66%) while floor insulation is less common (16%).

On average, windows account for approximately 15% of the total outer wall area of a business.

Most businesses occupy buildings with brick (38%), concrete (28%), or wood (26%).

Only a small proportion of businesses have window film or glazing (4%).

Most windows are clear (86%). Only a small proportion are tinted (10%) and or reflective (2%).

Almost half of businesses are located in buildings with poured concrete foundations (49%). Another 32% in buildings with slab foundations.

About half of businesses have basements or crawlspaces (51%).

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SECTION 17
On-Site Generation

On-Site Generation

In addition to purchasing electricity from their utility, some businesses also generate electricity on-site. On-site generation can offer businesses many benefits, including cost savings and access to back-up power in cases of system outages. There are several major types of on-site generation:

Renewable energy generation creates electricity from naturally replenishing resources. Solar photovoltaic (PV) systems, which convert sunlight into electricity, are the most common. Other types of renewable energy generation include wind, geothermal, hydropower, and biomass.

Cogeneration, or combined heat and power (CHP), is a process of generating electricity and simultaneously recovering otherwise wasted thermal energy for heating.

Emergency and backup generation provide businesses with electricity in the event of a utility outage. They are typically internal combustion engines that run on natural gas, diesel, gasoline, propane, or other fuels.

Penetration

- Statewide, 9% of businesses have on-site generation.

- The most prevalent type of on-site generation is emergency and backup generation, found in 6% of businesses.

- The penetration of solar photovoltaic systems is 2% in New York businesses.

- Less than 1% of businesses have non-solar renewable energy generation or cogeneration.

On-Site Generation	9%
Emergency/Backup Generation	6%
Renewable Energy Generation - Solar	2%
Renewable Energy Generation - Other	<1%
Cogeneration	<1%

0% 1% 2% 3% 4% 5% 6% 7% 8% 9%
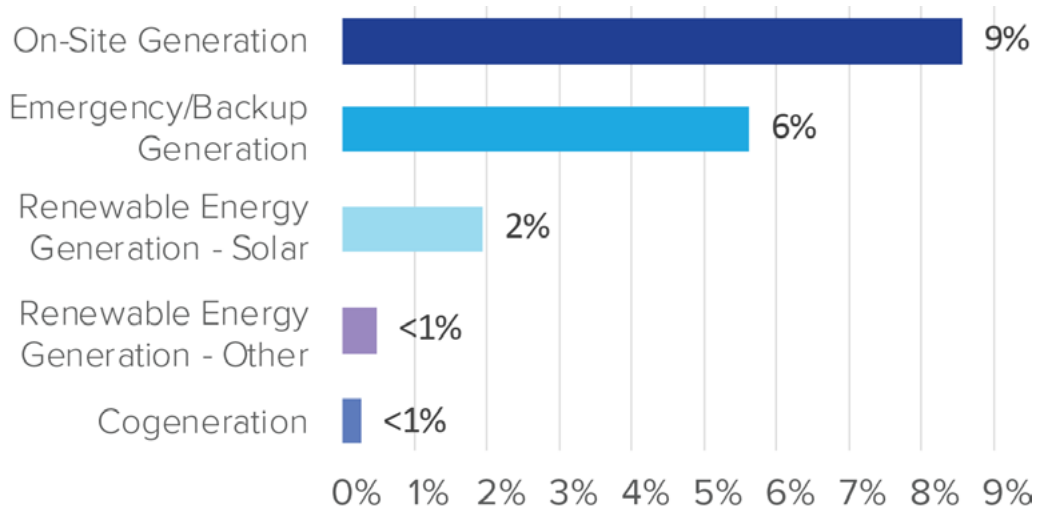
Penetration by Key Segments

- The penetration of on-site generation is highest in the Upstate (13%) and Long Island/Hudson Valley (10%) regions and lowest in the Downstate region (4%). This difference is correlated with the penetration of businesses that occupy stand-alone buildings, which facilitate the implementation of on-site generation.

- Penetration of on-site generation is highest among medium/large businesses and businesses in segments with the highest average square footage.

	Penetration
Statewide	9%
Region	
Upstate	13%
Long Island/ Hudson Valley	10%
Downstate	4%
Usage Category	
Medium/Large (≥75 MWh/Year)	25%
Small (<75 MWh/Year)	5%
Segment	
Education	17%
Warehouse	14%
Lodging/ Hospitality	13%
Health Services/ Hospitals	11%
Office	10%
Grocery	9%
Retail	5%
Food Service	3%
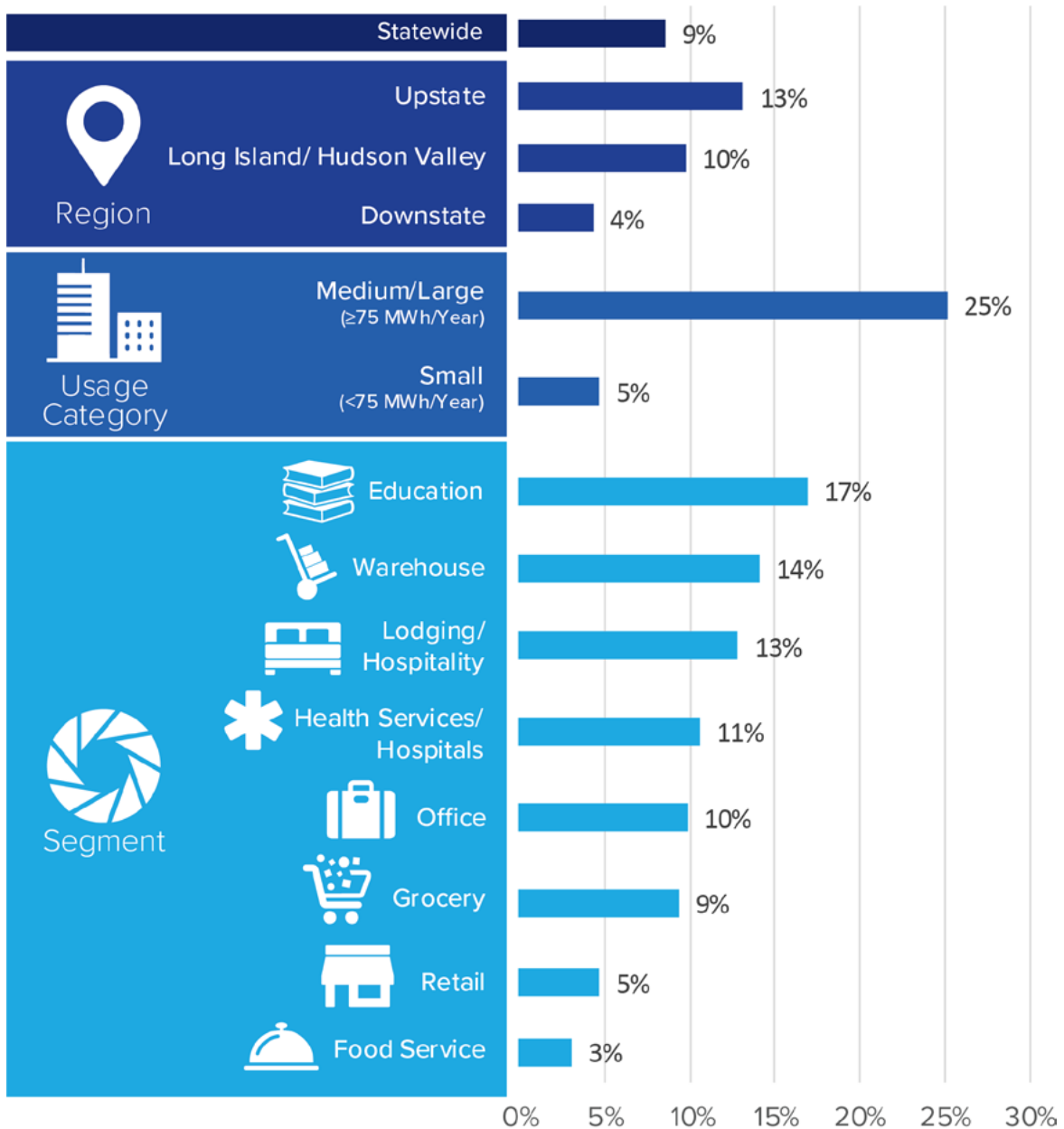
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Spotlight: Emergency/Backup Generation

- Nearly all emergency/backup generators use either natural gas (62%) or diesel (26%).
- The average capacity of backup generators in New York businesses is 185 kW.

Legend:
- Natural Gas
- Diesel
- Gasoline
- Fuel Oil
- Other

Chart values: 62%, 26%, 10%, 2%, <1%
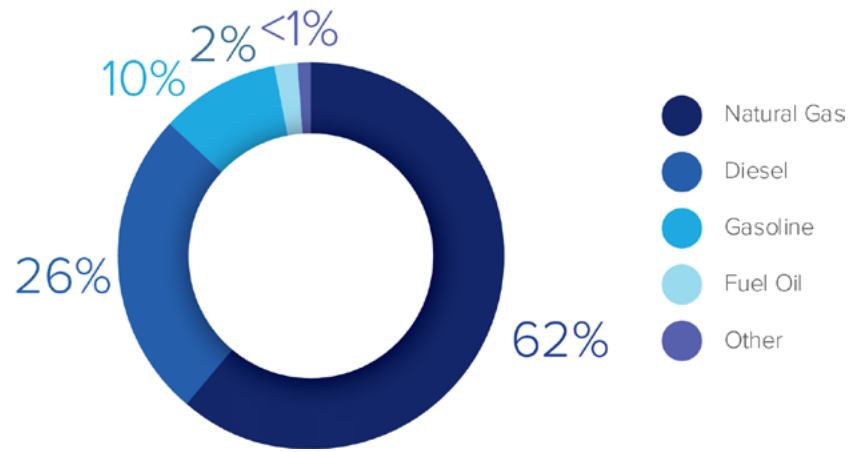
SECTION 18

Master-Metered
Multifamily Results

Master-Metered Multifamily Results

When planning the Statewide Commercial Baseline Study, NYSERDA identified master-metered multifamily buildings as a study segment of interest. NYSERDA's 2015 Residential Baseline Study covered multifamily residences but excluded master-metered buildings because their energy usage was determined to be more similar to commercial buildings. By including master-metered multifamily buildings in this study, NYSERDA looked to collect additional information specific to these buildings, such as the type and efficiency of energy using equipment, the number and type of residential units, and common area attributes.

Unfortunately, population-level data that would have allowed the Study Team to identify and target master-metered multifamily buildings is not available: Utility data generally does not identify multifamily buildings, and even where it does, it does not separately identify master-metered buildings. Other data sources, such as InfoGroup or CoStar, do not differentiate between master-metered and individually metered buildings. As a result of this lack of a clearly defined target population, the Study Team was required to identify master-metered buildings through the survey.

A total of 562 respondents in the multifamily segment completed at least part of the baseline survey.[1] Of these, only 27 respondents met the criteria of having five or more units and being master-metered. While survey respondents may have screened out of the survey for a variety of reasons, the vast majority (466 out of 535, or 87%) did so because their building was not master-metered.

Due to the low incidence of master-metered buildings in the multifamily segment, combined with the very low response rate for the segment overall, NYSERDA decided to exclude the multifamily segment from the quantitative analyses of the Commercial Baseline Study.

Although the multifamily segment was excluded from the main quantitative analyses of the study, the 27 responses did allow some assessment of this segment.[2] The remainder of this section provides a summary of their responses. It should be noted, however, that due to the small sample size, results in this section are subject to more uncertainty than the baseline results for the commercial segments discussed elsewhere in this report.

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[1] A total of 26,291 multifamily buildings were contacted. The sample was derived from CoStar multifamily building data as well as a small number of utility-provided sample points that were reclassified from other segments into the multifamily segment based on survey responses.
[2] Note that some respondents dropped out of the survey before completing the equipment characteristics section, resulting in a maximum number of 23 respondents for the equipment-related questions.

Master-Metered Multifamily Population

- Based on survey responses, there are approximately 5,300 master-metered multifamily buildings in New York State, or 11% of all multifamily buildings.

- The Downstate region accounts for 86% of master-metered multifamily buildings in the State.

- The incidence of master-metered multifamily buildings is much higher for buildings in the medium/ high usage category (35%) than in the low usage category (8%).

- Multifamily buildings may be mixed-use and also include separately metered businesses from other segments (e.g., retail) that are covered elsewhere in this report. For example, the first floor of a building may be a retail store and the floors above it may be multifamily apartments.

Region	All Multifamily Buildings			Estimated Master-Metered Buildings		
	Less than 75 MWh/Year	75 MWh/Year and Greater	Total	Less than 75 MWh/Year	75 MWh/Year and Greater	Total
Downstate	40,039	3,330	43,369	3,390	1,175	4,565
Upstate	4,386	456	4,842	371	161	532
Long Island/ Hudson Valley	1,667	151	1,818	141	53	194
Total	46,092	3,937	50,029	3,902	1,389	5,291

Source: CoStar data, utility data, and Study Team analysis

Building Age

- Two-thirds of master-metered multifamily buildings were built before 1950.

- 21% were built after 1990.

n = 23

- Before 1900 — 18%
- Between 1900 and 1949 — 48%
- Between 1950 and 1969 — 5%
- Between 1970 and 1989 — 8%
- Between 1990 and 2009 — 18%
- Between 2010 and 2016 — 3%
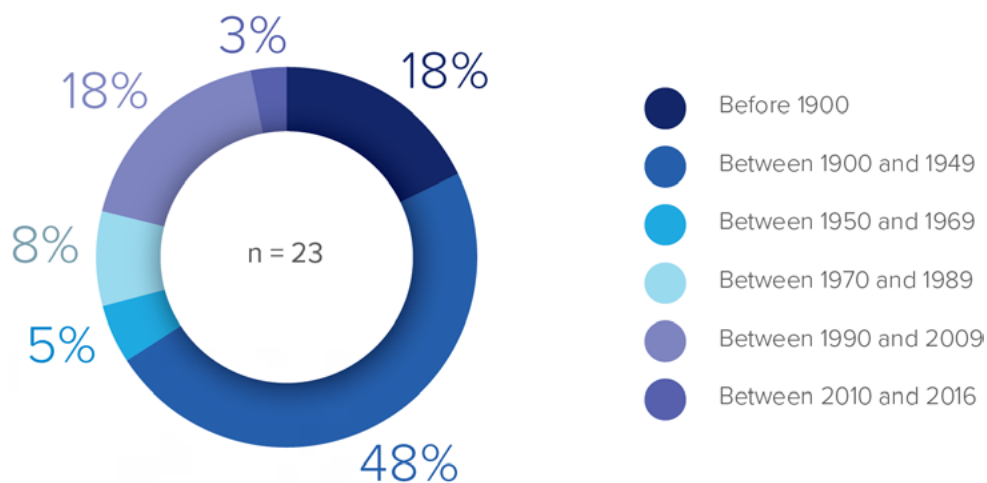
Number of Stories

- On average, master-metered multifamily buildings have 5.7 floors, not including the basement.
- Less than one third (31%) are low-rise buildings (3 or fewer floors).
- Nearly all (92%) of master-metered multifamily buildings have a basement.

n = 27

Legend:
- 1 Floor
- 2 Floors
- 3 Floors
- 4 Floors
- 5 Floors
- 6 to 10 Floors
- More than 10 Floors

Values: 7%, 20%, 4%, 17%, 21%, 26%, 5%
Low Rise
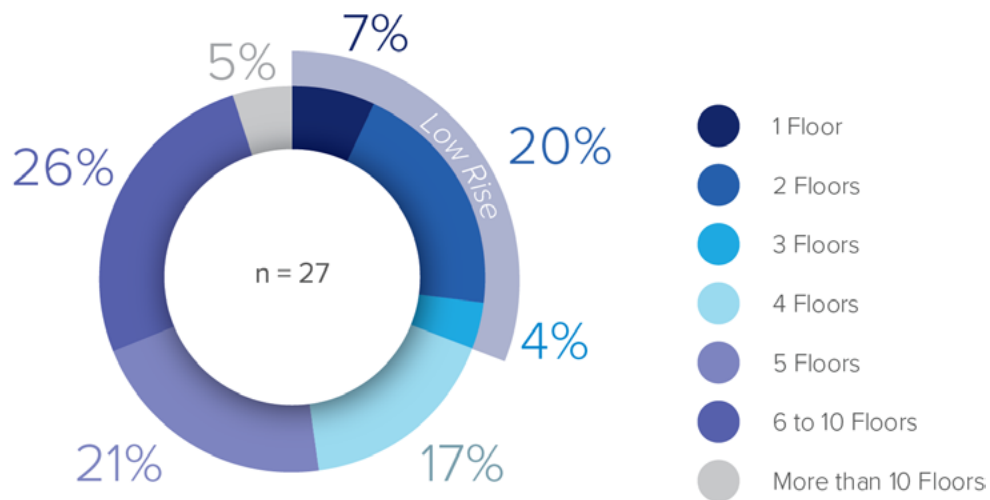
Residential Unit Characteristics

- Master-metered multifamily buildings have an average of 44 residential units per building.
- Approximately one third of buildings (35%) have fewer than 50 units and 52% have 100 or more units.
- Most buildings (62%) have studio apartments, and more than one third of buildings have one bedroom and three bedroom or larger apartments. Only 14% of buildings have two bedroom apartments.

Unit Type	Percentage
Studio	62%
One Bedroom	41%
Two Bedroom	14%
Three Bedroom or Larger	36%
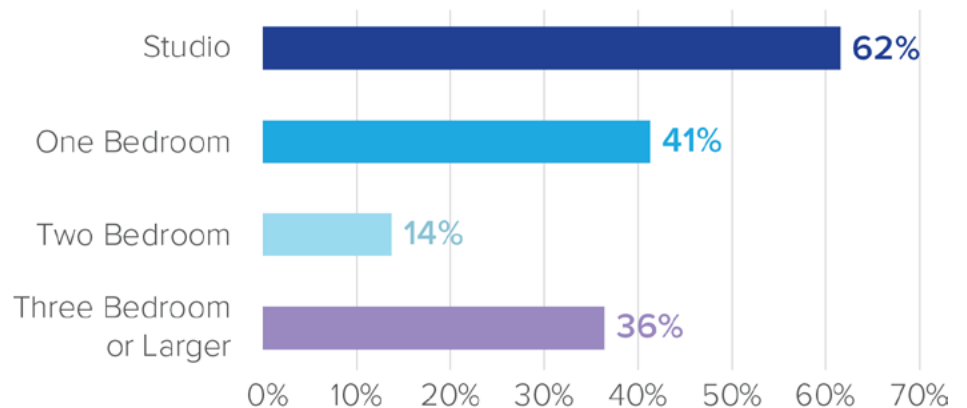
n = 25

Common Area Spaces

- More than half of master-metered multifamily buildings have common area lobbies or atriums (61%) or restrooms (57%).

Lobby or Atrium	61%
Restrooms	57%
Laundry Room	43%
Lounge	16%
Health Club or Gym	13%
Other Common Space	6%

n = 25
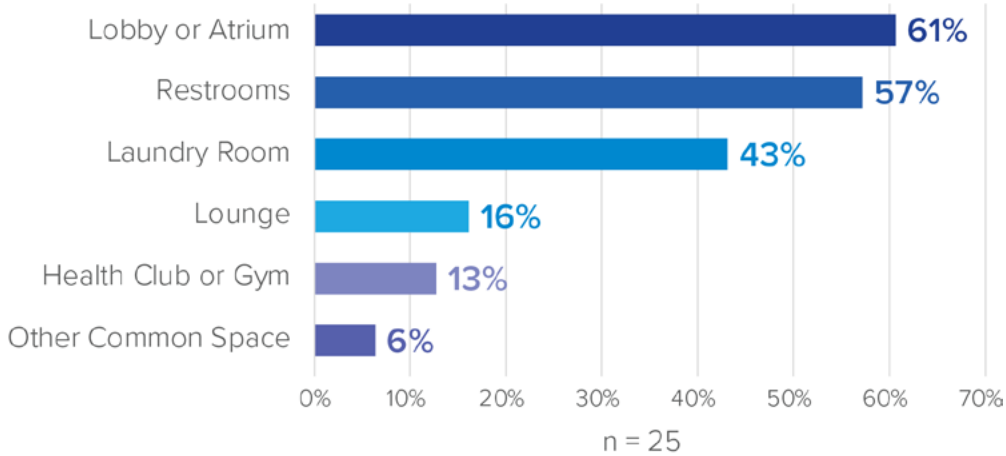
Residential Unit Characteristics[3]

- Nearly all (96%) master-metered multifamily buildings have screw-in LED lamps and 74% have CFLs. Interestingly, the penetration of incandescent bulbs is also very high (87%), indicating a high variety of lighting types installed in multifamily buildings.

- The penetration of room air conditioners is high among master-metered multifamily buildings (71%), while central air conditioning is relatively rate (14%).

- The penetration of programmable thermostats (44%) and occupancy sensors (12%) in master-metered buildings is similar to other commercial segments.

Lighting		
LEDs (n = 20)		96%
Incandescent bulbs (n = 21)		87%
CFLs (n = 20)		74%
Linear LEDs (n = 20)		71%
Linear fluorescent lights (n = 22)		54%
Halogen bulbs (n = 19)		45%
HID Lamps (n = 20)		3%
Cooling		
Room AC (n = 19)		71%
Central Cooling (n = 20)		14%
Controls		
Programmable Thermostat (n = 18)		44%
Occupancy Sensors (n = 21)		12%
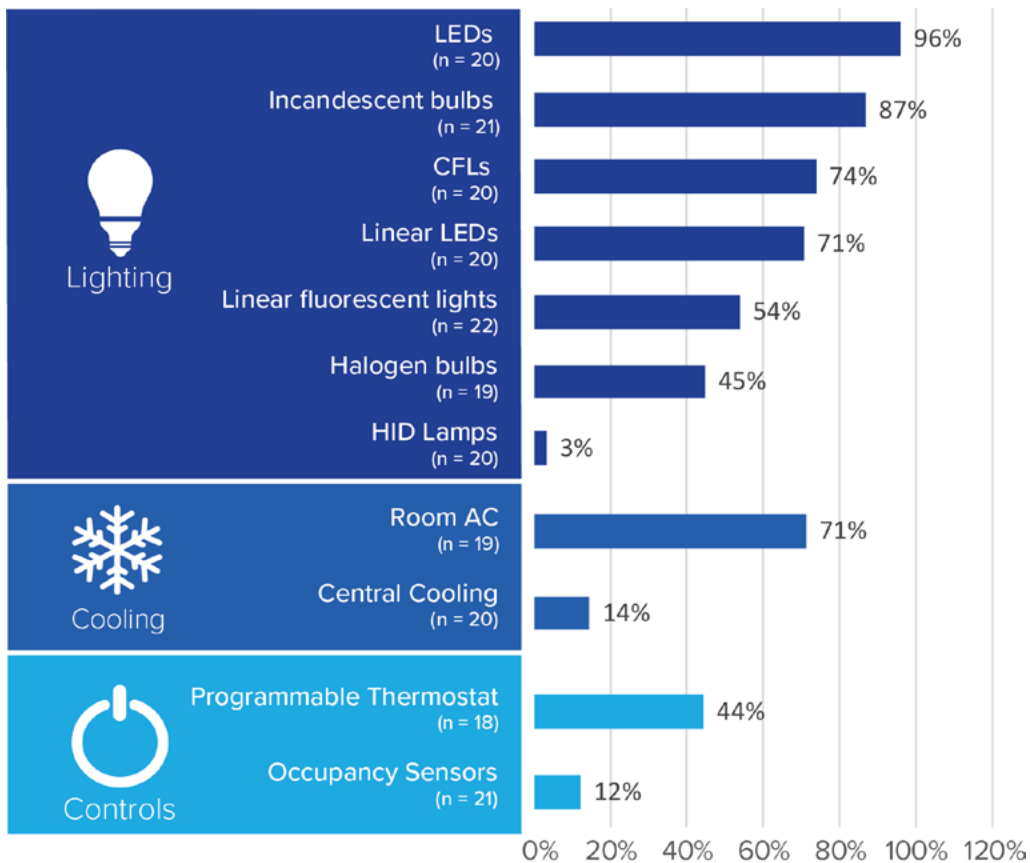
[3] Penetration estimates are based on the phone/web survey, adjusted by the statewide adjustment factors developed from the Study's onsite visits (which did not include multifamily buildings). The Study Team did not adjust survey-based estimates for LEDs and incandescent bulbs.

SECTION 19
Detailed Results

Detailed Results

Building Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Mean Number of Stories of Building	All Buildings	2.95	4.80	1.65	1.56	2.87	3.29	3.85	2.21	2.43	3.98	2.40	2.65	2.37	1.45
Mean Number of Stories of Tenant Space	All Buildings	1.55	1.76	1.44	1.36	1.31	2.55	1.87	1.21	1.86	1.51	2.31	1.29	1.13	1.33
Mean % of the Building Occupied by Customer Site	All Sites	0.62	0.44	0.82	0.65	0.58	0.78	0.56	0.60	0.91	0.52	0.95	0.55	0.68	0.78
Mean Building Parking Garage Area (Sq. Ft.)	All Sites	1,645.29	102.64	363.83	5,487.75	178.35	7,846.58	2,553.30	168.11	1,331.93	2,123.74	934.13	297.38	587.51	5,309.38
Mean Businesses Operate in New York	All Sites	7.82	10.45	5.33	5.85	3.52	26.60	5.76	6.18	4.20	4.00	2.28	5.39	62.20	2.76
Mean Floors Paid by the Utility Bills	All Sites	1.47	1.56	1.46	1.32	1.32	2.08	1.58	1.20	2.29	1.66	2.40	1.20	1.13	1.27
Mean Full and Part Time Employees	All Sites	20.44	19.30	18.40	24.65	9.62	68.11	23.32	7.31	59.27	36.99	26.32	15.17	11.92	17.26
Mean Number of Buildings Managed	All Sites	1.22	1.03	1.50	1.20	1.17	1.45	1.11	1.10	2.21	1.14	3.25	1.04	1.03	1.13
Mean Number of Buildings Occupied	All Sites	1.13	1.04	1.19	1.18	1.07	1.34	1.08	1.09	1.80	1.03	1.56	1.02	1.01	1.20
Mean Number of Full-Time Employees	All Sites	21.59	25.73	13.45	23.62	6.42	90.82	39.24	6.45	24.05	26.90	10.22	11.27	8.17	11.25
Mean Percentage of the Building Occupied or Managed	All Sites	73.55	63.98	86.06	73.50	70.82	85.04	66.20	74.52	89.48	64.76	94.76	79.84	79.50	81.33
Mean Square Feet Paid by the Utility Bills	All Sites	12,705.48	9,873.08	15,519.07	13,785.49	6,209.17	40,879.21	8,656.15	8,600.20	44,591.72	16,322.55	37,566.97	3,462.95	5,804.66	28,175.56
Mean Year Facility Built	All Sites	1,948.84	1,944.56	1,947.25	1,957.33	1,946.56	1,958.27	1,949.05	1,946.85	1,936.23	1,957.87	1,949.30	1,943.29	1,954.40	1,957.32
Mean Year of Last Full Renovation	All Sites	2,000.74	1,994.92	2,001.57	2,007.55	2,005.38	1,984.19	1,989.39	2,007.63	2,002.26	2,005.21	1,998.99	2,006.47	2,005.39	2,007.94
Coal	Primary Heating Fuel	5,583.72	*	10,000.00	2,000.00	5,583.72	*	*	2,000.00	*	*	*	*	*	10,000.00
District Steam	Primary Heating Fuel	40,706.27	33,408.14	211,583.77	245,887.56	3,088.69	166,554.76	32,453.96	2,043.20	381,509.74	163,119.35	90,637.00	2,470.62	1,284.22	2,000.00
Electricity	Primary Heating Fuel	7,953.38	5,071.00	21,178.02	3,504.14	3,292.11	27,087.36	6,524.78	11,921.23	9,913.35	3,863.22	15,082.26	2,134.57	5,427.86	13,269.85
Fuel Oil	Primary Heating Fuel	9,922.00	8,405.82	10,855.80	11,169.07	7,243.32	26,176.70	4,548.35	6,123.72	31,357.28	20,118.48	38,526.01	4,326.81	3,570.86	8,665.84
Natural Gas	Primary Heating Fuel	14,436.58	9,958.87	15,707.11	17,980.41	7,135.02	43,344.47	7,104.90	9,886.97	49,888.15	21,353.83	46,834.23	4,197.00	6,256.34	40,265.76
No Heat	Primary Heating Fuel	4,831.80	6,357.98	3,159.97	3,041.12	1,938.78	26,349.44	12,264.49	1,558.92	7,915.10	1,200.00	4,852.17	1,083.01	1,902.59	3,422.61
Other	Primary Heating Fuel	11,158.88	1,564.02	14,885.85	6,586.77	3,534.54	36,092.57	53,572.80	5,422.91	8,713.18	*	4,136.45	1,500.00	2,500.00	12,288.53
Propane	Primary Heating Fuel	13,059.37	2,493.62	16,651.85	7,292.75	12,224.75	17,956.98	6,196.20	6,667.83	12,438.70	3,339.70	74,756.43	4,291.91	3,284.59	19,891.73
Wood	Primary Heating Fuel	7,026.87	*	7,803.14	800.00	2,286.36	200,000.00	*	2,951.69	200,000.00	*	1,295.20	2,066.67	*	*
Cooled Space	Percent of Sq. Ft.	74%	76%	68%	79%	62%	81%	86%	55%	92%	99%	77%	78%	77%	27%
Heated Space	Percent of Sq. Ft.	89%	85%	85%	95%	82%	93%	93%	85%	99%	99%	90%	77%	81%	69%
Space 20ft or Higher	Percent of Sq. Ft.	33%	17%	35%	44%	24%	37%	13%	22%	51%	35%	6%	3%	24%	73%
Athletic Facility/Arena	Percent of Sq. Ft.	2%	2%	1%	2%	1%	2%	1%	3%	3%	<1%	6%	<1%	<1%	<1%
Auditorium Or Assembly Hall	Percent of Sq. Ft.	2%	1%	3%	1%	3%	1%	1%	1%	4%	<1%	10%	<1%	<1%	<1%
Auto Service/Repair	Percent of Sq. Ft.	2%	1%	4%	1%	3%	1%	2%	8%	<1%	<1%	<1%	<1%	3%	<1%
Conference Room Or Classroom	Percent of Sq. Ft.	15%	4%	9%	29%	5%	20%	3%	1%	72%	2%	4%	<1%	<1%	<1%
Data Center/Server Room	Percent of Sq. Ft.	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	<1%	<1%
Dining Area	Percent of Sq. Ft.	3%	3%	5%	1%	3%	3%	1%	<1%	1%	4%	10%	46%	2%	<1%
Exam/Treatment Room	Percent of Sq. Ft.	2%	2%	2%	3%	3%	2%	1%	<1%	<1%	17%	<1%	<1%	<1%	<1%
Food Preparation Area	Percent of Sq. Ft.	2%	2%	3%	1%	2%	2%	1%	<1%	1%	2%	5%	26%	5%	<1%
Guest/Patient/Dorm Rooms	Percent of Sq. Ft.	5%	8%	4%	3%	1%	7%	2%	<1%	<1%	24%	32%	2%	<1%	<1%
Hallway/Corridor/Stairwell	Percent of Sq. Ft.	5%	7%	4%	3%	3%	5%	8%	1%	3%	7%	7%	1%	1%	<1%
Laboratory	Percent of Sq. Ft.	1%	<1%	1%	<1%	<1%	1%	<1%	<1%	1%	4%	<1%	<1%	<1%	<1%
Lobby Or Atrium	Percent of Sq. Ft.	1%	2%	2%	<1%	2%	1%	1%	1%	1%	4%	3%	<1%	<1%	<1%
Manufacturing/Product Assembly	Percent of Sq. Ft.	2%	2%	3%	1%	2%	2%	2%	2%	1%	<1%	<1%	1%	<1%	5%
Office	Percent of Sq. Ft.	27%	39%	20%	25%	25%	29%	62%	5%	6%	20%	4%	2%	3%	13%
Operating Room	Percent of Sq. Ft.	1%	<1%	2%	<1%	<1%	1%	<1%	<1%	<1%	5%	<1%	<1%	<1%	<1%
Other	Percent of Sq. Ft.	2%	1%	3%	1%	2%	1%	1%	4%	2%	<1%	3%	<1%	1%	2%
Other General Storage	Percent of Sq. Ft.	5%	6%	8%	3%	7%	5%	5%	9%	2%	4%	6%	11%	16%	6%
Refrigerated Storage	Percent of Sq. Ft.	1%	2%	1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	2%	3%	5%
Residential	Percent of Sq. Ft.	1%	1%	<1%	1%	<1%	1%	1%	<1%	<1%	<1%	7%	<1%	<1%	<1%
Restrooms	Percent of Sq. Ft.	2%	2%	3%	1%	2%	2%	2%	1%	2%	4%	2%	3%	2%	1%
Retail Sales Area	Percent of Sq. Ft.	10%	8%	12%	9%	16%	6%	2%	56%	1%	1%	1%	4%	65%	3%
Warehouse	Percent of Sq. Ft.	12%	10%	9%	17%	19%	9%	4%	6%	<1%	<1%	<1%	<1%	<1%	65%
Average Hours Per Day Occupied on Weekdays	Hours per Day	10.94	11.00	11.13	10.64	10.21	14.07	10.06	10.56	10.60	10.50	17.70	13.01	14.17	9.15
Average Hours Per Day Occupied on Weekends	Hours per Day	7.63	7.39	8.13	7.46	6.69	11.67	4.80	8.62	6.47	5.31	17.72	13.18	13.83	4.44

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Building Characteristics - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Occupy All, Part or None of the Facility: All	56%	45%	70%	56%	52%	72%	47%	56%	79%	46%	81%	61%	63%	66%
Occupy All, Part or None of the Facility: None	2%	1%	4%	2%	2%	2%	2%	3%	1%	1%	9%	2%	<1%	2%
Occupy All, Part or None of the Facility: Part	42%	54%	26%	42%	46%	27%	50%	42%	20%	54%	10%	37%	37%	32%
Own or Lease Space at This Facility: Lease or Rent	56%	73%	29%	61%	58%	48%	54%	64%	30%	57%	7%	71%	77%	47%
Own or Lease Space at This Facility: Only Manage, Neither Lease nor Own	1%	1%	1%	<1%	1%	1%	1%	<1%	2%	1%	2%	1%	<1%	<1%
Own or Lease Space at This Facility: Owner or Partial Owner	43%	26%	70%	38%	41%	51%	45%	36%	68%	42%	92%	28%	22%	53%
Number of Stories of Tenant Space Category: 1 Floor	73%	74%	69%	77%	77%	57%	69%	84%	44%	76%	49%	76%	87%	67%
Number of Stories of Tenant Space Category: 2 Floors	19%	17%	23%	17%	18%	23%	19%	12%	35%	15%	28%	21%	13%	33%
Number of Stories of Tenant Space Category: 3+ Floors	8%	9%	9%	7%	6%	20%	12%	4%	24%	9%	22%	4%	<1%	<1%
Facility Built Year Range: 2017 or After	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Facility Built Year Range: Before 1900	10%	8%	14%	7%	10%	7%	9%	10%	19%	7%	10%	12%	6%	5%
Facility Built Year Range: Between 1900 and 1949	37%	50%	31%	25%	39%	28%	41%	37%	36%	29%	36%	40%	37%	28%
Facility Built Year Range: Between 1950 and 1969	19%	16%	19%	24%	18%	20%	16%	21%	19%	19%	19%	17%	21%	27%
Facility Built Year Range: Between 1970 and 1989	20%	12%	23%	28%	19%	24%	21%	19%	14%	24%	19%	16%	18%	26%
Facility Built Year Range: Between 1990 and 2009	11%	10%	12%	11%	10%	15%	11%	9%	9%	16%	12%	11%	13%	10%
Facility Built Year Range: Between 2010 and 2016	4%	4%	3%	5%	3%	5%	3%	4%	3%	5%	4%	3%	5%	3%
Manage the Facility	2%	1%	4%	2%	2%	2%	2%	3%	1%	1%	9%	2%	*	2%
Year of Last Full Renovation: Before 1980	5%	5%	6%	5%	5%	6%	7%	2%	12%	4%	13%	4%	7%	<1%
Year of Last Full Renovation: 1980-1999	19%	15%	29%	15%	19%	19%	24%	16%	10%	16%	*	15%	20%	21%
Year of Last Full Renovation: 2000-2009	21%	23%	22%	18%	19%	31%	20%	19%	26%	28%	9%	28%	17%	17%
Year of Last Full Renovation: 2010-2015	25%	21%	28%	29%	26%	22%	22%	28%	24%	22%	*	30%	19%	*
Year of Last Full Renovation: After 2015	28%	35%	15%	31%	30%	22%	27%	34%	24%	24%	17%	23%	36%	*
Year of Last Full Renovation: Never	1%	<1%	1%	3%	1%	<1%	<1%	1%	3%	5%	4%	<1%	<1%	<1%
Sites With 20ft or Higher Ceilings	11%	10%	17%	7%	9%	20%	9%	9%	21%	2%	6%	3%	8%	53%
Sites With Cooled Space	89%	92%	82%	92%	87%	98%	92%	83%	90%	99%	63%	96%	95%	82%
Sites With Heated Space	94%	89%	97%	97%	93%	96%	96%	90%	99%	100%	93%	88%	97%	90%
Operational Year-Round	97%	99%	95%	96%	97%	98%	99%	98%	96%	100%	71%	94%	97%	98%
Operational in April	99%	100%	98%	98%	98%	99%	100%	98%	97%	100%	91%	98%	99%	99%
Operational in August	98%	100%	97%	97%	98%	99%	99%	98%	98%	100%	86%	96%	98%	99%
Operational in December	99%	100%	99%	99%	99%	99%	100%	99%	98%	100%	97%	99%	100%	99%
Operational in February	100%	100%	99%	100%	100%	99%	100%	100%	98%	100%	98%	100%	100%	100%
Operational in January	100%	100%	99%	100%	100%	100%	100%	100%	99%	100%	98%	100%	100%	99%
Operational in July	98%	100%	97%	97%	98%	99%	99%	98%	96%	100%	86%	96%	98%	99%
Operational in June	98%	100%	97%	97%	98%	99%	99%	98%	96%	100%	86%	96%	98%	99%
Operational in March	99%	100%	99%	99%	99%	99%	100%	99%	98%	100%	97%	98%	100%	99%
Operational in May	98%	100%	97%	98%	98%	99%	99%	98%	97%	100%	87%	97%	99%	99%
Operational in November	99%	100%	98%	99%	99%	99%	100%	98%	98%	100%	95%	99%	99%	99%
Operational in October	98%	100%	97%	98%	98%	99%	99%	98%	97%	100%	88%	97%	99%	99%
Operational in September	98%	100%	97%	97%	98%	99%	99%	98%	97%	100%	86%	97%	98%	99%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Building Characteristics - Penetration - Continued

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Building Commissioned	7%	1%	7%	14%	6%	12%	10%	5%	11%	4%	10%	2%	<1%	13%
Building Retro Commissioned	2%	2%	1%	2%	1%	3%	2%	1%	<1%	2%	1%	4%	<1%	<1%
Building Retro Commissioned: Ongoing Retro Commissioning	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Building Retro Commissioned: Years 10+ Years	<1%	*	<1%	<1%	<1%	1%	1%	<1%	*	*	*	*	*	*
Building Retro Commissioned: Years 5-9 Years	<1%	*	<1%	1%	<1%	1%	<1%	1%	*	*	*	*	*	*
Building Retro Commissioned: Years Less Than 5 Years	1%	*	1%	2%	1%	1%	1%	1%	*	*	*	*	*	*
Maintenance Type HVAC: Multiple	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	3%	1%	<1%	1%	2%	<1%
Maintenance Type HVAC: Preventative	18%	21%	19%	12%	17%	23%	21%	14%	28%	10%	21%	16%	14%	22%
Maintenance Type HVAC: Reactive	66%	74%	57%	64%	68%	55%	64%	74%	44%	60%	50%	69%	75%	63%
Maintenance Type HVAC: Scheduled	16%	4%	23%	23%	15%	23%	15%	12%	26%	30%	29%	14%	9%	15%
Maintenance Type Lighting: Multiple	<1%	<1%	1%	<1%	<1%	1%	<1%	<1%	1%	<1%	<1%	2%	<1%	2%
Maintenance Type Lighting: Preventative	3%	1%	9%	1%	3%	5%	4%	3%	5%	1%	10%	3%	4%	2%
Maintenance Type Lighting: Reactive	96%	99%	88%	99%	96%	93%	95%	96%	92%	99%	90%	95%	96%	95%
Maintenance Type Lighting: Scheduled	1%	<1%	3%	<1%	1%	1%	1%	1%	2%	1%	<1%	<1%	<1%	2%
Stand-Alone Building	47%	27%	70%	51%	41%	68%	43%	37%	82%	42%	93%	36%	46%	71%

Building Shell Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Clear	All Windows	86%	86%	88%	86%	89%	84%	3.85	88%	78%	99%	91%	89%	84%	90%
Opaque	All Windows	<1%	<1%	<1%	<1%	<1%	<1%	1.87	<1%	1%	1%	<1%	<1%	4%	2%
Other	All Windows	1%	<1%	2%	<1%	1%	<1%	0.56	<1%	3%	<1%	4%	<1%	5%	<1%
Reflective	All Windows	2%	2%	4%	1%	2%	3%	2,553.30	3%	13%	<1%	<1%	1%	1%	<1%
Tinted	All Windows	10%	12%	6%	12%	7%	13%	5.76	9%	5%	<1%	5%	10%	7%	8%
East	All Windows	19%	17%	21%	21%	21%	17%	1.58	26%	24%	12%	16%	21%	21%	18%
North	All Windows	41%	52%	35%	31%	39%	44%	23.32	32%	37%	49%	41%	36%	42%	53%
Skylight	All Windows	1%	1%	1%	1%	1%	1%	1.11	2%	1%	<1%	<1%	3%	<1%	1%
South	All Windows	22%	19%	23%	27%	20%	24%	1.08	20%	20%	29%	27%	21%	20%	14%
West	All Windows	16%	11%	20%	20%	18%	15%	39.24	20%	19%	11%	16%	20%	17%	14%
All Ducts	Average Year of Last Ductwork Inspection or Repair	2,011.57	2,014.60	2,014.08	2,010.06	2,011.38	2,012.32	66.20	2,014.91	2,015.06	2,012.27	2,013.00	2,014.13	2,012.86	2,015.02
Average Window Area (% of Outer Wall)	Walls	15%	15%	13%	16%	14%	18%	8,656.15	16%	16%	14%	11%	16%	14%	5%
Double Pane	Average Age of Windows	44.53	30.00	37.13	61.74	46.29	36.00	1,949.05	44.52	63.14	23.53	30.00	*	38.93	*
Other	Average Age of Windows	18.50	17.50	18.71	19.82	18.42	18.57	1,989.39	14.92	18.92	15.82	16.72	17.76	21.74	14.68
Single Pane	Average Age of Windows	38.03	32.06	41.90	47.40	40.49	34.73	*	31.77	58.80	28.38	37.64	30.99	26.27	37.84
All Windows	Average Age of Windows	22.97	21.24	22.83	26.89	24.76	21.29	32,453.96	20.44	28.55	15.41	20.00	19.99	24.56	23.89
All Windows	Average Number of Windows	8.88	9.09	9.46	7.85	5.33	24.63	6,524.78	3.57	20.07	14.62	16.83	4.93	3.82	5.93

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Building Shell Characteristics - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Foundation Type: Brick and Stone	19%	18%	19%	19%	20%	13%	20%	15%	30%	17%	19%	23%	15%	16%
Foundation Type: Pillar or Post	<1%	<1%	1%	<1%	<1%	1%	<1%	<1%	2%	<1%	4%	<1%	2%	<1%
Foundation Type: Poured Concrete	49%	58%	31%	54%	48%	51%	54%	47%	41%	55%	51%	51%	34%	32%
Foundation Type: Slab	32%	23%	50%	27%	32%	35%	26%	37%	29%	28%	30%	26%	48%	53%
Basement or Crawlspace	52%	66%	45%	43%	53%	49%	56%	50%	62%	57%	57%	66%	45%	14%
Buildings With Ducts	65%	55%	70%	75%	60%	87%	67%	56%	69%	77%	59%	78%	74%	54%
Buildings With Ducts: Insulated Ductwork	30%	19%	25%	52%	25%	52%	37%	20%	42%	38%	18%	27%	27%	22%
Buildings With Ducts: Leak Tested	6%	1%	1%	12%	4%	12%	6%	3%	15%	7%	5%	7%	<1%	2%
Buildings With Ducts: No Sealed Ductwork	23%	15%	36%	16%	23%	19%	17%	25%	19%	15%	20%	33%	44%	*
Buildings With Ducts: Partially Sealed Ductwork	13%	37%	10%	2%	11%	22%	10%	12%	18%	21%	17%	16%	19%	<1%
Buildings With Ducts: Sealed Ductwork	30%	4%	24%	57%	26%	45%	40%	19%	32%	41%	23%	30%	10%	*
Standalone: Any Insulation	82%	*	89%	88%	83%	80%	93%	84%	86%	89%	90%	90%	80%	*
Standalone: Floor Insulation	16%	<1%	20%	19%	17%	16%	17%	18%	21%	*	12%	3%	5%	6%
Standalone: Roof Insulation	76%	*	83%	84%	78%	70%	92%	77%	82%	*	89%	74%	*	*
Standalone: Walls Insulation	66%	*	70%	72%	66%	67%	75%	62%	69%	88%	*	79%	*	*
Building Windows	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Window Type: Single Pane	31%	32%	30%	32%	33%	24%	23%	42%	27%	22%	15%	34%	53%	41%
Window Type: Single Pane With Storm Windows	3%	<1%	6%	3%	3%	1%	3%	4%	9%	3%	5%	<1%	3%	<1%
Window Type: Double Pane	65%	66%	60%	70%	64%	74%	74%	55%	67%	69%	76%	68%	48%	59%
Window Type: Double Pane - Gas Filled	6%	5%	11%	2%	6%	5%	7%	5%	9%	9%	7%	2%	3%	2%
Window Type: Other	1%	<1%	1%	2%	1%	<1%	1%	1%	2%	1%	<1%	<1%	<1%	1%
Window Film	4%	2%	4%	8%	4%	8%	7%	1%	9%	4%	9%	5%	3%	<1%
Roof Color: Dark Colored	51%	29%	68%	60%	52%	45%	52%	44%	69%	59%	66%	53%	37%	38%
Roof Color: Light Colored	49%	71%	32%	40%	48%	55%	48%	56%	31%	41%	34%	47%	63%	62%
Buildings With Ducts: Year of Last Ductwork Inspection or Repair: Never	17%	<1%	25%	19%	16%	20%	16%	16%	11%	*	9%	14%	*	*
Buildings With Ducts: Year of Last Ductwork Inspection or Repair: 2016-2018	29%	37%	31%	30%	27%	38%	25%	25%	43%	*	*	47%	*	*
Buildings With Ducts: Year of Last Ductwork Inspection or Repair: 2010-2015	7%	19%	4%	6%	6%	9%	<1%	16%	7%	<1%	*	4%	<1%	<1%
Buildings With Ducts: Year of Last Ductwork Inspection or Repair: Before 2010	13%	<1%	10%	19%	11%	20%	26%	<1%	8%	*	*	12%	9%	*
Predominant Framing Type: Adjoining Wall	<1%	1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
Predominant Framing Type: Brick	38%	54%	24%	30%	40%	33%	41%	46%	32%	36%	19%	35%	47%	18%
Predominant Framing Type: Concrete	28%	31%	24%	28%	27%	31%	27%	26%	19%	17%	16%	29%	30%	62%
Predominant Framing Type: Concrete Block	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%
Predominant Framing Type: Metal	7%	3%	7%	13%	5%	17%	6%	6%	13%	16%	10%	2%	6%	9%
Predominant Framing Type: Other	<1%	<1%	1%	<1%	<1%	2%	<1%	<1%	4%	2%	<1%	<1%	<1%	<1%
Predominant Framing Type: Wood	26%	10%	45%	29%	27%	18%	26%	20%	31%	29%	54%	35%	17%	11%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

EMS Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Yes	EMS Control: On-Site Generation	16%	*	13%	11%	*	17%	*	*	*	<1%	*	*	*	<1%
Digital	EMS Digital or Pneumatic Controls	96%	100%	97%	95%	100%	95%	94%	*	92%	100%	*	*	*	100%
Pneumatic	EMS Digital or Pneumatic Controls	4%	<1%	3%	5%	<1%	5%	6%	*	8%	<1%	*	*	*	<1%
Yes	EMS Employ: Advanced Energy Information Systems	*	*	*	<1%	*	*	*	*	*	*	*	*	*	*
Yes	EMS Employ: Automated System Communication	*	*	*	<1%	*	*	*	*	*	*	*	*	*	100%
Yes	EMS Employ: Basic Control	94%	100%	92%	100%	*	97%	100%	*	*	*	*	*	*	100%
Yes	EMS Employ: Data Trending	*	*	*	<1%	*	*	*	*	*	*	*	*	*	*
Yes	EMS Employ: Demand or Load Limiting	*	*	*	<1%	<1%	*	*	*	<1%	*	*	*	*	*
Yes	EMS Employ: Energy Information Systems	*	*	*	<1%	*	*	*	*	*	*	*	*	*	*
Yes	EMS Employ: Multi-use Sensors	*	*	*	<1%	*	*	*	*	*	*	*	*	*	*
Yes	EMS Employ: Optimized Start or Stop	*	*	*	*	*	*	*	*	*	*	*	*	*	100%
Yes	EMS Employ: Reset Optimization	*	*	*	*	*	*	*	*	*	*	*	*	*	*
0-5 Years	Energy Management System Age of EMS: Category	38%	38%	27%	*	*	34%	38%	*	27%	*	*	*	*	*
11-15 Years	Energy Management System Age of EMS: Category	17%	16%	20%	14%	11%	20%	10%	*	22%	12%	<1%	*	*	*
16-20 Years	Energy Management System Age of EMS: Category	17%	22%	16%	6%	17%	17%	21%	15%	20%	8%	*	*	*	*
6-10 Years	Energy Management System Age of EMS: Category	18%	19%	20%	12%	22%	16%	19%	5%	20%	*	*	*	*	*
Over 20 Years	Energy Management System Age of EMS: Category	10%	5%	17%	3%	5%	12%	12%	6%	11%	13%	*	<1%	8%	<1%
Age of EMS (Years)	EMS	10.40	10.37	12.30	5.76	8.59	11.33	10.59	8.39	11.48	11.79	11.75	8.43	9.91	10.10

EMS Characteristics - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Penetration														
Energy Management System	3%	3%	4%	3%	1%	13%	2%	2%	17%	4%	2%	6%	4%	2%
Energy Management System- Cooling	2%	2%	3%	2%	1%	11%	1%	1%	15%	4%	1%	5%	4%	2%
Energy Management System- Heating	3%	2%	3%	3%	1%	12%	2%	1%	16%	4%	2%	5%	3%	2%
Energy Management System- District Steam System	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Energy Management System- Lighting	1%	1%	1%	1%	<1%	5%	1%	1%	6%	2%	<1%	3%	1%	1%
Energy Management System- Motors or Industrial Processes	<1%	<1%	1%	<1%	<1%	2%	<1%	<1%	2%	1%	<1%	1%	<1%	<1%
Energy Management System- On-Site Generation	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	1%	1%	<1%	<1%	<1%	<1%
Energy Management System- Other Equipment	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%
Energy Management System- Refrigeration	1%	1%	1%	<1%	<1%	3%	<1%	<1%	1%	1%	<1%	2%	2%	<1%
Penetration (Nested)														
Energy Management System- Cooling	77%	75%	87%	67%	60%	88%	65%	74%	92%	88%	51%	84%	88%	92%
Energy Management System- Heating	83%	76%	91%	84%	74%	89%	73%	76%	97%	98%	100%	80%	82%	100%
Energy Management System- District Steam System	6%	12%	4%	<1%	3%	8%	9%	8%	3%	5%	<1%	8%	<1%	13%
Energy Management System- Lighting	36%	30%	39%	41%	26%	42%	26%	56%	34%	37%	17%	53%	33%	54%
Energy Management System- Motors or Industrial Processes	11%	8%	17%	10%	6%	15%	13%	2%	14%	16%	9%	16%	<1%	25%
Energy Management System- On-Site Generation	6%	9%	7%	2%	3%	8%	4%	8%	5%	11%	9%	8%	4%	26%
Energy Management System- Other Equipment	7%	11%	3%	4%	12%	3%	7%	8%	5%	10%	<1%	<1%	9%	<1%
Energy Management System- Refrigeration	19%	24%	16%	14%	16%	21%	14%	20%	6%	32%	9%	33%	46%	26%

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

HVAC Controls Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Manual On or Off	Cooled Square Footage	7%	12%	4%	6%	13%	5%	8%	8%	1%	16%	11%	5%	3%	2%
Manual Thermostat	Cooled Square Footage	13%	17%	18%	6%	24%	9%	13%	23%	4%	8%	48%	27%	15%	5%
Programmable Thermostat	Cooled Square Footage	46%	31%	62%	47%	53%	44%	38%	51%	29%	72%	40%	64%	81%	90%
Smart or Wifi Thermostat	Cooled Square Footage	2%	4%	1%	1%	3%	1%	2%	5%	2%	2%	<1%	3%	<1%	<1%
Energy Management System (EMS)	Cooled Square Footage	31%	35%	14%	40%	7%	41%	39%	11%	63%	3%	<1%	<1%	<1%	2%
Other	Cooled Square Footage	<1%	<1%	1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	<1%	1%	<1%	<1%
Manual On or Off	Heated Square Footage	6%	9%	2%	8%	10%	4%	<1%	12%	<1%	15%	7%	2%	5%	21%
Manual Thermostat	Heated Square Footage	23%	27%	28%	17%	30%	20%	25%	28%	4%	29%	50%	28%	17%	29%
Programmable Thermostat	Heated Square Footage	39%	28%	55%	36%	50%	35%	35%	44%	33%	52%	37%	64%	77%	36%
Smart or Wifi Thermostat	Heated Square Footage	2%	4%	1%	1%	2%	2%	2%	4%	2%	1%	3%	4%	<1%	<1%
Energy Management System (EMS)	Heated Square Footage	29%	32%	13%	37%	5%	39%	38%	8%	61%	3%	3%	<1%	<1%	13%
Other	Heated Square Footage	1%	<1%	2%	<1%	2%	<1%	<1%	4%	<1%	1%	<1%	1%	2%	<1%
Mean Percent Across Sites Cooled	Mean Percent Across Sites Cooled	0.77	0.83	0.66	0.82	0.77	0.79	0.80	0.75	0.83	0.95	0.61	0.79	0.78	0.45
Mean Percent Across Sites Heated	Mean Percent Across Sites Heated	0.88	0.87	0.87	0.92	0.89	0.87	0.90	0.88	0.96	0.98	0.91	0.74	0.84	0.83
Percent of Sq Ft Cooled	Percent of Total Sq Ft Cooled	0.77	0.81	0.68	0.81	0.68	0.82	0.86	0.63	0.91	0.99	0.78	0.79	0.77	0.32
Percent of Sq Ft Heated	Percent of Total Sq Ft Heated	0.92	0.91	0.85	0.97	0.87	0.94	0.93	0.92	0.98	0.99	0.91	0.77	0.82	0.79
Sq Ft Cooled	Mean Sq Ft Cooled	7,664	5,821	7,247	10,938	2,888	26,908	8,521	2,776	32,614	11,497	10,513	2,373	3,833	6,796
Sq Ft Heated	Mean Sq Ft Heated	9,107	6,525	9,042	13,103	3,730	30,771	9,257	4,057	35,185	11,531	12,236	2,310	4,066	16,861
VFD	AHU	33%	*	42%	*	10%	62%	*	<1%	*	*	<1%	4%	<1%	<1%
Mean Fan Motor Horsepower	AHU	8.16	21.87	2.59	6.48	1.04	10.78	15.82	0.85	5.01	4.68	0.75	0.95	*	4.80

HVAC Controls Characteristics - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Heating or Cooling Controls_Manual On/Off	18%	30%	10%	10%	20%	12%	16%	20%	9%	21%	23%	13%	16%	35%
Heating or Cooling Controls_Manual Thermostat	39%	34%	49%	34%	40%	32%	37%	47%	30%	30%	75%	25%	43%	37%
Heating or Cooling Controls_Programmable Thermostat	53%	46%	54%	64%	51%	62%	57%	43%	64%	55%	38%	62%	53%	54%
Heating or Cooling Controls_Smart/Wifi Thermostat	5%	8%	1%	3%	5%	4%	4%	6%	4%	8%	1%	5%	<1%	<1%
Energy Management System	3%	3%	4%	3%	1%	13%	2%	2%	17%	4%	2%	6%	4%	2%
Heating or Cooling Controls_Other	2%	2%	2%	<1%	2%	2%	<1%	1%	1%	5%	1%	4%	6%	2%
Cooling - Manual On/Off	15%	26%	8%	7%	17%	7%	15%	19%	8%	19%	16%	12%	15%	8%
Cooling - Manual Thermostat	25%	23%	25%	29%	26%	22%	23%	29%	20%	22%	39%	23%	35%	21%
Cooling - Programmable Thermostat	47%	41%	45%	56%	44%	59%	50%	35%	49%	48%	31%	60%	48%	54%
Cooling - Smart/Wifi Thermostat	4%	8%	1%	3%	4%	4%	4%	6%	4%	8%	<1%	3%	<1%	<1%
Cooling - Energy Management System (EMS)	2%	<1%	3%	2%	<1%	7%	2%	1%	8%	4%	<1%	<1%	<1%	1%
Cooling - Other	1%	1%	2%	<1%	1%	2%	<1%	1%	1%	1%	1%	2%	2%	2%
Heating - Manual On/Off	8%	13%	3%	6%	8%	8%	2%	11%	4%	9%	8%	5%	10%	27%
Heating - Manual Thermostat	35%	28%	45%	32%	36%	30%	34%	44%	21%	23%	71%	20%	37%	35%
Heating - Programmable Thermostat	48%	38%	51%	59%	46%	56%	51%	41%	59%	50%	38%	51%	49%	54%
Heating - Smart/Wifi Thermostat	4%	7%	1%	3%	4%	3%	5%	5%	2%	6%	1%	4%	<1%	<1%
Heating - Energy Management System (EMS)	2%	<1%	3%	2%	<1%	7%	2%	1%	10%	4%	1%	<1%	<1%	1%
Heating - Other	1%	2%	2%	<1%	1%	1%	<1%	1%	<1%	4%	<1%	3%	4%	2%
Demand Controlled Ventilation	9%	10%	6%	11%	8%	13%	7%	10%	13%	10%	10%	14%	11%	7%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Heating Characteristics - Gas Boilers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Before 1980	Natural Gas Boiler Age	6%	3%	4%	9%	2%	10%	2%	5%	4%	*	<1%	*	<1%	*
1980-1989	Natural Gas Boiler Age	6%	*	3%	2%	9%	3%	2%	*	<1%	3%	*	<1%	<1%	<1%
1990-1999	Natural Gas Boiler Age	26%	*	32%	23%	35%	17%	32%	*	13%	<1%	*	*	100%	*
2000-2004	Natural Gas Boiler Age	6%	8%	11%	<1%	3%	10%	7%	5%	14%	<1%	3%	<1%	<1%	<1%
2005-2009	Natural Gas Boiler Age	17%	<1%	14%	*	10%	24%	4%	7%	29%	6%	*	*	<1%	<1%
2010-2016	Natural Gas Boiler Age	35%	*	36%	28%	34%	36%	46%	6%	30%	*	3%	<1%	*	*
After 2016	Natural Gas Boiler Age	4%	3%	1%	8%	7%	2%	6%	<1%	9%	<1%	<1%	*	<1%	<1%
Age	Natural Gas Boiler Age	15.53	15.87	15.46	15.39	15.23	15.84	12.61	25.65	12.53	19.51	13.21	11.96	20.45	14.54
0-99 kBTU/Hr	Natural Gas Boiler Capacity	3%	<1%	8%	<1%	7%	<1%	<1%	*	1%	1%	<1%	*	<1%	<1%
100-139 kBTU/Hr	Natural Gas Boiler Capacity	16%	3%	10%	29%	15%	18%	11%	10%	2%	*	<1%	<1%	*	*
140-199 kBTU/Hr	Natural Gas Boiler Capacity	18%	16%	12%	24%	20%	17%	7%	18%	10%	*	*	*	*	<1%
200-499 kBTU/Hr	Natural Gas Boiler Capacity	23%	*	36%	6%	32%	15%	19%	*	33%	*	*	*	<1%	*
500-999 kBTU/Hr	Natural Gas Boiler Capacity	19%	20%	19%	18%	16%	21%	32%	*	17%	<1%	<1%	6%	<1%	<1%
1000-1,499 kBTU/Hr	Natural Gas Boiler Capacity	2%	4%	3%	1%	2%	3%	3%	<1%	7%	<1%	<1%	<1%	<1%	<1%
1,500+ kBTU/Hr	Natural Gas Boiler Capacity	18%	23%	11%	22%	9%	27%	27%	<1%	31%	*	6%	<1%	<1%	<1%
Capacity (BTU)	Natural Gas Boiler Capacity	820,012	727,173	884,889	815,334	402,526	1,211,319	849,498	305,564	1,296,036	1,098,459	460,308	294,783	141,124	163,003
70%-79% AFUE	Natural Gas Boiler Efficiency	2%	8%	1%	<1%	3%	1%	1%	<1%	<1%	<1%	<1%	*	<1%	*
80%-89% AFUE	Natural Gas Boiler Efficiency	71%	*	57%	91%	76%	66%	86%	*	*	*	*	*	100%	*
90%-99% AFUE	Natural Gas Boiler Efficiency	27%	*	42%	9%	21%	33%	13%	*	*	*	*	*	<1%	*
Average Efficiency	Natural Gas Boiler Efficiency	0.85	0.83	0.87	0.82	0.84	0.86	0.83	0.84	0.90	0.84	0.85	0.83	0.81	*
Yes	Natural Gas Boiler Condensing	17%	6%	35%	13%	17%	18%	7%	*	45%	*	<1%	*	<1%	<1%
Yes	Natural Gas Boiler Integrated With DHW	21%	5%	23%	29%	16%	27%	4%	*	27%	*	*	*	<1%	<1%
Cast Iron	Natural Gas Boiler Material	67%	*	46%	78%	68%	67%	77%	*	51%	*	*	100%	100%	*
Other	Natural Gas Boiler Material	7%	<1%	30%	2%	5%	8%	2%	<1%	17%	*	<1%	<1%	<1%	<1%
Steel	Natural Gas Boiler Material	26%	*	24%	21%	27%	25%	21%	*	32%	<1%	*	<1%	<1%	*
Yes	Natural Gas Boiler O2 Trim	22%	<1%	3%	*	3%	35%	16%	<1%	*	6%	*	<1%	<1%	*
Steam	Natural Gas Boiler Output	18%	*	16%	10%	24%	13%	13%	*	18%	*	6%	*	*	*
Water	Natural Gas Boiler Output	82%	*	84%	90%	76%	87%	87%	*	82%	*	94%	*	*	*
Yes	Natural Gas Boiler Reset Controls	42%	<1%	42%	*	14%	61%	*	7%	*	*	*	*	<1%	<1%
One Pipe	Natural Gas Boiler System Type	34%	38%	46%	7%	40%	26%	28%	*	56%	*	*	*	*	<1%
Other	Natural Gas Boiler System Type	40%	32%	17%	92%	36%	47%	43%	*	19%	*	<1%	*	*	*
Two Pipe	Natural Gas Boiler System Type	26%	29%	37%	1%	25%	27%	29%	*	25%	*	*	*	*	*
2000-2009	Natural Gas Boiler Tune-Up Year	1%	<1%	1%	<1%	2%	<1%	<1%	<1%	3%	<1%	<1%	<1%	*	*
2010-2015	Natural Gas Boiler Tune-Up Year	3%	<1%	5%	<1%	6%	<1%	<1%	*	<1%	*	<1%	<1%	*	*
2016-2017	Natural Gas Boiler Tune-Up Year	56%	*	54%	*	*	*	*	*	*	*	*	*	*	*
2018	Natural Gas Boiler Tune-Up Year	40%	*	38%	*	28%	*	*	*	*	*	*	*	*	*
Never	Natural Gas Boiler Tune-Up Year	1%	<1%	1%	<1%	2%	<1%	<1%	<1%	3%	<1%	<1%	<1%	*	*
Fire tube	Natural Gas Boiler Type	46%	*	*	*	*	43%	*	*	*	*	*	*	*	100%
Water tube	Natural Gas Boiler Type	54%	*	*	*	*	57%	*	*	*	*	*	*	*	<1%

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Heating Characteristics - Oil Boilers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Before 1980	Oil Boiler Age	2%	*	<1%	<1%	2%	6%	<1%	<1%	<1%	<1%	*	<1%	*	*
1980-1989	Oil Boiler Age	6%	<1%	14%	4%	2%	*	*	2%	<1%	*	*	*	*	*
1990-1999	Oil Boiler Age	18%	*	14%	*	21%	<1%	<1%	*	*	*	*	<1%	<1%	*
2000-2004	Oil Boiler Age	10%	5%	*	5%	8%	*	<1%	<1%	*	<1%	*	*	*	*
2005-2009	Oil Boiler Age	49%	*	*	*	*	*	*	*	*	<1%	*	<1%	<1%	*
2010-2016	Oil Boiler Age	13%	4%	<1%	*	15%	<1%	<1%	9%	10%	*	*	<1%	<1%	*
After 2016	Oil Boiler Age	2%	5%	<1%	<1%	2%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	*	*
Age	Oil Boiler Age	15.12	16.53	17.35	11.79	14.31	19.94	12.25	13.08	13.34	20.46	15.35	20.00	30.60	*
0-99 kBTU/Hr	Oil Boiler Capacity	6%	<1%	*	*	7%	2%	<1%	*	<1%	*	<1%	<1%	*	*
100-139 kBTU/Hr	Oil Boiler Capacity	10%	9%	<1%	*	6%	*	<1%	*	*	*	<1%	<1%	<1%	*
140-199 kBTU/Hr	Oil Boiler Capacity	39%	*	*	*	*	<1%	*	*	*	*	*	*	*	*
200-499 kBTU/Hr	Oil Boiler Capacity	30%	*	*	*	34%	15%	*	*	<1%	*	*	*	<1%	*
500-999 kBTU/Hr	Oil Boiler Capacity	8%	*	3%	<1%	<1%	*	*	*	<1%	<1%	<1%	<1%	<1%	*
1000-1,499 kBTU/Hr	Oil Boiler Capacity	5%	5%	*	<1%	3%	*	4%	<1%	*	<1%	*	<1%	<1%	*
1,500+ kBTU/Hr	Oil Boiler Capacity	1%	1%	<1%	3%	<1%	6%	2%	<1%	<1%	<1%	*	<1%	<1%	*
Capacity (BTU)	Oil Boiler Capacity	306,611	355,067	300,138	210,718	210,053	674,643	338,272	261,109	524,870	152,935	481,677	201,732	142,138	*
70%-79% AFUE	Oil Boiler Efficiency	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
80%-89% AFUE	Oil Boiler Efficiency	80%	*	100%	100%	*	100%	*	100%	100%	100%	100%	100%	100%	*
90%-99% AFUE	Oil Boiler Efficiency	20%	*	<1%	<1%	*	<1%	*	<1%	<1%	<1%	<1%	<1%	<1%	*
Average Efficiency	Oil Boiler Efficiency	0.86	0.87	0.86	0.85	0.87	0.84	0.88	0.84	0.86	0.85	0.85	0.85	0.86	*
Yes	Oil Boiler Condensing	10%	*	<1%	3%	12%	<1%	*	<1%	*	<1%	<1%	<1%	<1%	*
Yes	Oil Boiler Integrated With DHW	31%	*	17%	*	34%	*	*	*	*	*	*	*	*	*
Cast Iron	Oil Boiler Material	68%	*	*	*	*	95%	*	*	100%	*	*	*	*	*
Other	Oil Boiler Material	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Steel	Oil Boiler Material	32%	*	*	*	*	5%	*	*	<1%	*	*	*	*	*
Yes	Oil Boiler O2 Trim	6%	<1%	<1%	*	7%	<1%	<1%	*	<1%	<1%	<1%	<1%	<1%	*
Steam	Oil Boiler Output	17%	*	10%	<1%	16%	*	*	<1%	*	*	*	*	*	*
Water	Oil Boiler Output	83%	*	90%	100%	84%	*	*	100%	*	*	*	*	*	*
Yes	Oil Boiler Reset Controls	23%	2%	*	*	26%	<1%	*	*	*	*	<1%	<1%	*	*
One Pipe	Oil Boiler System Type	50%	*	11%	*	*	*	*	<1%	*	*	*	*	*	*
Other	Oil Boiler System Type	32%	*	*	*	*	*	*	*	<1%	<1%	*	*	<1%	*
Two Pipe	Oil Boiler System Type	19%	*	*	<1%	21%	*	*	*	*	*	*	*	*	*
Before 2000	Oil Boiler Tune-Up Year	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
2000-2009	Oil Boiler Tune-Up Year	2%	<1%	*	<1%	3%	<1%	<1%	<1%	*	<1%	*	<1%	<1%	*
2010-2015	Oil Boiler Tune-Up Year	5%	<1%	*	<1%	6%	<1%	<1%	*	<1%	<1%	<1%	<1%	<1%	*
2016-2017	Oil Boiler Tune-Up Year	76%	*	*	*	79%	*	*	*	*	100%	*	100%	100%	*
2018	Oil Boiler Tune-Up Year	16%	*	*	*	11%	*	*	*	*	*	<1%	<1%	<1%	*
Fire tube	Oil Boiler Type	15%	*	*	3%	<1%	*	*	<1%	<1%	<1%	*	*	*	*
Water tube	Oil Boiler Type	85%	*	*	97%	100%	*	*	100%	100%	100%	*	*	*	*

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Heating Characteristics - Gas Furnaces

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Before 1980	Natural Gas Furnace Age	5%	<1%	2%	10%	1%	9%	<1%	<1%	1%	5%	11%	1%	<1%	*
1980-1989	Natural Gas Furnace Age	14%	<1%	4%	30%	4%	26%	5%	4%	<1%	3%	<1%	2%	4%	*
1990-1999	Natural Gas Furnace Age	11%	4%	20%	5%	13%	8%	9%	19%	14%	11%	6%	15%	<1%	5%
2000-2004	Natural Gas Furnace Age	14%	19%	20%	7%	16%	13%	13%	24%	6%	*	*	17%	*	5%
2005-2009	Natural Gas Furnace Age	18%	27%	22%	10%	22%	13%	21%	13%	*	*	*	29%	15%	*
2010-2016	Natural Gas Furnace Age	30%	*	25%	27%	35%	25%	47%	25%	*	*	*	28%	*	4%
After 2016	Natural Gas Furnace Age	7%	1%	7%	10%	8%	5%	5%	15%	<1%	5%	3%	8%	3%	4%
Age	Natural Gas Furnace Age	14.82	9.80	13.10	18.81	11.41	18.86	10.13	11.60	10.59	12.20	13.52	11.32	11.71	28.29
0-99 kBTU/Hr	Natural Gas Furnace Capacity	27%	15%	39%	12%	36%	15%	32%	33%	*	*	*	23%	*	7%
100-119 kBTU/Hr	Natural Gas Furnace Capacity	19%	*	18%	14%	26%	10%	31%	9%	4%	9%	<1%	24%	*	*
120-139 kBTU/Hr	Natural Gas Furnace Capacity	19%	18%	15%	28%	20%	17%	19%	26%	11%	*	17%	24%	*	6%
140-199 kBTU/Hr	Natural Gas Furnace Capacity	17%	17%	18%	16%	14%	22%	8%	29%	5%	20%	14%	3%	3%	*
200-499 kBTU/Hr	Natural Gas Furnace Capacity	17%	20%	9%	29%	4%	35%	9%	3%	*	*	14%	26%	*	*
500+ kBTU/Hr	Natural Gas Furnace Capacity	1%	<1%	1%	1%	<1%	2%	1%	<1%	3%	<1%	<1%	<1%	<1%	<1%
Capacity (BTU)	Natural Gas Furnace Capacity	146,238	161,713	123,553	183,630	113,194	196,616	127,660	123,175	195,301	165,237	110,260	151,368	235,701	198,188
70%-79% AFUE	Natural Gas Furnace Efficiency	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
80%-89% AFUE	Natural Gas Furnace Efficiency	61%	100%	45%	*	56%	72%	61%	*	*	*	*	64%	*	*
90%-99% AFUE	Natural Gas Furnace Efficiency	39%	<1%	55%	*	44%	27%	39%	*	*	*	*	36%	*	*
Average Efficiency	Natural Gas Furnace Efficiency	0.85	0.80	0.87	0.84	0.86	0.84	0.85	0.85	0.85	0.86	0.88	0.85	0.83	0.85
Yes	Natural Gas Furnace Associated With Cooling Unit	71%	92%	68%	63%	76%	62%	85%	67%	94%	97%	*	89%	75%	*

Heating Characteristics - Oil Furnaces

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Before 1980	Oil Furnace Age	22%	*	7%	*	24%	*	<1%	*	<1%	*	<1%	*	*	100%
1980-1989	Oil Furnace Age	5%	*	5%	<1%	2%	*	<1%	<1%	<1%	*	*	*	*	<1%
1990-1999	Oil Furnace Age	12%	*	16%	10%	15%	<1%	<1%	*	*	*	*	*	*	<1%
2000-2004	Oil Furnace Age	11%	*	*	<1%	5%	*	*	*	<1%	*	<1%	*	<1%	<1%
2005-2009	Oil Furnace Age	25%	*	*	*	29%	5%	*	*	*	*	<1%	*	*	<1%
2010-2016	Oil Furnace Age	22%	*	*	*	21%	*	*	*	*	*	*	*	<1%	<1%
After 2016	Oil Furnace Age	4%	*	<1%	7%	4%	<1%	<1%	*	<1%	*	<1%	*	<1%	<1%
Age	Oil Furnace Age	18.55	30.00	12.84	22.92	18.37	19.44	9.97	10.49	10.82	28.00	21.85	0.00	29.19	45.69
0-99 kBTU/Hr	Oil Furnace Capacity	32%	*	*	*	*	*	<1%	*	*	*	<1%	*	*	100%
100-119 kBTU/Hr	Oil Furnace Capacity	18%	*	10%	*	22%	5%	<1%	*	*	*	*	*	*	<1%
120-139 kBTU/Hr	Oil Furnace Capacity	4%	*	5%	<1%	5%	<1%	<1%	<1%	*	*	<1%	*	<1%	<1%
140-199 kBTU/Hr	Oil Furnace Capacity	27%	*	*	*	*	*	*	*	*	*	*	*	*	<1%
200-499 kBTU/Hr	Oil Furnace Capacity	20%	*	*	7%	7%	*	*	*	*	*	*	*	*	<1%
500+ kBTU/Hr	Oil Furnace Capacity	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Capacity (BTU)	Oil Furnace Capacity	161,736	*	175,038	135,655	129,375	260,537	160,341	195,009	125,839	117,000	209,332	*	128,361	86,634
70%-79% AFUE	Oil Furnace Efficiency	7%	*	<1%	*	9%	<1%	<1%	*	<1%	*	<1%	*	*	<1%
80%-89% AFUE	Oil Furnace Efficiency	83%	*	91%	*	*	*	100%	*	100%	*	100%	*	*	100%
90%-99% AFUE	Oil Furnace Efficiency	10%	*	9%	<1%	8%	*	<1%	*	<1%	*	<1%	*	*	<1%
Average Efficiency	Oil Furnace Efficiency	0.84	0.94	0.84	0.82	0.84	0.83	0.86	0.83	0.82	0.84	0.81	*	0.94	0.80
Yes	Oil Furnace Associated With Cooling Unit	47%	100%	*	*	48%	*	*	*	*	*	*	*	*	*

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Heating Characteristics - Electric Heat

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
0-0.99 kW	Electric Resistence Heating Capacity	2%	<1%	10%	<1%	9%	<1%	3%	<1%	<1%	*	<1%	*	*	*
1-1.99 kW	Electric Resistence Heating Capacity	86%	*	65%	100%	*	92%	*	*	*	*	100%	*	*	*
2-2.99 kW	Electric Resistence Heating Capacity	9%	*	11%	<1%	*	5%	6%	*	28%	*	<1%	*	*	*
3-5.99 kW	Electric Resistence Heating Capacity	3%	<1%	15%	<1%	7%	2%	1%	*	14%	*	<1%	*	*	*
Capacity (kW)	Electric Resistence Heating Capacity	1.62	1.54	1.89	1.74	1.82	1.57	1.54	2.43	1.93	1.50	1.50	5.00	*	*
Feet of Linear Baseboard	Electric Resistence Heating Baseboard Length	8.25	6.11	13.81	9.76	12.89	6.58	8.95	5.91	7.30	4.29	3.62	7.12	6.00	*
Before 2000	Electric Unit Heating Age	21%	*	29%	<1%	4%	*	*	*	<1%	*	*	*	*	*
2000-2009	Electric Unit Heating Age	19%	*	16%	*	11%	*	*	*	14%	*	*	*	*	*
2010-2015	Electric Unit Heating Age	54%	*	45%	*	*	38%	*	*	86%	*	*	*	*	*
2016-2017	Electric Unit Heating Age	6%	<1%	10%	<1%	*	1%	*	<1%	<1%	*	*	*	*	*
Age	Electric Unit Heating Age	9.62	9.25	9.85	9.46	6.71	12.12	12.23	7.76	6.42	5.00	11.29	*	4.00	2.00
1-1.99 kW	Electric Unit Heating Capacity	*	*	*	*	*	9%	*	*	*	*	<1%	<1%	*	100%
2-2.99 kW	Electric Unit Heating Capacity	10%	<1%	17%	<1%	17%	2%	6%	<1%	<1%	*	*	<1%	*	<1%
3-5.99 kW	Electric Unit Heating Capacity	30%	<1%	*	*	1%	*	*	<1%	11%	*	*	<1%	*	<1%
6-14.99 kW	Electric Unit Heating Capacity	10%	*	8%	<1%	12%	8%	*	<1%	*	*	5%	100%	*	<1%
Over 100 kW	Electric Unit Heating Capacity	8%	*	<1%	<1%	<1%	*	*	*	<1%	*	1%	<1%	*	<1%
Capacity (kW)	Electric Unit Heating Capacity	4.32	6.29	3.05	2.80	2.82	6.07	8.09	3.70	3.83	1.50	3.51	6.00	1.50	1.28

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Heating Characteristics - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Natural Gas Heating	59%	53%	65%	61%	58%	64%	60%	60%	60%	59%	43%	64%	54%	58%
Electric Heating	28%	33%	23%	28%	26%	38%	24%	28%	30%	33%	33%	35%	40%	26%
Oil Heating	17%	18%	14%	20%	18%	15%	18%	16%	25%	18%	24%	9%	13%	20%
Propane Heating	5%	1%	11%	5%	6%	5%	4%	5%	7%	4%	21%	6%	4%	7%
District Steam Heating	3%	8%	<1%	<1%	3%	4%	6%	2%	2%	1%	1%	1%	1%	<1%
Wood Heating	1%	<1%	2%	1%	1%	<1%	<1%	1%	1%	<1%	6%	1%	1%	1%
Other Heating Fuel	1%	<1%	1%	<1%	1%	<1%	<1%	1%	<1%	<1%	1%	<1%	<1%	1%
No Heating	3%	4%	2%	2%	3%	2%	2%	2%	1%	1%	4%	4%	4%	6%
Primary Heating Fuel: Natural Gas	59%	52%	65%	62%	58%	63%	60%	60%	59%	59%	41%	64%	54%	59%
Primary Heating Fuel: Electricity	13%	18%	8%	12%	13%	15%	11%	14%	9%	18%	16%	15%	23%	8%
Primary Heating Fuel: Fuel Oil	16%	17%	13%	18%	17%	12%	17%	15%	23%	18%	19%	8%	13%	19%
Primary Heating Fuel: Propane	5%	1%	9%	5%	5%	4%	4%	5%	5%	3%	13%	7%	4%	6%
Primary Heating Fuel: District Steam	3%	8%	<1%	<1%	3%	4%	6%	2%	2%	1%	1%	1%	1%	<1%
Primary Heating Fuel: Wood	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Primary Heating Fuel: Coal	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Primary Heating Fuel: Other	1%	<1%	2%	1%	1%	1%	<1%	2%	1%	<1%	7%	1%	1%	1%
Primary Heating Fuel: No Heat	3%	4%	2%	2%	3%	2%	2%	2%	1%	1%	4%	5%	4%	6%
Electric Heat Pump	13%	15%	10%	16%	12%	22%	11%	12%	17%	15%	13%	22%	16%	12%
Electric Unit Heater	7%	10%	5%	5%	7%	7%	6%	8%	5%	7%	8%	6%	13%	6%
Electric Resistance Heaters	5%	5%	6%	4%	5%	5%	5%	3%	6%	6%	11%	5%	6%	4%
Electric Furnace	1%	2%	1%	1%	1%	1%	1%	1%	1%	3%	1%	1%	2%	<1%
Other Electric Heating Equipment	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	1%	<1%	1%
Natural Gas Furnace	35%	19%	50%	33%	35%	33%	35%	38%	27%	37%	22%	37%	29%	29%
Natural Gas Boiler	21%	27%	17%	20%	20%	28%	25%	16%	39%	22%	25%	22%	13%	12%
Natural Gas Unit Heater	12%	12%	8%	15%	11%	15%	9%	14%	5%	7%	2%	12%	19%	23%
Natural Gas Infrared Heater	1%	1%	2%	1%	1%	2%	1%	2%	1%	<1%	<1%	<1%	1%	4%
Other Natural Gas Heating Equipment	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	1%	<1%	1%
Oil Boiler	9%	13%	5%	8%	8%	10%	10%	7%	15%	12%	13%	5%	6%	6%
Oil Furnace	7%	4%	9%	10%	8%	4%	7%	8%	9%	6%	9%	4%	6%	13%
Other Oil Heating Equipment	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Heating Characteristics - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Electric Heat Pump	0.5	0.4	0.6	0.5	0.3	1.3	0.3	0.3	1.2	0.7	2.5	0.6	0.3	0.3
Electric Unit Heater	0.3	0.3	0.4	0.2	0.2	0.7	0.3	0.2	0.4	0.4	1.0	0.2	0.2	0.2
Electric Resistance Heaters	0.3	0.1	0.5	0.2	0.2	0.4	0.2	0.1	0.3	0.3	2.3	0.1	0.1	0.1
Electric Furnace	0.1	0.1	0.1	<0.1	0.1	0.2	0.1	0.1	<0.1	0.1	0.1	<0.1	0.1	<0.1
Natural Gas Furnace	0.7	0.3	1.0	0.6	0.6	1.2	0.6	0.7	0.7	0.7	0.6	0.6	0.4	0.8
Natural Gas Boiler	0.3	0.3	0.2	0.4	0.2	0.7	0.3	0.2	1.2	0.4	0.4	0.2	0.1	0.2
Natural Gas Unit Heater	0.3	0.3	0.3	0.4	0.2	0.7	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.8
Natural Gas Infrared Heater	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1
Oil Boiler	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.3	0.1	0.1	0.1
Oil Furnace	0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	<0.1	0.1	0.2
Propane Boiler	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Propane Furnace	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Propane Infrared Heater	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Propane Unit Heater	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1

Heating Characteristics - Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Electric Heat Pump	3.6	3.0	5.7	3.1	2.6	5.8	3.0	2.1	7.1	4.5	19.1	2.7	1.8	2.9
Electric Unit Heater	4.0	3.0	6.9	3.2	2.6	10.1	4.8	2.7	7.7	5.2	12.8	2.7	1.7	3.0
Electric Resistance Heaters	5.2	1.8	9.4	4.5	4.6	7.7	4.2	2.9	5.5	4.9	21.2	2.7	1.6	2.2
Electric Furnace	6.2	3.9	10.8	4.9	4.4	17.8	8.4	5.0	3.4	3.9	12.9	5.7	4.1	1.0[†]
Natural Gas Furnace	1.9	1.5	2.1	1.9	1.6	3.6	1.8	1.9	2.5	2.0	2.6	1.6	1.3	2.8
Natural Gas Boiler	1.4	1.1	1.4	1.9	1.1	2.4	1.3	1.0	3.0	1.6	1.5	1.0	1.0[†]	1.3
Natural Gas Unit Heater	2.6	2.2	3.8	2.4	2.1	4.5	2.4	2.5	4.6	2.6	8.0	2.5	1.6	3.4
Natural Gas Infrared Heater	2.3	2.2	2.6	1.8	1.8	3.5	2.1	2.2	3.7	1.0	1.0[†]	1.0	2.5	2.8
Oil Boiler	1.5	1.3	1.8	1.6	1.4	1.9	1.4	1.2	2.2	1.7	2.2	1.4	1.0	1.2
Oil Furnace	1.3	1.2	1.3	1.4	1.2	1.7	1.2	1.2	1.4	1.1	1.9	1.2	1.1	1.6
Propane Boiler	1.1	1.1	1.2	1.0[†]	1.0	1.5	1.0[†]	1.1	1.9	1.0[†]	1.3	1.1	1.0[†]	1.1
Propane Furnace	1.8	1.0[†]	1.7	2.0	1.7	2.3	1.6	1.6	3.4	1.2	2.8	1.3	1.1	1.7
Propane Infrared Heater	2.7	1.0[†]	2.7	1.0[†]	2.2	4.4	4.0	1.0	1.0[†]	2.0	1.0	1.0[†]	1.0[†]	1.0[†]
Propane Unit Heater	2.8	2.1	3.0	2.6	2.8	2.5	2.6	1.9	2.0	1.0[†]	4.9	2.4	1.5	1.8

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting Characteristics - Overall

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
CFLs - Specialty (Fixtures)	Interior Lighting: Lighting Type	1%	<1%	<1%	3%	1%	2%	<1%	1%	6%	<1%	<1%	<1%	1%	2%
CFLs - Standard (Fixtures)	Interior Lighting: Lighting Type	7%	6%	9%	5%	8%	6%	7%	5%	4%	12%	13%	5%	2%	2%
Exit Signs - CFL (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	1%
Exit Signs - Incandescent (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%
Exit Signs - LED (Fixtures)	Interior Lighting: Lighting Type	3%	3%	3%	2%	2%	3%	3%	1%	2%	5%	2%	3%	1%	2%
Halogen - Specialty (Fixtures)	Interior Lighting: Lighting Type	<1%	1%	<1%	<1%	1%	<1%	1%	<1%	<1%	<1%	<1%	1%	1%	1%
Halogen - Standard (Fixtures)	Interior Lighting: Lighting Type	2%	2%	1%	1%	2%	1%	2%	1%	2%	1%	1%	4%	<1%	<1%
High pressure sodium (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Incandescent - Specialty (Fixtures)	Interior Lighting: Lighting Type	1%	1%	<1%	1%	1%	1%	1%	<1%	<1%	<1%	2%	4%	<1%	<1%
Incandescent - Standard (Fixtures)	Interior Lighting: Lighting Type	4%	4%	7%	2%	7%	2%	4%	4%	2%	4%	4%	12%	2%	4%
LED - Specialty (Fixtures)	Interior Lighting: Lighting Type	4%	5%	2%	5%	4%	4%	3%	4%	2%	6%	6%	10%	6%	4%
LED - Standard (Fixtures)	Interior Lighting: Lighting Type	13%	15%	14%	9%	15%	11%	7%	19%	9%	10%	41%	33%	5%	4%
Linear LED - luminaire (Fixtures)	Interior Lighting: Lighting Type	12%	19%	9%	7%	7%	16%	19%	14%	7%	4%	7%	3%	11%	7%
Linear LED - retrofit (Fixtures)	Interior Lighting: Lighting Type	11%	11%	9%	11%	11%	10%	7%	22%	7%	2%	2%	8%	37%	17%
Mercury vapor (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Metal halide (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Neon (cold cathode) (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	1%	<1%
Other (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
T10 Linear Fluorescent (Fixtures)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
T12 Linear Fluorescent (Fixtures)	Interior Lighting: Lighting Type	4%	5%	4%	4%	7%	2%	4%	5%	2%	4%	1%	3%	4%	15%
T5 Linear Fluorescent (Fixtures)	Interior Lighting: Lighting Type	2%	2%	1%	4%	2%	3%	2%	1%	4%	1%	3%	<1%	<1%	4%
T5HO Linear Fluorescent (Fixtures)	Interior Lighting: Lighting Type	1%	1%	1%	1%	<1%	1%	<1%	<1%	2%	1%	<1%	1%	<1%	5%
T8 Linear Fluorescent (Fixtures)	Interior Lighting: Lighting Type	34%	24%	38%	42%	31%	37%	39%	21%	49%	48%	16%	10%	27%	31%
CFLs - Specialty (Lamps)	Interior Lighting: Lighting Type	1%	1%	<1%	2%	1%	1%	<1%	1%	4%	<1%	<1%	<1%	<1%	1%
CFLs - Standard (Lamps)	Interior Lighting: Lighting Type	5%	4%	6%	3%	5%	4%	4%	5%	3%	10%	10%	4%	1%	1%
Exit Signs - CFL (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%
Exit Signs - Incandescent (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%
Exit Signs - LED (Lamps)	Interior Lighting: Lighting Type	1%	1%	1%	1%	1%	1%	1%	1%	1%	3%	1%	2%	1%	1%
Halogen - Specialty (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	1%
Halogen - Standard (Lamps)	Interior Lighting: Lighting Type	1%	1%	<1%	1%	1%	1%	1%	1%	1%	1%	1%	3%	<1%	<1%
High pressure sodium (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Incandescent - Specialty (Lamps)	Interior Lighting: Lighting Type	1%	1%	1%	1%	1%	<1%	1%	<1%	<1%	<1%	2%	3%	<1%	<1%
Incandescent - Standard (Lamps)	Interior Lighting: Lighting Type	3%	3%	4%	1%	5%	1%	2%	3%	1%	3%	6%	9%	1%	4%
LED - Specialty (Lamps)	Interior Lighting: Lighting Type	2%	3%	2%	3%	2%	2%	1%	3%	2%	3%	4%	9%	4%	2%
LED - Standard (Lamps)	Interior Lighting: Lighting Type	11%	9%	17%	6%	16%	7%	6%	22%	7%	6%	40%	27%	3%	2%
Linear LED - luminaire (Lamps)	Interior Lighting: Lighting Type	13%	26%	7%	5%	6%	20%	24%	11%	5%	2%	4%	3%	11%	6%
Linear LED - retrofit (Lamps)	Interior Lighting: Lighting Type	11%	13%	10%	12%	12%	11%	8%	21%	9%	3%	2%	14%	37%	14%
Mercury vapor (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Metal halide (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Neon (cold cathode) (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%
Other (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
T10 Linear Fluorescent (Lamps)	Interior Lighting: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
T12 Linear Fluorescent (Lamps)	Interior Lighting: Lighting Type	5%	5%	5%	5%	8%	2%	5%	4%	2%	6%	1%	4%	5%	15%
T5 Linear Fluorescent (Lamps)	Interior Lighting: Lighting Type	2%	2%	1%	6%	2%	3%	2%	1%	4%	1%	3%	1%	<1%	8%
T5HO Linear Fluorescent (Lamps)	Interior Lighting: Lighting Type	2%	4%	1%	2%	2%	3%	1%	5%	2%	1%	1%	2%	<1%	7%
T8 Linear Fluorescent (Lamps)	Interior Lighting: Lighting Type	39%	27%	44%	50%	37%	42%	43%	22%	57%	59%	22%	17%	36%	38%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting Characteristics - High Bay Lighting

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
CFL (Fixtures)	Interior Lighting: High Bay: Fixture Type	5%	5%	7%	1%	8%	3%	4%	9%	7%	*	*	3%	<1%	3%
Exit Sign (Fixtures)	Interior Lighting: High Bay: Fixture Type	2%	1%	3%	2%	1%	3%	1%	2%	5%	*	<1%	6%	1%	2%
Halogen (Fixtures)	Interior Lighting: High Bay: Fixture Type	<1%	<1%	1%	<1%	<1%	1%	<1%	<1%	5%	*	<1%	3%	<1%	<1%
Incandescent (Fixtures)	Interior Lighting: High Bay: Fixture Type	7%	2%	14%	1%	14%	2%	*	<1%	4%	*	4%	36%	<1%	1%
LED (Fixtures)	Interior Lighting: High Bay: Fixture Type	15%	24%	7%	17%	9%	20%	3%	41%	5%	*	*	*	<1%	9%
Linear Fluorescent (Fixtures)	Interior Lighting: High Bay: Fixture Type	50%	*	44%	*	54%	46%	*	23%	64%	*	<1%	4%	<1%	75%
Linear LED (Fixtures)	Interior Lighting: High Bay: Fixture Type	18%	*	19%	7%	11%	25%	7%	24%	8%	*	<1%	<1%	98%	8%
High pressure sodium (Fixtures)	Interior Lighting: High Bay: Lighting Type	1%	<1%	1%	<1%	1%	<1%	3%	<1%	<1%	*	<1%	<1%	<1%	<1%
Metal halide (Fixtures)	Interior Lighting: High Bay: Lighting Type	2%	1%	3%	2%	3%	1%	7%	1%	1%	*	*	<1%	1%	<1%
Other (Fixtures)	Interior Lighting: High Bay: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	*	<1%	<1%	<1%	<1%
CFL (Lamps)	Interior Lighting: High Bay: Fixture Type	3%	3%	4%	<1%	3%	2%	4%	5%	7%	*	*	3%	<1%	1%
Exit Sign (Lamps)	Interior Lighting: High Bay: Fixture Type	1%	1%	1%	1%	<1%	1%	<1%	1%	3%	*	<1%	*	1%	1%
Halogen (Lamps)	Interior Lighting: High Bay: Fixture Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	3%	*	<1%	3%	<1%	<1%
Incandescent (Lamps)	Interior Lighting: High Bay: Fixture Type	8%	1%	15%	<1%	17%	1%	*	<1%	3%	*	*	3%	35%	<1%	<1%
LED (Lamps)	Interior Lighting: High Bay: Fixture Type	7%	19%	3%	5%	5%	9%	3%	27%	4%	*	*	*	<1%	3%
Linear Fluorescent (Lamps)	Interior Lighting: High Bay: Fixture Type	64%	*	57%	89%	59%	69%	*	*	69%	*	<1%	4%	<1%	86%
Linear LED (Lamps)	Interior Lighting: High Bay: Fixture Type	16%	*	19%	4%	15%	18%	5%	*	10%	*	<1%	<1%	99%	9%
High pressure sodium (Lamps)	Interior Lighting: High Bay: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	*	<1%	<1%	<1%	<1%
Metal halide (Lamps)	Interior Lighting: High Bay: Lighting Type	1%	<1%	1%	1%	1%	<1%	3%	1%	<1%	*	*	<1%	<1%	<1%
Other (Lamps)	Interior Lighting: High Bay: Lighting Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	*	<1%	<1%	<1%	<1%

Lighting Characteristics - Wattage and Operating Hours (rolled up)

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Hours Per Week Per Fixture	All Interior Lighting (non-Exit Sign)	71.94	74.36	70.09	71.06	56.41	85.22	69.44	60.58	57.11	101.64	97.40	76.85	101.66	58.09
Hours Per Week Per Fixture	HID	83.06	37.09	118.40	45.63	109.50	49.53	106.52	29.14	35.00	102.23	81.38	7.00	100.50	47.47
Hours Per Week Per Fixture	Linear	74.88	77.88	73.89	72.56	60.21	85.24	74.62	63.42	58.82	113.61	94.63	80.22	101.60	59.38
Hours Per Week Per Fixture	Non-Linear	66.00	68.21	62.63	67.36	50.16	85.50	53.67	55.56	52.69	80.31	98.74	75.53	102.95	52.41
Wattage Per Lamp	HID	270.49	277.28	325.57	176.78	299.73	230.72	254.46	242.38	429.38	188.53	226.56	175.00	400.00	372.01
Wattage Per Lamp	Linear	28.26	24.87	29.46	31.27	28.84	27.82	27.05	24.39	29.41	29.90	28.32	27.43	27.48	37.29
Wattage Per Lamp	Non-Linear	23.62	24.11	23.12	24.05	23.04	24.67	27.71	18.76	27.95	21.61	23.03	21.58	21.33	36.12

Lighting Characteristics - Exit Signs

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
In High Bay Fixtures	Interior Lighting: Exit Sign: High Bay	3%	1%	6%	3%	2%	5%	1%	7%	5%	<1%	<1%	2%	7%	24%
Wattage Per Lamp	Interior Lighting: Fixture Type: Exit Sign	9.21	5.52	11.28	12.26	8.26	9.92	9.49	11.02	6.37	7.69	9.18	7.61	8.90	19.22
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: Exit Sign	157.14	158.60	151.20	162.25	151.46	161.48	156.93	159.38	154.71	163.82	162.32	156.05	138.37	142.45
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: Exit Sign	23.53	4.00	30.72	5.05	23.75	23.45	24.23	11.93	13.00	*	*	40.00	4.00	37.55
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: Exit Sign	156.85	168.00	163.90	123.12	168.00	153.39	168.00	168.00	155.13	*	*	168.00	168.00	148.70

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting Characteristics - CFL

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Direct/Indirect	Interior Lighting: CFL: Base Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%
Other	Interior Lighting: CFL: Base Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Pin Base	Interior Lighting: CFL: Base Type	32%	21%	28%	51%	20%	44%	32%	21%	42%	41%	25%	10%	<1%	*
Screw Base	Interior Lighting: CFL: Base Type	68%	79%	72%	49%	80%	56%	68%	79%	58%	59%	75%	88%	100%	*
In High Bay Fixtures	Interior Lighting: CFL: High Bay	3%	2%	6%	<1%	4%	3%	3%	5%	4%	<1%	1%	<1%	<1%	*
Wattage Per Lamp	Interior Lighting: Fixture Type: CFL	19.90	15.11	24.92	18.13	17.35	22.55	21.21	11.84	23.21	19.82	20.92	24.93	21.94	32.48
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: CFL	67.48	58.63	78.18	61.62	49.45	84.40	55.41	47.28	59.59	118.55	70.23	73.01	101.67	45.29
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: CFL	35.39	23.00	40.00	16.85	30.44	42.54	35.70	25.25	20.32	*	13.00	60.00	*	59.77
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: CFL	50.23	1.07	76.82	2.00	41.42	74.46	134.99	22.06	31.94	*	5.00	54.00	*	56.12

Lighting Characteristics - Halogen

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Other	Interior Lighting: Halogen: Base Type	1%	1%	2%	<1%	2%	<1%	<1%	<1%	<1%	6%	<1%	<1%	*	*
Pin Base	Interior Lighting: Halogen: Base Type	24%	10%	23%	58%	29%	14%	19%	*	*	23%	*	8%	*	<1%
Screw Base	Interior Lighting: Halogen: Base Type	75%	89%	75%	42%	70%	86%	81%	*	*	*	*	92%	*	*
In High Bay Fixtures	Interior Lighting: Halogen: High Bay	1%	<1%	5%	<1%	<1%	4%	<1%	<1%	8%	<1%	<1%	<1%	<1%	<1%
Wattage Per Lamp	Interior Lighting: Fixture Type: Halogen	48.38	48.76	53.86	42.48	41.46	62.94	48.56	39.80	90.86	48.85	41.37	37.59	43.60	12.00
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: Halogen	57.91	65.33	48.41	47.82	53.18	66.28	56.23	56.28	55.67	43.68	88.27	61.36	102.57	40.72
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: Halogen	359.44	*	359.44	*	433.33	354.31	*	*	354.31	*	*	433.33	*	*
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: Halogen	66.37	*	66.37	*	40.00	68.33	*	*	68.33	*	*	40.00	*	*

Lighting Characteristics - Incandescent

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Direct/Indirect	Interior Lighting: Incandescent: Base Type	<1%	<1%	<1%	3%	1%	<1%	<1%	<1%	<1%	6%	<1%	<1%	<1%	<1%
Other	Interior Lighting: Incandescent: Base Type	2%	<1%	4%	<1%	1%	4%	<1%	<1%	<1%	<1%	11%	7%	<1%	<1%
Pin Base	Interior Lighting: Incandescent: Base Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Screw Base	Interior Lighting: Incandescent: Base Type	98%	100%	96%	97%	98%	96%	100%	100%	100%	94%	89%	93%	100%	100%
In High Bay Fixtures	Interior Lighting: Incandescent: High Bay	15%	1%	27%	1%	19%	2%	36%	<1%	8%	<1%	<1%	2%	<1%	3%
Wattage Per Lamp	Interior Lighting: Fixture Type: Incandescent	53.53	53.34	48.40	74.04	51.87	58.68	59.57	53.58	58.67	50.38	50.96	52.67	60.80	31.81
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: Incandescent	49.19	49.83	47.79	52.03	41.80	69.11	28.45	62.65	36.71	54.22	62.37	71.75	67.28	47.49
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: Incandescent	46.52	271.49	38.83	183.33	40.07	213.43	44.02	40.00	50.40	*	300.00	50.56	*	151.89
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: Incandescent	27.32	22.76	26.75	53.00	26.67	32.61	22.31	20.00	54.67	*	5.00	67.70	*	43.69

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting Characteristics - LED

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Direct/Indirect	Interior Lighting: LED: Base Type	1%	<1%	<1%	4%	<1%	2%	<1%	1%	<1%	<1%	4%	<1%	<1%	<1%
Other	Interior Lighting: LED: Base Type	9%	10%	9%	8%	11%	8%	7%	14%	6%	22%	1%	5%	33%	*
Pin Base	Interior Lighting: LED: Base Type	4%	2%	3%	8%	2%	6%	3%	3%	4%	2%	4%	5%	1%	7%
Screw Base	Interior Lighting: LED: Base Type	85%	88%	88%	76%	87%	82%	90%	82%	81%	76%	91%	89%	66%	*
Strip	Interior Lighting: LED: Base Type	1%	<1%	<1%	4%	<1%	2%	<1%	<1%	9%	<1%	<1%	<1%	<1%	<1%
In High Bay Fixtures	Interior Lighting: LED: High Bay	4%	7%	2%	4%	2%	7%	1%	6%	2%	<1%	<1%	1%	<1%	*
Wattage Per Lamp	Interior Lighting: Fixture Type: LED	14.05	14.82	13.92	12.92	13.36	15.41	10.04	15.09	14.64	10.33	17.83	9.26	10.13	52.46
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: LED	71.52	77.05	61.18	75.29	53.71	90.62	65.39	56.44	48.95	62.55	112.07	78.72	110.27	59.74
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: LED	28.40	37.73	20.06	9.06	18.45	33.44	8.57	17.12	59.81	*	8.00	13.98	*	69.79
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: LED	68.53	69.17	65.20	70.11	66.80	69.24	100.64	75.22	41.75	*	168.00	57.25	*	50.96

Lighting Characteristics - Linear Fluorescent

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Electronic	Interior Lighting: Linear Fluorescent: Ballast	88%	84%	88%	92%	82%	94%	90%	86%	93%	89%	92%	84%	85%	79%
Magnetic	Interior Lighting: Linear Fluorescent: Ballast	12%	16%	12%	8%	18%	6%	10%	14%	7%	11%	8%	16%	15%	21%
In High Bay Fixtures	Interior Lighting: Linear Fluorescent: High Bay	10%	6%	12%	11%	8%	11%	3%	7%	4%	<1%	<1%	<1%	<1%	58%
In High Bay Fixtures	Interior Lighting: T12 Linear Fluorescent: High Bay	16%	19%	22%	1%	18%	6%	<1%	6%	16%	<1%	<1%	<1%	<1%	*
In High Bay Fixtures	Interior Lighting: T5 Linear Fluorescent: High Bay	32%	3%	5%	*	2%	*	4%	<1%	4%	<1%	<1%	3%	*	100%
In High Bay Fixtures	Interior Lighting: T5HO Linear Fluorescent: High Bay	*	<1%	<1%	*	<1%	*	<1%	<1%	<1%	*	*	*	<1%	100%
In High Bay Fixtures	Interior Lighting: T8 Linear Fluorescent: High Bay	7%	4%	11%	3%	7%	6%	3%	9%	4%	<1%	<1%	<1%	<1%	42%
Wattage Per Lamp	Interior Lighting: Fixture Type: Linear Fluorescent	33.60	32.99	33.82	33.83	33.12	34.03	32.95	31.75	31.53	31.14	32.38	35.15	39.21	42.15
Wattage Per Lamp	Interior Lighting: Lighting Type: T12 Linear Fluorescent	46.30	47.42	43.78	48.12	45.61	48.84	42.54	57.41	43.80	39.71	44.49	42.10	60.32	47.23
Wattage Per Lamp	Interior Lighting: Lighting Type: T5 Linear Fluorescent	35.41	23.41	37.69	39.92	26.84	39.11	27.44	26.86	31.86	35.18	18.21	24.15	*	53.63
Wattage Per Lamp	Interior Lighting: Lighting Type: T5HO Linear Fluorescent	31.86	16.99	43.65	53.80	5.39	51.04	52.31	3.25	52.37	14.00	54.00	54.00	54.00	54.00
Wattage Per Lamp	Interior Lighting: Lighting Type: T8 Linear Fluorescent	31.95	32.87	32.38	30.80	32.12	31.82	31.79	33.44	30.22	30.50	32.51	32.12	36.26	35.49
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: Linear Fluorescent	74.96	72.23	77.51	74.52	60.57	86.35	72.45	57.58	61.41	116.81	77.32	78.90	101.97	60.20
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: T12 Linear Fluorescent	51.78	50.61	59.35	43.75	48.72	61.00	59.27	47.74	38.27	38.42	47.57	72.38	80.98	45.74
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: T5 Linear Fluorescent	87.09	83.38	59.64	94.63	60.28	102.40	71.02	58.67	58.49	157.45	156.53	90.86	*	163.54
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: T5HO Linear Fluorescent	75.63	76.39	77.54	73.37	67.99	76.86	60.09	67.29	57.01	168.00	97.00	100.50	68.50	71.12
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: T8 Linear Fluorescent	77.08	75.44	79.84	75.38	63.19	86.98	74.00	59.51	62.74	121.88	62.85	77.98	105.69	54.61
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: Linear Fluorescent	42.31	39.90	38.84	47.84	36.47	46.56	31.92	35.61	32.41	*	*	15.00	*	45.76
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: T12 Linear Fluorescent	45.95	48.38	43.86	40.00	44.33	63.88	36.51	67.87	63.07	*	*	*	*	43.58
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: T5 Linear Fluorescent	52.07	20.00	26.00	53.30	26.00	52.50	29.89	*	20.00	*	*	*	*	54.00
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: T5HO Linear Fluorescent	54.00	*	*	54.00	*	54.00	*	*	*	*	*	*	*	54.00
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: T8 Linear Fluorescent	35.39	32.01	37.75	27.71	31.72	38.81	32.00	32.01	27.32	*	*	15.00	*	39.07
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: Linear Fluorescent	63.55	41.11	59.38	92.02	47.44	81.63	52.27	65.97	59.13	*	*	83.83	*	66.61
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: T12 Linear Fluorescent	49.98	44.87	61.56	43.72	48.33	62.61	163.64	66.59	49.33	*	*	*	*	46.69
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: T5 Linear Fluorescent	135.47	35.96	51.00	156.21	51.00	139.40	50.35	*	32.00	*	*	104.00	*	168.00
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: T5HO Linear Fluorescent	71.12	*	*	71.12	*	71.12	*	*	*	*	*	*	*	71.12
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: T8 Linear Fluorescent	54.01	37.45	59.03	60.95	46.84	64.30	49.94	65.86	66.39	*	*	10.00	*	48.32

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting Characteristics - Linear LED

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
In High Bay Fixtures	Interior Lighting: Linear LED: High Bay	5%	3%	12%	2%	6%	4%	1%	6%	3%	<1%	<1%	<1%	23%	22%
In High Bay Fixtures	Interior Lighting: Linear LED Luminaire: High Bay	2%	<1%	7%	4%	8%	<1%	<1%	5%	6%	<1%	<1%	<1%	<1%	*
In High Bay Fixtures	Interior Lighting: Linear LED Retrofit: High Bay	8%	8%	15%	1%	5%	11%	2%	6%	2%	<1%	<1%	<1%	29%	*
Wattage Per Lamp	Interior Lighting: Fixture Type: Linear LED	17.57	17.04	16.49	20.93	17.01	17.87	17.71	17.09	18.39	14.83	8.50	16.59	17.13	20.65
Wattage Per Lamp	Interior Lighting: Lighting Type: Linear LED - luminaire	19.04	17.47	17.68	33.56	20.15	18.74	18.47	19.74	23.79	17.13	7.98	20.99	18.66	25.07
Wattage Per Lamp	Interior Lighting: Lighting Type: Linear LED - retrofit	15.86	16.16	15.63	15.66	15.46	16.26	15.36	15.76	14.41	12.98	9.89	15.58	16.72	18.91
Hours Per Week Per Fixture	Interior Lighting: Fixture Type: Linear LED	74.74	83.72	65.15	67.14	59.41	83.46	78.36	67.94	48.29	85.40	135.02	81.81	101.36	57.62
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: Linear LED - luminaire	79.94	88.56	68.36	68.70	59.98	87.48	83.98	69.42	48.34	100.36	149.19	61.38	102.33	55.58
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: Linear LED - retrofit	68.82	75.87	62.08	66.09	59.03	77.28	64.16	67.00	48.23	46.97	85.75	88.90	101.07	58.49
Wattage Per Lamp	Interior Lighting: High Bay: Fixture Type: Linear LED	18.78	18.01	19.02	20.30	17.22	19.88	13.76	12.48	14.94	*	*	*	21.10	24.06
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: Linear LED - luminaire	16.45	*	14.88	23.09	15.93	28.35	15.00	15.06	13.39	*	*	*	*	19.52
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: Linear LED - retrofit	19.36	18.01	20.44	16.27	18.32	19.76	13.51	11.27	17.00	*	*	*	21.10	25.36
Hours Per Week Per Fixture	Interior Lighting: High Bay: Fixture Type: Linear LED	92.88	96.44	98.47	45.23	62.78	105.50	157.05	77.72	46.56	*	*	*	115.73	55.52
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: Linear LED - luminaire	68.09	*	71.72	56.37	66.46	84.09	168.00	73.16	46.29	*	*	*	*	53.00
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: Linear LED - retrofit	99.67	96.44	113.00	29.94	55.61	106.12	154.55	79.88	46.94	*	*	*	115.73	57.50

Lighting Characteristics - HID

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
In High Bay Fixtures	Interior Lighting: High Pressure Sodium: High Bay	*	*	*	*	100%	*	100%	*	*	*	*	*	*	*
Wattage Per Lamp	Interior Lighting: Lighting Type: High pressure sodium	259.95	*	259.95	*	250.00	300.00	250.00	*	*	300.00	*	*	*	*
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: High pressure sodium	168.00	*	168.00	*	168.00	168.00	168.00	*	*	168.00	*	*	*	*
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: High pressure sodium	250.00	*	250.00	*	250.00	*	250.00	*	*	*	*	*	*	*
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: High pressure sodium	168.00	*	168.00	*	168.00	*	168.00	*	*	*	*	*	*	*
In High Bay Fixtures	Interior Lighting: Metal Halide: High Bay	*	*	*	*	*	*	*	*	*	*	*	<1%	*	100%
Wattage Per Lamp	Interior Lighting: Lighting Type: Metal halide	279.05	277.28	360.30	176.89	327.53	225.99	263.55	242.38	429.38	100.00	226.56	175.00	400.00	471.61
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: Metal halide	70.76	37.09	104.47	45.38	100.18	41.45	94.51	29.14	35.00	50.00	81.38	7.00	100.50	46.19
Wattage Per Lamp	Interior Lighting: High Bay: Lighting Type: Metal halide	352.09	178.66	367.41	400.00	357.62	340.12	375.22	178.66	400.00	*	250.00	*	400.00	471.61
Hours Per Week Per Fixture	Interior Lighting: High Bay: Lighting Type: Metal halide	99.91	41.01	126.19	57.59	126.23	50.65	129.14	41.01	40.00	*	42.00	*	100.50	46.19
Wattage Per Lamp	Interior Lighting: Lighting Type: Mercury vapor	99.87	*	14.00	175.00	99.87	*	14.00	*	*	*	*	*	*	175.00
Hours Per Week Per Fixture	Interior Lighting: Lighting Type: Mercury vapor	29.00	*	5.00	50.00	29.00	*	5.00	*	*	*	*	*	*	50.00

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting - Interior Lighting - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
All Interior Lighting (non-Exit Sign)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Interior Lighting: Linear Lights	88%	87%	89%	89%	87%	94%	88%	87%	89%	90%	77%	93%	94%	84%
Interior Lighting: Linear Fluorescent Lights	72%	71%	75%	69%	72%	71%	74%	67%	74%	82%	69%	67%	67%	70%
Interior Lighting: T10 Linear Fluorescent	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%
Interior Lighting_T12 Linear Fluorescent	34%	35%	35%	32%	35%	30%	32%	34%	32%	35%	34%	31%	35%	48%
Interior Lighting: T5 Linear Fluorescent	7%	8%	6%	7%	6%	11%	12%	5%	10%	5%	6%	5%	<1%	3%
Interior Lighting: T5HO Linear Fluorescent	2%	2%	2%	1%	1%	5%	1%	2%	4%	2%	1%	1%	3%	2%
Interior Lighting: T8 Linear Fluorescent	60%	55%	73%	54%	59%	66%	63%	53%	72%	64%	60%	61%	59%	59%
Interior Lighting: Linear LEDs	40%	39%	39%	41%	36%	56%	34%	44%	40%	34%	33%	49%	60%	36%
Interior Lighting: Linear LED - Luminaire	18%	16%	19%	20%	16%	25%	15%	20%	19%	16%	13%	16%	23%	27%
Interior Lighting: Linear LED - retrofit	27%	29%	22%	28%	25%	34%	25%	34%	17%	13%	9%	27%	41%	29%
Interior Lighting: Screw-In LEDs	54%	53%	58%	51%	52%	64%	46%	53%	60%	59%	79%	71%	52%	45%
Interior Lighting: Incandescent Bulbs	47%	48%	53%	37%	46%	49%	44%	42%	51%	51%	67%	60%	39%	40%
Interior Lighting: Halogen Bulbs	14%	15%	13%	11%	12%	19%	15%	10%	22%	9%	17%	17%	12%	16%
Interior Lighting: Compact Fluorescent Lights (CFL)s	42%	44%	43%	35%	40%	47%	42%	35%	53%	46%	59%	49%	34%	34%
Interior Lighting: High Pressure Sodium	<1%	<1%	1%	<1%	<1%	1%	1%	<1%	<1%	2%	<1%	<1%	<1%	<1%
Interior Lighting: High Intensity Discharge Lamps/Metal Halide	4%	3%	5%	5%	4%	4%	4%	4%	7%	2%	8%	<1%	2%	7%
Interior Lighting: Mercury Vapor	<1%	<1%	1%	1%	1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	3%
Interior Lighting: Neon (Cold Cathode)	6%	4%	8%	7%	6%	6%	4%	8%	<1%	2%	2%	17%	16%	<1%
Interior Lighting: Other	3%	2%	4%	2%	2%	3%	1%	3%	3%	1%	6%	4%	4%	8%
Interior Lighting: Ceilings Over 20 Feet: Spaces Lit with Overhead Lighting	17%	15%	20%	16%	13%	31%	14%	16%	39%	11%	16%	11%	16%	31%
Interior Lighting: Exit Sign	50%	49%	44%	56%	45%	68%	52%	42%	66%	49%	29%	71%	36%	39%
Interior Lighting: Lights Controlled by Bi-Level Lighting	4%	5%	4%	4%	3%	9%	4%	4%	9%	4%	6%	7%	3%	2%

Lighting - Interior Lighting - Saturation - Lamps

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
All Interior Lighting (non-Exit Sign)	201.1	174.4	238.5	199.8	119.7	542.7	225.8	149.9	482.2	210.5	252.1	90.3	135.5	242.9
Interior Lighting: Linear Lights	151.5	135.6	162.6	163.3	80.9	447.4	188.5	96.8	391.1	157.6	87.5	37.4	121.0	216.6
Interior Lighting: Linear Fluorescent Lights	100.6	66.6	121.6	129.1	59.4	273.7	115.4	48.0	322.5	145.7	71.0	21.9	55.7	167.8
Interior Lighting: T10 Linear Fluorescent	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Interior Lighting: T12 Linear Fluorescent	10.5	9.7	12.1	9.9	10.2	11.6	10.7	6.2	11.8	13.5	3.5	3.5	6.3	37.1
Interior Lighting: T5 Linear Fluorescent	4.9	3.0	1.6	11.6	1.8	17.8	4.9	0.9	21.6	2.4	7.8	0.5	<0.1	19.3
Interior Lighting: T5HO Linear Fluorescent	4.8	6.3	2.6	5.0	2.5	14.5	1.9	7.4	10.2	1.8	2.8	1.6	0.6	17.7
Interior Lighting: T8 Linear Fluorescent	80.4	47.6	105.4	102.6	44.8	229.8	97.8	33.4	278.9	128.0	56.9	16.2	48.8	93.7
Interior Lighting: Linear LEDs	50.9	69.0	40.9	34.3	21.6	173.7	73.2	48.8	68.6	11.9	16.4	15.5	65.3	48.8
Interior Lighting: Linear LED - Luminaire	27.4	46.1	17.1	10.2	7.3	111.5	55.2	16.7	26.2	5.3	10.8	2.9	14.5	13.7
Interior Lighting: Linear LED - retrofit	23.5	22.9	23.8	24.1	14.3	62.1	17.9	32.2	42.4	6.6	5.6	12.6	50.8	35.1
Interior Lighting: Screw-In LEDs	27.5	20.3	44.9	18.8	21.8	51.6	15.9	37.7	40.9	21.1	114.9	32.9	8.9	7.8
Interior Lighting: Incandescent Bulbs	8.0	6.6	13.5	3.9	7.5	10.0	8.6	4.8	7.6	6.9	20.4	11.7	2.1	10.4
Interior Lighting: Halogen Bulbs	2.3	2.8	1.7	2.0	1.9	3.8	2.4	1.4	6.1	1.7	2.3	3.1	0.8	2.4
Interior Lighting: Compact Fluorescent Lights (CFL)s	11.3	8.8	14.9	11.2	7.1	29.0	9.8	8.8	35.7	22.9	25.9	4.3	1.9	5.3
Interior Lighting: High Pressure Sodium	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Interior Lighting: High Intensity Discharge Lamps/Metal Halide	0.3	0.1	0.4	0.3	0.2	0.6	0.4	0.1	0.4	0.2	0.4	<0.1	0.1	0.2
Interior Lighting: Mercury Vapor	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Interior Lighting: Neon (Cold Cathode)	0.2	0.1	0.3	0.2	0.2	0.3	<0.1	0.2	<0.1	<0.1	<0.1	0.8	0.6	<0.1
Interior Lighting: Other	0.1	<0.1	0.3	0.1	0.1	0.1	0.1	<0.1	0.3	0.2	0.8	0.1	<0.1	0.1
Interior Lighting: Exit Sign	3.4	3.0	3.6	4.0	1.8	10.4	3.9	1.3	9.0	6.2	5.5	2.6	1.4	3.2
Interior Lighting: Lights Controlled by Bi-Level Lighting	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

""=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting - Interior Lighting - Saturation (Fixtures)

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
All Interior Lighting (non-Exit Sign)	94.5	83.0	103.6	101.9	53.9	264.9	100.5	62.9	253.1	109.0	148.9	61.3	73.0	88.4
Interior Lighting: Linear Lights	62.5	52.8	66.3	73.1	32.0	190.3	74.6	40.1	183.8	69.0	44.8	15.8	59.2	72.3
Interior Lighting: Linear Fluorescent Lights	40.4	26.9	46.9	53.7	22.1	117.2	47.2	17.5	147.5	62.0	31.4	8.8	23.5	49.7
Interior Lighting: T10 Linear Fluorescent	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Interior Lighting: T12 Linear Fluorescent	4.2	4.1	4.5	4.0	3.9	5.5	4.2	2.9	5.0	4.7	1.6	1.6	3.2	13.6
Interior Lighting: T5 Linear Fluorescent	2.1	1.7	0.7	4.3	0.9	7.0	2.3	0.7	11.3	1.2	4.8	0.3	<0.1	3.5
Interior Lighting: T5HO Linear Fluorescent	0.9	0.5	1.1	1.3	0.1	3.9	0.4	0.2	4.5	0.7	0.7	0.5	0.2	4.4
Interior Lighting: T8 Linear Fluorescent	33.2	20.7	40.6	44.2	17.1	100.8	40.3	13.7	126.7	55.5	24.2	6.3	20.1	28.2
Interior Lighting: Linear LEDs	22.1	25.9	19.4	19.4	10.0	73.1	27.4	22.6	36.3	7.0	13.4	7.1	35.7	22.6
Interior Lighting: Linear LED - Luminaire	11.8	16.0	9.5	7.8	4.0	44.3	19.6	8.8	18.5	5.1	10.4	1.8	8.1	6.8
Interior Lighting: Linear LED - retrofit	10.3	9.9	9.9	11.6	5.9	28.8	7.8	13.8	17.8	2.0	3.0	5.2	27.6	15.9
Interior Lighting: Screw-In LEDs	16.6	17.1	17.1	15.4	10.6	42.0	9.8	14.7	29.3	19.1	71.5	27.7	8.6	7.3
Interior Lighting: Incandescent Bulbs	5.2	4.8	7.8	2.7	4.7	7.2	5.3	2.8	6.1	5.7	9.7	10.3	1.7	4.3
Interior Lighting: Halogen Bulbs	2.0	2.7	1.3	1.7	1.5	3.7	2.4	0.9	5.9	1.3	2.2	2.9	0.8	0.5
Interior Lighting: Compact Fluorescent Lights (CFL)s	7.7	5.5	10.2	8.4	4.7	20.7	7.8	4.0	27.3	13.5	20.3	3.6	1.9	3.6
Interior Lighting: High Pressure Sodium	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Interior Lighting: High Intensity Discharge Lamps/Metal Halide	0.3	0.1	0.4	0.3	0.2	0.6	0.4	0.1	0.4	0.2	0.4	<0.1	0.1	0.2
Interior Lighting: Mercury Vapor	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Interior Lighting: Neon (Cold Cathode)	0.2	0.1	0.3	0.2	0.1	0.3	<0.1	0.2	<0.1	<0.1	<0.1	0.8	0.6	<0.1
Interior Lighting: Other	0.1	<0.1	0.1	0.1	0.1	0.1	0.1	<0.1	0.2	0.1	0.1	0.1	0.2	0.1
Interior Lighting: Exit Sign	3.2	2.8	3.5	3.4	1.7	9.4	3.7	1.2	8.1	6.0	4.6	2.5	1.1	2.7
Interior Lighting: Ceilings Over 20 Feet: Spaces Lit with Overhead Lighting	5.5	4.3	7.8	4.9	3.2	15.4	3.1	4.8	8.9	<0.1	0.6	0.6	8.7	32.5
Interior Lighting: Lights Controlled by Daylight Dimming	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Interior Lighting: Lights Controlled by Occupancy Sensors	10.6	13.3	8.0	9.1	2.0	47.1	19.1	1.0	23.1	6.3	5.5	0.7	1.5	23.8
Interior Lighting: Lights Controlled by Timing Controls	1.2	0.1	0.8	3.4	1.0	2.0	2.3	0.3	6.3	<0.1	0.2	0.1	<0.1	<0.1
Interior Lighting: Non-Manual Control Type: Dimmer Switch	0.5	0.4	0.7	0.3	0.2	1.6	0.5	0.6	1.1	0.1	2.2	0.3	<0.1	0.1
Interior Lighting: Non-Manual Control Type: EMS	1.7	<0.1	1.0	5.3	<0.1	8.9	4.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	3.9

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting - Interior Lighting - Average Quantity (Lamps)

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
All Interior Lighting (non-Exit Sign)	201.1	174.4	238.5	199.8	119.7	542.7	225.8	149.9	482.2	210.5	252.1	90.3	135.5	242.9
Interior Lighting: Linear Lights	171.8	156.1	181.8	184.1	93.3	475.7	213.4	111.6	438.3	175.7	113.9	40.3	129.0	256.5
Interior Lighting: Linear Fluorescent Lights	140.4	94.4	162.1	185.8	82.7	384.6	155.1	71.3	434.9	177.2	102.9	32.6	83.1	240.0
Interior Lighting: T10 Linear Fluorescent	3.5	1†	3.5	1†	1†	3.4	1†	1†	1†	1†	1†	3.0	4.0	1†
Interior Lighting: T12 Linear Fluorescent	30.7	27.5	34.8	31.0	29.0	38.7	33.1	18.3	37.1	38.0	10.4	11.1	17.8	77.4
Interior Lighting: T5 Linear Fluorescent	68.3	39.1	25.5	154.6	29.6	156.3	42.5	18.2	214.8	52.3	140.7	11.3	1†	565.0
Interior Lighting: T5HO Linear Fluorescent	290.6	330.5	125.0	674.3	272.6	303.6	154.4	402.3	278.6	99.0	228.0	180.3	17.0	1148.0
Interior Lighting: T8 Linear Fluorescent	133.3	86.0	144.2	191.5	75.8	350.3	155.0	62.6	385.6	200.7	94.4	26.5	82.2	160.0
Interior Lighting: Linear LEDs	128.4	176.0	106.0	82.8	60.1	311.2	216.3	111.8	171.0	34.6	49.6	31.9	108.8	135.5
Interior Lighting: Linear LED - Luminaire	152.9	295.8	87.9	51.4	45.1	443.2	360.2	83.1	138.0	34.1	80.4	18.3	63.3	51.4
Interior Lighting: Linear LED - retrofit	88.4	78.6	108.2	86.5	57.6	182.2	72.1	93.6	246.6	50.7	62.7	46.0	123.4	120.9
Interior Lighting: Screw-In LEDs	50.9	38.3	77.4	37.1	42.2	80.2	34.2	71.5	67.9	35.7	145.5	46.3	17.2	17.4
Interior Lighting: Incandescent Bulbs	17.1	13.8	25.3	10.6	16.3	20.5	19.5	11.5	15.0	13.4	30.6	19.6	5.3	26.3
Interior Lighting: Halogen Bulbs	16.7	18.5	12.6	18.1	15.2	20.3	16.4	14.2	27.3	17.7	13.8	18.3	6.4	14.7
Interior Lighting: Compact Fluorescent Lights (CFL)s	27.3	19.8	34.5	31.9	17.6	62.0	23.1	25.5	67.5	49.7	43.6	8.8	5.7	15.9
Interior Lighting: High Pressure Sodium	9.4	1†	9.4	1†	14.1	4.0	14.2	1†	1†	4.0	1†	1†	1†	1†
Interior Lighting: High Intensity Discharge Lamps/Metal Halide	6.5	2.8	9.5	6.0	4.8	12.3	10.8	3.4	6.6	7.9	4.4	1.1	3.0	2.9
Interior Lighting: Mercury Vapor	2.0	1†	2.0	2.0	2.0	1†	2.0	1†	1†	1†	1†	1†	1†	2.0
Interior Lighting: Neon (Cold Cathode)	2.8	2.0	3.8	2.2	2.4	4.2	1.0	1.8	1†	2.0	1.0	4.7	3.6	1†
Interior Lighting: Other	4.5	1†	7.6	4.6	5.2	2.4	14.2	1†	8.5	14.0	14.2	2.5	1.1	1.6
Interior Lighting: Exit Sign	6.9	6.0	8.1	7.1	3.9	15.3	7.4	3.0	13.7	12.8	18.7	3.6	3.8	8.2
Interior Lighting: Lights Controlled by Bi-Level Lighting	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†

"†=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting - Interior Lighting - Average Quantity (Fixtures)

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
All Interior Lighting (non-Exit Sign)	94.5	83.0	103.6	101.9	53.9	264.9	100.5	62.9	253.1	109.0	148.9	61.3	73.0	88.4
Interior Lighting: Linear Lights	70.9	60.7	74.2	82.4	36.9	202.4	84.4	46.2	206.0	77.0	58.4	17.1	63.1	85.7
Interior Lighting: Linear Fluorescent Lights	56.3	38.1	62.5	77.4	30.7	164.7	63.5	26.0	198.9	75.4	45.4	13.1	35.0	71.1
Interior Lighting: T10 Linear Fluorescent	2.9	1†	2.9	1†	1†	2.9	1†	1†	1†	1†	1†	2.0	4.0	1†
Interior Lighting: T12 Linear Fluorescent	12.3	11.6	13.0	12.5	11.0	18.5	12.9	8.6	15.8	13.1	4.7	5.2	9.1	28.4
Interior Lighting: T5 Linear Fluorescent	29.2	21.5	11.5	57.7	14.9	61.5	20.2	13.5	112.1	25.4	87.2	6.1	1†	102.0
Interior Lighting: T5HO Linear Fluorescent	52.5	24.4	50.8	170.9	16.1	81.5	29.7	9.8	123.2	39.1	57.0	60.1	5.0	287.0
Interior Lighting: T8 Linear Fluorescent	55.1	37.4	55.5	82.4	29.0	153.6	63.9	25.7	175.1	87.0	40.2	10.3	33.8	48.1
Interior Lighting: Linear LEDs	55.8	66.0	50.3	46.9	27.7	131.0	80.9	51.7	90.5	20.4	40.5	14.5	59.5	62.8
Interior Lighting: Linear LED - Luminaire	65.8	102.7	48.9	39.7	24.8	176.1	127.9	43.7	97.4	32.4	77.6	11.4	35.4	25.3
Interior Lighting: Linear LED - retrofit	38.9	33.8	45.0	41.4	23.9	84.4	31.1	40.2	103.7	15.2	33.4	19.1	67.0	54.7
Interior Lighting: Screw-In LEDs	30.8	32.1	29.6	30.4	20.6	65.3	21.0	28.0	48.6	32.4	90.6	38.9	16.4	16.3
Interior Lighting: Incandescent Bulbs	11.1	10.1	14.7	7.3	10.1	14.8	12.0	6.5	11.9	11.1	14.5	17.2	4.3	10.9
Interior Lighting: Halogen Bulbs	14.5	17.2	9.4	15.1	12.5	19.6	16.5	9.7	26.6	14.1	13.0	17.3	6.4	3.2
Interior Lighting: Compact Fluorescent Lights (CFL)s	18.6	12.4	23.5	24.0	11.5	44.3	18.5	11.5	51.6	29.4	34.2	7.5	5.5	10.9
Interior Lighting: High Pressure Sodium	9.4	1†	9.4	1†	14.1	4.0	14.2	1†	1†	4.0	1†	1†	1†	1†
Interior Lighting: High Intensity Discharge Lamps/Metal Halide	6.5	2.8	9.5	6.0	4.8	12.3	10.8	3.4	6.6	7.9	4.4	1.1	3.0	2.9
Interior Lighting: Mercury Vapor	2.0	1†	2.0	2.0	2.0	1†	2.0	1†	1†	1†	1†	1†	1†	2.0
Interior Lighting: Neon (Cold Cathode)	2.7	2.0	3.7	2.2	2.4	4.2	1.0	1.8	1†	2.0	1.0	4.7	3.6	1†
Interior Lighting: Other	3.2	2.5	3.8	3.1	2.9	4.5	7.5	1.8	6.1	7.0	2.4	3.3	6.8	1†
Interior Lighting: Exit Sign	6.5	5.7	8.1	6.1	3.8	13.9	7.0	2.9	12.3	12.4	15.8	3.6	3.0	7.0
Interior Lighting: Ceilings Over 20 Feet: Spaces Lit with Overhead Lighting	33.3	29.1	39.6	29.8	24.1	49.1	21.7	30.0	23.2	1†	3.4	5.5	52.8	105.2
Interior Lighting: Lights Controlled by Daylight Dimming	1†	1†	6.7	1†	1†	1.7	1.2	1.6	1†	1†	1†	1†	1†	1†
Interior Lighting: Lights Controlled by Occupancy Sensors	89.8	135.3	60.7	68.5	23.5	171.9	154.5	12.2	108.4	70.5	42.4	5.4	13.4	131.3
Interior Lighting: Lights Controlled by Timing Controls	54.1	6.4	38.7	103.6	51.8	52.7	69.1	16.5	162.3	1†	14.5	5.9	1†	1†
Interior Lighting: Non-Manual Control Type: Dimmer Switch	25.2	65.1	20.4	14.4	11.7	68.3	20.9	25.6	75.9	10.0	32.6	80.0	1†	5.7
Interior Lighting: Non-Manual Control Type: EMS	540.8	1†	425.9	600.0	1†	548.8	568.9	1†	1†	1†	1†	1†	1†	459.1

Lighting - Interior Lighting - Socket Saturation (Lamps)

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
All Interior Lighting (non-Exit Sign)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Interior Lighting: Linear Lights	75%	78%	68%	82%	68%	82%	83%	65%	81%	75%	35%	41%	89%	89%
Interior Lighting: Linear Fluorescent Lights	50%	38%	51%	65%	50%	50%	51%	32%	67%	69%	28%	24%	41%	69%
Interior Lighting: T10 Linear Fluorescent	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Interior Lighting: T12 Linear Fluorescent	5%	6%	5%	5%	9%	2%	5%	4%	2%	6%	1%	4%	5%	15%
Interior Lighting: T5 Linear Fluorescent	2%	2%	1%	6%	2%	3%	2%	1%	4%	1%	3%	1%	<1%	8%
Interior Lighting: T5HO Linear Fluorescent	2%	4%	1%	3%	2%	3%	1%	5%	2%	1%	1%	2%	<1%	7%
Interior Lighting: T8 Linear Fluorescent	40%	27%	44%	51%	37%	42%	43%	22%	58%	61%	23%	18%	36%	39%
Interior Lighting: Linear LEDs	25%	40%	17%	17%	18%	32%	32%	33%	14%	6%	7%	17%	48%	20%
Interior Lighting: Linear LED - Luminaire	14%	26%	7%	5%	6%	21%	24%	11%	5%	3%	4%	3%	11%	6%
Interior Lighting: Linear LED - retrofit	12%	13%	10%	12%	12%	11%	8%	21%	9%	3%	2%	14%	37%	14%
Interior Lighting: Screw-In LEDs	14%	12%	19%	9%	18%	10%	7%	25%	8%	10%	46%	36%	7%	3%
Interior Lighting: Incandescent Bulbs	4%	4%	6%	2%	6%	2%	4%	3%	2%	3%	8%	13%	2%	4%
Interior Lighting: Halogen Bulbs	1%	2%	1%	1%	2%	1%	1%	1%	1%	1%	1%	3%	1%	1%
Interior Lighting: Compact Fluorescent Lights (CFL)s	6%	5%	6%	6%	6%	5%	4%	6%	7%	11%	10%	5%	1%	2%
Interior Lighting: High Pressure Sodium	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Interior Lighting: High Intensity Discharge Lamps/Metal Halide	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Interior Lighting: Mercury Vapor	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Interior Lighting: Neon (Cold Cathode)	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%

†=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Lighting - Exterior Lighting - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Exterior Lighting	54%	39%	72%	57%	51%	68%	47%	52%	69%	50%	73%	70%	62%	54%
Exterior Lighting: CFL	16%	10%	25%	15%	15%	21%	16%	10%	27%	19%	34%	23%	10%	11%
Exterior Lighting: HID	17%	5%	26%	24%	14%	29%	17%	13%	24%	12%	22%	11%	15%	37%
Exterior Lighting: HID: High Pressure Sodium	4%	1%	8%	4%	3%	8%	3%	2%	7%	5%	12%	4%	2%	15%
Exterior Lighting: HID: Mercury Vapor	1%	<1%	2%	2%	1%	1%	3%	<1%	1%	<1%	<1%	<1%	1%	2%
Exterior Lighting: HID: Metal Halide	12%	4%	17%	19%	10%	22%	13%	11%	17%	7%	16%	8%	13%	22%
Exterior Lighting: Halogen	5%	<1%	8%	10%	5%	6%	6%	5%	7%	4%	11%	5%	2%	2%
Exterior Lighting: Incandescent	14%	8%	21%	14%	14%	14%	12%	13%	17%	14%	27%	18%	11%	12%
Exterior Lighting: LED	31%	19%	46%	32%	27%	49%	28%	24%	45%	30%	42%	37%	45%	38%
Exterior Lighting: Linear Fluorescent	8%	10%	6%	8%	8%	9%	4%	11%	4%	3%	2%	13%	19%	11%
Exterior Lighting: Linear LED	3%	3%	2%	3%	2%	8%	1%	2%	3%	5%	3%	6%	15%	<1%
Exterior Lighting: Neon (Cold Cathode)	2%	2%	2%	1%	2%	1%	<1%	4%	1%	<1%	<1%	4%	5%	<1%
Exterior Lighting: Other	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	2%	<1%	<1%	1%	3%	<1%

Lighting - Exterior Lighting - Saturation (Lamps)

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Exterior Lighting	8.1	3.4	12.6	9.9	5.3	19.4	5.7	8.3	10.9	5.7	17.4	11.6	10.8	8.0
Exterior Lighting: CFL	1.0	0.6	1.5	0.9	0.8	1.7	0.7	0.6	1.9	1.6	3.0	1.6	0.5	0.5
Exterior Lighting: HID	1.1	0.2	1.2	2.2	0.6	3.0	1.3	0.6	1.3	0.5	1.1	0.9	0.6	3.0
Exterior Lighting: HID: High Pressure Sodium	0.2	<0.1	0.4	0.3	0.1	0.7	0.1	0.1	0.3	0.3	0.5	0.2	<0.1	1.0
Exterior Lighting: HID: Mercury Vapor	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Exterior Lighting: HID: Metal Halide	0.8	0.2	0.7	1.9	0.5	2.2	1.1	0.5	1.0	0.2	0.6	0.7	0.6	1.9
Exterior Lighting: Halogen	0.3	<0.1	0.3	0.8	0.2	0.6	0.2	0.3	1.1	0.2	1.0	0.2	0.1	<0.1
Exterior Lighting: Incandescent	0.9	0.3	1.6	0.9	0.9	0.7	0.5	0.4	0.7	1.0	2.3	3.1	0.5	0.5
Exterior Lighting: LED	3.7	1.2	7.1	3.6	2.1	10.7	2.3	5.2	5.5	2.1	7.5	4.1	5.2	2.8
Exterior Lighting: Linear Fluorescent	0.7	0.7	0.6	0.6	0.5	1.1	0.5	0.8	0.1	0.1	0.2	1.0	1.6	1.2
Exterior Lighting: Linear LED	0.4	0.4	0.1	0.6	0.1	1.4	0.3	0.2	0.1	0.1	2.3	0.2	2.2	<0.1
Exterior Lighting: Neon (Cold Cathode)	0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Exterior Lighting: Other	0.1	<0.1	<0.1	0.2	<0.1	0.3	<0.1	<0.1	0.1	<0.1	<0.1	0.5	<0.1	<0.1

Lighting - Exterior Lighting - Saturation - Fixtures

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Exterior Lighting	6.2	2.8	8.8	8.4	4.4	13.5	5.1	5.1	8.1	4.9	13.0	8.9	8.1	7.1
Exterior Lighting: CFL	0.9	0.6	1.4	0.7	0.7	1.4	0.7	0.5	1.5	1.2	2.8	1.5	0.5	0.5
Exterior Lighting: HID	1.0	0.1	1.1	2.2	0.6	2.6	1.2	0.5	1.1	0.5	1.1	0.5	0.5	2.9
Exterior Lighting: HID: High Pressure Sodium	0.2	<0.1	0.4	0.3	0.1	0.7	0.1	0.1	0.3	0.3	0.5	0.2	<0.1	1.0
Exterior Lighting: HID: Mercury Vapor	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Exterior Lighting: HID: Metal Halide	0.7	0.1	0.7	1.8	0.5	1.8	1.0	0.5	0.8	0.2	0.6	0.3	0.5	1.8
Exterior Lighting: Halogen	0.3	<0.1	0.3	0.7	0.2	0.5	0.2	0.3	0.8	0.2	0.9	0.2	<0.1	<0.1
Exterior Lighting: Incandescent	0.7	0.2	1.4	0.7	0.8	0.6	0.4	0.4	0.6	0.8	1.1	2.7	0.5	0.4
Exterior Lighting: LED	2.7	1.2	4.1	3.3	1.7	6.8	2.2	2.6	3.7	2.0	5.8	3.1	3.8	2.6
Exterior Lighting: Linear Fluorescent	0.3	0.3	0.3	0.3	0.3	0.5	0.2	0.4	0.1	<0.1	0.1	0.6	0.8	0.7
Exterior Lighting: Linear LED	0.3	0.3	0.1	0.4	0.1	1.0	0.2	0.1	0.1	0.1	1.2	0.1	1.7	<0.1
Exterior Lighting: Neon (Cold Cathode)	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Exterior Lighting: Other	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1

Lighting - Exterior Lighting - Socket Saturation (Lamps)

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Exterior Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Exterior Lighting: CFL	12%	18%	12%	9%	15%	9%	12%	7%	17%	28%	17%	14%	5%	6%
Exterior Lighting: HID	14%	6%	10%	22%	11%	15%	23%	7%	12%	9%	6%	8%	6%	38%
Exterior Lighting: HID: High Pressure Sodium	2%	<1%	3%	3%	2%	4%	2%	1%	3%	5%	3%	2%	<1%	13%
Exterior Lighting: HID: Mercury Vapor	<1%	<1%	1%	<1%	<1%	1%	2%	<1%	<1%	<1%	<1%	<1%	<1%	3%
Exterior Lighting: HID: Metal Halide	10%	6%	6%	19%	9%	11%	19%	6%	9%	4%	3%	6%	6%	24%
Exterior Lighting: Halogen	4%	<1%	2%	8%	4%	3%	4%	4%	10%	4%	6%	2%	1%	<1%
Exterior Lighting: Incandescent	11%	9%	13%	9%	17%	4%	9%	5%	6%	18%	13%	27%	5%	6%
Exterior Lighting: LED	46%	35%	56%	36%	40%	55%	40%	63%	50%	37%	43%	35%	48%	35%
Exterior Lighting: Linear Fluorescent	9%	21%	5%	6%	9%	6%	9%	10%	1%	2%	1%	9%	15%	15%
Exterior Lighting: Linear LED	5%	12%	1%	6%	2%	7%	5%	2%	1%	2%	13%	2%	20%	<1%
Exterior Lighting: Neon (Cold Cathode)	1%	<1%	1%	<1%	2%	<1%	<1%	2%	<1%	<1%	<1%	1%	<1%	<1%
Exterior Lighting: Other	1%	<1%	<1%	2%	<1%	2%	<1%	<1%	1%	<1%	<1%	4%	<1%	<1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Motors and Air Compresors Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
0-1 Year	Motors: Age	5%	<1%	10%	2%	<1%	14%	*	<1%	<1%	20%	<1%	*	<1%	<1%
2-3 Years	Motors: Age	6%	<1%	13%	1%	10%	1%	*	*	*	2%	<1%	4%	<1%	*
4-8 Years	Motors: Age	15%	*	22%	3%	2%	39%	<1%	*	*	*	*	4%	<1%	3%
9-19 Years	Motors: Age	14%	14%	14%	*	7%	26%	*	*	*	*	*	*	*	*
20-39 Years	Motors: Age	56%	*	*	*	82%	12%	*	*	*	<1%	*	*	*	*
40+ Years	Motors: Age	3%	*	2%	<1%	<1%	8%	8%	<1%	<1%	<1%	<1%	*	<1%	<1%
Mean Age (Years)	Motors: Age	18.70	18.70	12.40	25.80	23.10	11.40	17.30	16.60	13.30	4.60	14.30	21.10	15.50	25.90
61-70 %	Motors: Efficiency	1%	<1%	2%	<1%	<1%	2%	<1%	<1%	<1%	<1%	*	*	<1%	*
71-80 %	Motors: Efficiency	8%	<1%	10%	7%	*	5%	*	6%	*	<1%	<1%	*	*	*
81-90 %	Motors: Efficiency	61%	*	65%	*	*	60%	*	72%	6%	78%	*	*	*	*
90-100%	Motors: Efficiency	30%	*	23%	*	12%	34%	*	22%	*	22%	*	*	9%	*
Mean Efficiency (%)	Motors: Efficiency	88%	88%	87%	89%	85%	89%	87%	87%	90%	90%	90%	<1%	86%	84%
0-4 Hours	Motors: Hours Run Per Day	58%	*	47%	*	76%	38%	*	*	*	*	<1%	*	42%	*
5-8 Hours	Motors: Hours Run Per Day	27%	*	36%	8%	20%	34%	3%	*	<1%	*	*	*	*	*
9-12 Hours	Motors: Hours Run Per Day	6%	4%	3%	12%	2%	11%	7%	11%	*	3%	*	6%	*	<1%
13-16 Hours	Motors: Hours Run Per Day	2%	<1%	5%	<1%	1%	4%	3%	1%	<1%	<1%	*	3%	*	2%
17-20 Hours	Motors: Hours Run Per Day	2%	<1%	<1%	4%	<1%	3%	<1%	<1%	<1%	<1%	<1%	9%	<1%	3%
21-24 Hours	Motors: Hours Run Per Day	6%	3%	10%	1%	1%	11%	*	<1%	<1%	<1%	*	<1%	<1%	<1%
Mean Hours Run Per Day	Motors: Hours Run Per Day	6.00	5.50	6.30	5.50	4.20	7.90	8.90	5.10	3.20	11.90	15.30	5.00	5.40	4.50
No	Motors: NEMA Certified	22%	*	24%	*	*	19%	*	*	*	*	<1%	<1%	*	*
Yes	Motors: NEMA Certified	78%	*	76%	*	*	81%	*	*	*	*	100%	100%	*	*
0-0.9 HP	Motors: Size	19%	6%	29%	9%	29%	11%	18%	28%	*	2%	8%	*	2%	8%
1-4.9 HP	Motors: Size	35%	30%	23%	*	55%	19%	12%	23%	*	*	*	16%	*	*
5-9.9 HP	Motors: Size	17%	25%	18%	13%	5%	26%	*	16%	3%	*	*	*	17%	4%
10-19.9 HP	Motors: Size	17%	*	15%	15%	8%	24%	19%	30%	7%	14%	<1%	<1%	*	2%
20-39.9 HP	Motors: Size	7%	5%	8%	6%	1%	11%	4%	4%	*	23%	*	<1%	3%	4%
40+ Hp	Motors: Size	6%	<1%	8%	5%	2%	9%	17%	<1%	*	<1%	*	<1%	<1%	11%
Mean Size (HP)	Motors: Size	9.60	7.10	11.00	8.60	4.50	13.60	21.20	6.00	22.50	9.90	26.60	1.60	7.50	8.60
AC Induction Motor	Motors: Type	97%	89%	96%	100%	95%	98%	100%	94%	100%	100%	100%	*	100%	98%
DC Brushed ECM	Motors: Type	2%	7%	1%	<1%	4%	<1%	<1%	4%	<1%	<1%	<1%	<1%	<1%	1%
DC Brushless ECM	Motors: Type	1%	<1%	2%	<1%	<1%	1%	<1%	2%	<1%	<1%	<1%	<1%	<1%	<1%
Stepper Motor	Motors: Type	1%	4%	1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	*	<1%	1%
Motors: Percent Where VFDs Are Possible	Motors: VFDs	27%	25%	25%	36%	8%	36%	33%	22%	13%	55%	70%	46%	1%	<1%
Motors: Percent Where VFDs Are Practical	Motors: VFDs	18%	14%	15%	33%	6%	24%	32%	14%	13%	31%	70%	19%	1%	<1%
Motors: Percent Where VFDs Are Installed	Motors: VFDs	10%	8%	9%	11%	1%	17%	20%	12%	30%	18%	22%	4%	<1%	<1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Motors and Air Compresors Characteristics - Continued

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Centrifugal	Compressed Air: Compressor Type	19%	*	5%	*	18%	22%	<1%	*	*	*	*	*	<1%	*
Reciprocating	Compressed Air: Compressor Type	50%	*	84%	*	*	*	*	*	*	*	*	*	100%	*
Screw	Compressed Air: Compressor Type	31%	*	10%	9%	*	12%	*	8%	<1%	*	*	*	<1%	*
Less than 2.5 HP	Compressed Air: Motor Size (HP)	40%	*	28%	*	50%	8%	*	13%	*	93%	*	*	<1%	*
2.5-4.9 HP	Compressed Air: Motor Size (HP)	9%	<1%	12%	*	9%	8%	1%	13%	*	<1%	*	*	<1%	9%
5-9.9 HP	Compressed Air: Motor Size (HP)	39%	*	51%	*	33%	59%	*	57%	*	7%	*	<1%	*	*
10-19 HP	Compressed Air: Motor Size (HP)	8%	13%	4%	7%	8%	8%	17%	8%	<1%	<1%	*	<1%	*	<1%
20-39 HP	Compressed Air: Motor Size (HP)	2%	<1%	2%	7%	<1%	8%	<1%	5%	<1%	<1%	*	<1%	<1%	<1%
40 -150 HP	Compressed Air: Motor Size (HP)	2%	4%	1%	<1%	<1%	9%	3%	4%	<1%	<1%	*	<1%	<1%	<1%
Over 150 HP	Compressed Air: Motor Size (HP)	1%	<1%	1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	*	<1%	<1%	<1%
Mean Size (HP)	Compressed Air: Motor Size (HP)	6.80	6.10	7.40	6.70	4.90	12.80	5.10	8.70	2.40	1.70	175.00	2.60	8.50	5.00
100+ Gallons	Compressed Air: Tank Size Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25-49 Gallons	Compressed Air: Tank Size Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50-99 Gallons	Compressed Air: Tank Size Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Less than 25 Gallons	Compressed Air: Tank Size Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Mean Tank Size (Gallons)	Compressed Air: Tank Size	59.10	77.80	58.70	46.40	52.20	72.40	64.90	68.70	55.60	24.30	*	*	80.00	44.50
Less than 10 Hours/Week	Compressed Air: Hours Per Week Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10-29 Hours/Week	Compressed Air: Hours Per Week Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30-49 Hours/Week	Compressed Air: Hours Per Week Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50-99 Hours/Week	Compressed Air: Hours Per Week Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
100+ Hours/Week	Compressed Air: Hours Per Week Category	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Mean Hours Per Week	Compressed Air: Hours Per Week	31.10	22.40	36.60	31.90	26.90	45.30	28.70	36.90	16.40	24.20	51.20	87.50	23.00	22.70
Centrifugal	Compressed Air: Dryer Type	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Desiccant	Compressed Air: Dryer Type	*	*	*	*	*	*	*	*	*	*	*	*	*	*
No Dryer	Compressed Air: Dryer Type	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Purge	Compressed Air: Dryer Type	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Refrigerated	Compressed Air: Dryer Type	*	*	*	*	*	*	*	*	*	*	*	*	*	*

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Motors and Air Compresors - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Motors	7%	5%	8%	7%	6%	12%	4%	7%	5%	11%	10%	8%	9%	9%
Motors: Adjustable Speed Drives	1%	1%	1%	2%	1%	3%	1%	1%	1%	3%	2%	2%	1%	2%
Compressed Air	12%	9%	16%	11%	11%	15%	7%	14%	10%	26%	8%	3%	8%	28%
Compressed Air: Adjustable Speed Drives	2%	2%	2%	2%	1%	4%	1%	2%	2%	5%	1%	<1%	2%	4%

Motors and Air Compresors - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Motors	0.4	0.1	0.7	0.6	0.2	1.3	0.1	0.6	0.4	0.5	0.3	0.2	0.6	1.6
Compressed Air	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.4	0.1	<0.1	0.1	0.3

Motors and Air Compresors- Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Motors	6.4	2.9	8.1	8.0	4.0	10.8	3.1	8.3	7.4	4.4	2.9	2.2	7.3	17.8
Compressed Air	1.4	1.8	1.3	1.0	1.3	1.6	1.4	1.6	1†	1.6	1†	1†	1.0	1.1

Office Equipment Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Mean # of External Monitors per Computer	Computers (Excluding Servers)	1.2	1.1	1.3	1.4	1.1	1.3	1.2	1.1	1.0	1.3	1.0	1.1	0.9	1.2
Mean % Connected to Advanced Power Strips	Computers (Excluding Servers)	3%	1%	9%	<1%	3%	4%	3%	2%	2%	1%	2%	4%	3%	16%
Mean % Connected to Advanced Power Strips	Point-Of-Sale or Cash Register Equipment	3%	<1%	7%	<1%	3%	3%	<1%	1%	<1%	<1%	17%	5%	2%	<1%
Mean % Connected to Advanced Power Strips	Printers or Copiers or Imaging Equipment	5%	1%	10%	3%	3%	7%	4%	3%	9%	1%	3%	5%	3%	18%
Mean % Connected to Advanced Power Strips	Printers or Copiers or Imaging Equipment: Type	4%	<1%	8%	1%	2%	7%	2%	1%	2%	1%	6%	<1%	<1%	32%
Mean % Connected to Advanced Power Strips	Printers or Copiers or Imaging Equipment: Type	5%	1%	11%	3%	4%	8%	4%	3%	12%	1%	2%	6%	3%	15%
Mean % Connected to Advanced Power Strips	Televisions	2%	<1%	5%	1%	3%	1%	4%	2%	3%	<1%	1%	1%	1%	10%

"†=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Office Equipment - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Regularly Used Computers	89%	92%	86%	88%	88%	95%	96%	85%	95%	97%	77%	78%	86%	81%
On-Site Computer Servers	7%	8%	7%	6%	6%	15%	10%	4%	9%	12%	3%	4%	5%	7%
On-Site Computer Servers_Dedicated Cooling	4%	4%	4%	3%	3%	10%	6%	2%	6%	7%	1%	2%	3%	4%
On-Site Computer Servers_Space Cooling	3%	3%	3%	3%	3%	6%	5%	2%	4%	5%	2%	2%	2%	3%
Point-Of-Sale or Cash Register Equipment	31%	29%	32%	36%	28%	47%	4%	49%	10%	12%	23%	84%	94%	14%
Printers or Copiers or Imaging Equipment	71%	78%	76%	57%	70%	76%	81%	65%	90%	77%	62%	51%	57%	68%
Printers or Copiers or Imaging Equipment Type Large Printer/Copier/Etc.	35%	33%	45%	25%	33%	44%	58%	15%	66%	33%	20%	9%	13%	35%
Printers or Copiers or Imaging Equipment Type Small Printer/Copier/Etc.	67%	72%	71%	55%	66%	71%	75%	64%	81%	72%	56%	48%	55%	61%
Televisions	54%	55%	50%	58%	52%	66%	57%	45%	50%	56%	63%	67%	66%	43%
Advanced Power Strips	5%	2%	11%	5%	5%	7%	6%	5%	6%	4%	5%	5%	3%	7%

Office Equipment - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Regularly Used Computers	10.4	10.9	9.7	10.5	4.9	37.6	13.8	2.9	66.0	16.9	2.9	1.8	2.6	6.3
On-Site Computer Servers	0.7	0.4	0.7	1.1	0.1	3.0	1.2	0.1	0.9	1.6	<0.1	<0.1	0.1	0.3
On-Site Computer Servers Dedicated Cooling	0.5	<0.1	0.6	1.0	<0.1	2.3	0.8	<0.1	0.4	1.5	<0.1	<0.1	<0.1	0.2
On-Site Computer Servers Space Cooling	0.2	0.4	0.1	0.1	0.1	0.7	0.4	0.1	0.5	0.1	<0.1	<0.1	<0.1	0.1
Point-Of-Sale or Cash Register Equipment	0.5	0.5	0.5	0.6	0.4	1.3	0.1	0.7	0.1	0.2	0.3	1.7	2.0	0.2
Printers or Copiers or Imaging Equipment	2.6	2.3	3.0	2.7	2.1	4.7	4.3	1.2	4.6	2.8	1.2	0.8	1.1	2.4
Printers or Copiers or Imaging Equipment Type Large Printer/Copier/Etc.	0.6	0.5	0.9	0.5	0.5	1.2	1.1	0.1	1.3	0.7	0.2	0.1	0.1	0.5
Printers or Copiers or Imaging Equipment Type Small Printer/Copier/Etc.	2.0	1.8	2.1	2.2	1.7	3.5	3.1	1.1	3.3	2.2	1.0	0.7	1.0	1.9
Televisions	2.1	1.8	1.8	2.9	1.2	5.9	1.2	0.9	2.2	5.8	12.2	3.1	1.4	0.5

Office Equipment - Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Regularly Used Computers	11.6	11.8	11.2	11.9	5.6	39.5	14.4	3.4	69.2	17.5	3.7	2.3	3.0	7.7
On-Site Computer Servers	9.6	4.9	10.9	18.3	1.8	20.3	11.5	2.3	9.4	13.4	1.3	1†	2.8	4.0
On-Site Computer Servers Dedicated Cooling	12.4	1†	16.4	30.3	1.6	22.7	13.8	1.4	6.7	21.5	1†	1†	1†	3.7
On-Site Computer Servers Space Cooling	5.6	11.3	4.4	3.1	2.0	12.7	8.0	2.7	12.3	1.5	1.2	1†	1.6	4.5
Point-Of-Sale or Cash Register Equipment	1.7	1.8	1.7	1.7	1.4	2.7	1.3	1.5	1.1	1.6	1.3	2.0	2.1	1.2
Printers or Copiers or Imaging Equipment	3.7	3.0	4.0	4.8	3.0	6.2	5.2	1.9	5.1	3.7	1.9	1.6	1.9	3.5
Printers or Copiers or Imaging Equipment Type Large Printer/Copier/Etc.	1.8	1.5	2.0	1.8	1.4	2.7	2.0	1†	2.0	2.0	1.1	1†	1†	1.4
Printers or Copiers or Imaging Equipment Type Small Printer/Copier/Etc.	3.0	2.5	3.0	4.1	2.5	5.0	4.1	1.7	4.1	3.0	1.7	1.5	1.9	3.1
Televisions	3.9	3.3	3.6	5.1	2.4	8.9	2.1	1.9	4.3	10.3	19.3	4.7	2.2	1.2

"†=Does not meet threshold of absolute precision <0.15 at 90% confidence level

On-site Generation Characteristics

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Capacity	184.57	28.60	126.85	263.76	18.35	279.92	102.06	17.86	512.85	190.49	1731.28	60.52	21.33	8.98	1.2
Capacity	420.23	150.00	560.00	*	*	420.23	*	150.00	*	560.00	*	*	*	*	16%
Capacity	43.28	34.90	31.34	55.81	35.70	58.10	56.27	31.91	20.93	*	*	*	*	28.43	<1%

On-site Generation - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
On-Site Generation	9%	4%	13%	10%	5%	25%	10%	5%	17%	11%	13%	3%	9%	14%
On-Site Generation: Cogeneration	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	1%	1%	<1%	<1%	<1%	<1%
On-Site Generation: Cogeneration: Fuel Type: Fuel Oil	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	*	*	*
On-Site Generation: Cogeneration: Fuel Type: Natural Gas	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	1%	1%	<1%	*	*	*
On-Site Generation: Cogeneration: Fuel Type: Other	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	*	*	*
On-Site Generation: Directly Meter Output	3%	2%	4%	4%	2%	10%	3%	2%	6%	5%	4%	1%	2%	3%
On-Site Generation: Emergency or Backup Energy	6%	2%	10%	8%	3%	20%	6%	2%	10%	8%	11%	2%	8%	9%
On-Site Generation: Emergency or Backup Energy: Biogas	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
On-Site Generation: Emergency or Backup Energy: Diesel	2%	1%	3%	3%	<1%	10%	3%	<1%	4%	1%	3%	1%	2%	5%
On-Site Generation: Emergency or Backup Energy: Fuel Oil	<1%	<1%	1%	1%	<1%	2%	1%	<1%	<1%	1%	<1%	<1%	<1%	1%
On-Site Generation: Emergency or Backup Energy: Gasoline	<1%	<1%	1%	1%	<1%	1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	1%
On-Site Generation: Emergency or Backup Energy: Natural Gas	3%	1%	5%	4%	1%	11%	3%	1%	5%	5%	3%	1%	5%	4%
On-Site Generation: Emergency or Backup Energy: Propane	1%	<1%	2%	1%	1%	2%	1%	1%	2%	1%	1%	1%	1%	<1%
On-Site Generation: Renewable Energy Generation	2%	2%	3%	2%	2%	5%	3%	1%	8%	3%	<1%	<1%	1%	6%
On-Site Generation: Renewable Energy Generation: Biomass	<1%	<1%	<1%	<1%	<1%	1%	1%	<1%	<1%	<1%	*	*	*	<1%
On-Site Generation: Renewable Energy Generation: Solar Photovoltaics	2%	1%	3%	2%	1%	4%	2%	1%	8%	2%	*	*	*	6%
On-Site Generation: Renewable Energy Generation: Solar Photovoltaics: Associated Battery Storage	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	*	*	*	<1%
On-Site Generation: Renewable Energy Generation: Solar Photovoltaics: Lease	2%	1%	3%	2%	1%	3%	2%	1%	6%	2%	*	*	*	6%
On-Site Generation: Renewable Energy Generation: Solar Photovoltaics: Own	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	*	*	*	<1%
On-Site Generation: Renewable Energy Generation: Wind Turbines	<1%	1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	1%	*	*	*	<1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Refrigeration Characteristics - Cases Overall

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Anti-Sweat Door Heater Controls	Commercial Refrigeration: Cases: Characteristics	7%	5%	1%	15%	4%	9%	*	*	3%	<1%	1%	4%	13%	<1%
Door Gaskets Missing or Damaged	Commercial Refrigeration: Cases: Characteristics	1%	1%	2%	<1%	1%	2%	1%	1%	<1%	<1%	<1%	1%	3%	<1%
Replaced Fan Motor	Commercial Refrigeration: Cases: Characteristics	6%	8%	1%	10%	4%	7%	<1%	11%	<1%	<1%	<1%	5%	14%	<1%
0-1.9 Years	Commercial Refrigeration: Cases: Age	7%	2%	5%	20%	9%	5%	3%	21%	<1%	<1%	3%	7%	3%	*
2-8.9 Years	Commercial Refrigeration: Cases: Age	43%	44%	39%	49%	39%	45%	*	*	*	*	*	44%	28%	*
9-20.9 Years	Commercial Refrigeration: Cases: Age	45%	50%	46%	30%	45%	45%	25%	*	*	*	*	44%	58%	*
21-30 Years	Commercial Refrigeration: Cases: Age	4%	3%	7%	<1%	4%	5%	5%	3%	3%	<1%	3%	4%	9%	<1%
Over 30 Years	Commercial Refrigeration: Cases: Age	2%	1%	3%	1%	3%	<1%	<1%	10%	<1%	<1%	1%	1%	2%	<1%
Age (Years)	Commercial Refrigeration: Cases: Age	9.84	9.98	11.20	6.59	10.04	9.68	9.32	10.92	10.32	10.87	10.02	8.89	12.37	7.29
Both	Commercial Refrigeration: Cases: Characteristics	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
Neither	Commercial Refrigeration: Cases: Characteristics	99%	99%	99%	100%	100%	99%	100%	99%	100%	100%	100%	100%	96%	100%
Night Covers	Commercial Refrigeration: Cases: Characteristics	1%	1%	1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	2%	<1%
Strip Curtain	Commercial Refrigeration: Cases: Characteristics	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%
None	Commercial Refrigeration: Cases: Characteristics	98%	98%	96%	100%	97%	98%	99%	90%	100%	100%	99%	99%	96%	100%
Partially	Commercial Refrigeration: Cases: Characteristics	1%	1%	2%	<1%	2%	<1%	<1%	8%	<1%	<1%	1%	1%	1%	<1%
Ec (Electronically Commutated)	Commercial Refrigeration: Cases: Characteristics	55%	*	62%	*	62%	46%	*	*	100%	*	100%	61%	*	100%
Psc (Permanent Split Capacitor)	Commercial Refrigeration: Cases: Characteristics	8%	<1%	12%	<1%	10%	6%	<1%	9%	<1%	*	<1%	16%	<1%	<1%
Sp (Shaded Pole)	Commercial Refrigeration: Cases: Characteristics	36%	*	26%	*	28%	48%	*	*	<1%	*	<1%	23%	*	<1%
0-2.9 Ft.	Commercial Refrigeration: Cases: Linear Feet of Doors or Opening	34%	33%	39%	29%	34%	34%	40%	26%	34%	*	78%	28%	25%	*
3-3.9 Ft.	Commercial Refrigeration: Cases: Linear Feet of Doors or Opening	13%	10%	18%	11%	15%	12%	9%	8%	21%	*	6%	16%	9%	<1%
4-5.9 Ft.	Commercial Refrigeration: Cases: Linear Feet of Doors or Opening	28%	34%	22%	28%	31%	25%	21%	41%	29%	5%	12%	33%	25%	*
6-12 Ft.	Commercial Refrigeration: Cases: Linear Feet of Doors or Opening	19%	21%	16%	18%	18%	19%	21%	23%	13%	18%	4%	18%	28%	5%
Over 12 Ft.	Commercial Refrigeration: Cases: Linear Feet of Doors or Opening	6%	3%	5%	15%	2%	9%	10%	3%	4%	<1%	<1%	6%	13%	<1%
Linear Feet of Doors or Opening	Commercial Refrigeration: Cases: Linear Feet of Doors or Opening	5.40	5.02	4.76	7.10	4.23	6.23	5.65	4.83	4.47	3.13	2.22	4.76	9.10	3.70
LED	Commercial Refrigeration: Cases: Lighting	26%	29%	23%	27%	28%	26%	41%	27%	30%	10%	3%	21%	45%	*
No Lighting Present	Commercial Refrigeration: Cases: Lighting	47%	46%	51%	43%	49%	46%	29%	35%	51%	*	83%	58%	23%	*
Other	Commercial Refrigeration: Cases: Lighting	13%	14%	13%	13%	10%	16%	*	14%	19%	32%	9%	13%	4%	*
T12	Commercial Refrigeration: Cases: Lighting	3%	4%	2%	1%	3%	2%	<1%	6%	<1%	<1%	<1%	1%	7%	<1%
T5	Commercial Refrigeration: Cases: Lighting	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
T8	Commercial Refrigeration: Cases: Lighting	10%	7%	10%	15%	10%	10%	3%	18%	1%	4%	5%	7%	20%	<1%
Door-Activated	Commercial Refrigeration: Cases: Lighting Controls	47%	45%	54%	39%	44%	48%	*	26%	88%	*	94%	53%	10%	93%
Manual Switch	Commercial Refrigeration: Cases: Lighting Controls	22%	16%	26%	24%	21%	23%	11%	*	1%	<1%	3%	14%	43%	7%
Motion Sensor	Commercial Refrigeration: Cases: Lighting Controls	<1%	<1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%
No Control Present	Commercial Refrigeration: Cases: Lighting Controls	30%	39%	17%	35%	34%	28%	12%	*	11%	*	3%	30%	47%	<1%
Other	Commercial Refrigeration: Cases: Lighting Controls	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Schedule/Timer	Commercial Refrigeration: Cases: Lighting Controls	1%	<1%	2%	1%	1%	1%	<1%	<1%	<1%	<1%	<1%	2%	1%	<1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Refrigeration Characteristics - Display Case Coolers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Anti-Sweat Door Heater Controls	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	11%	8%	3%	*	4%	13%	*	<1%	*	<1%	<1%	18%	10%	*
Yes	Commercial Refrigeration: Cases: Display Cool Door:Door Gaskets Missing / Damaged	1%	2%	1%	<1%	<1%	2%	*	<1%	*	<1%	<1%	<1%	2%	<1%
Replaced Fan Motor	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	25%	*	5%	5%	24%	26%	*	*	*	*	*	15%	30%	*
0-1.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	8%	5%	5%	18%	4%	11%	*	*	*	*	*	15%	4%	<1%
2-8.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	31%	*	22%	*	*	23%	*	7%	*	*	*	*	21%	<1%
9-20.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	48%	*	49%	*	37%	55%	*	*	*	*	*	*	21%	61%	100%
21-30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	8%	7%	15%	<1%	3%	11%	*	<1%	*	*	*	*	7%	10%	<1%
Over 30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	5%	5%	9%	<1%	13%	<1%	*	*	*	*	*	5%	4%	<1%
Age (Years)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	12.40	11.38	15.89	8.94	13.09	11.95	12.00	17.72	19.00	*	25.00	9.24	13.68	14.00
Night Covers	Commercial Refrigeration: Cases: Display Cool No Door:Curtains/Covers	12%	*	15%	5%	<1%	14%	*	<1%	*	*	*	*	12%	*
Strip Curtain	Commercial Refrigeration: Cases: Display Cool No Door:Curtains/Covers	4%	9%	<1%	<1%	<1%	4%	*	<1%	*	*	*	<1%	4%	*
Neither	Commercial Refrigeration: Cases: Display Cool No Door:Curtains/Covers	84%	*	85%	95%	100%	82%	*	100%	*	*	*	*	84%	*
None	Commercial Refrigeration: Cases: Display Cool Door:Door Gaskets Missing / Damaged	98%	98%	96%	100%	97%	98%	*	*	*	*	100%	100%	98%	100%
Partially	Commercial Refrigeration: Cases: Display Cool Door:Door Gaskets Missing / Damaged	1%	<1%	3%	<1%	3%	<1%	*	*	*	*	<1%	<1%	<1%	<1%
Ec (Electronically Commutated)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	4%	*	*	<1%	*	<1%	*	<1%	*	*	*	*	<1%	*
Sp (Shaded Pole)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	96%	*	*	100%	*	100%	*	100%	*	*	*	*	100%	*
0-2.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	12%	8%	20%	9%	12%	12%	*	*	*	*	<1%	11%	12%	<1%
3-3.9 Ft.	Commercial Refrigeration_Cases_Equipment Type: Cooler Display: Linear Feet of Doors or Opening	8%	9%	4%	12%	7%	8%	*	3%	*	*	<1%	12%	7%	<1%
4-5.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	29%	37%	21%	24%	39%	24%	*	*	*	*	*	40%	22%	100%
6-12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	34%	34%	38%	31%	37%	33%	*	*	*	*	*	33%	36%	<1%
Over 12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	17%	12%	17%	25%	4%	23%	*	<1%	*	*	<1%	4%	23%	<1%
Linear Feet of Doors or Opening	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	10.54	10.27	10.07	11.56	5.93	12.59	21.00	4.96	12.00	*	5.25	5.12	13.58	5.00
LED	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	48%	64%	42%	23%	40%	51%	*	*	*	*	<1%	42%	54%	<1%
No Lighting Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	15%	11%	19%	16%	24%	11%	*	12%	*	*	*	19%	12%	100%
Other	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	3%	1%	<1%	9%	<1%	3%	*	<1%	*	*	<1%	9%	<1%	<1%
T12	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	8%	10%	9%	4%	11%	7%	*	*	*	*	<1%	6%	8%	<1%
T8	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	27%	14%	31%	49%	25%	28%	*	*	*	*	*	24%	26%	<1%
Door-Activated	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	5%	1%	8%	11%	<1%	7%	*	<1%	*	*	*	11%	4%	*
Manual Switch	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	42%	*	59%	*	*	45%	*	*	*	*	*	25%	51%	*
No Control Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	51%	*	33%	*	*	46%	*	*	*	*	*	*	44%	*
Other	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	<1%	<1%	<1%	2%	2%	<1%	*	<1%	*	*	*	2%	<1%	*
Schedule/Timer	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	1%	<1%	1%	5%	<1%	2%	*	<1%	*	*	*	1%	2%	*

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

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Refrigeration Characteristics - Non-Display Case Coolers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Anti-Sweat Door Heater Controls	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	7%	5%	1%	16%	5%	8%	*	*	2%	<1%	1%	5%	12%	<1%
Door Gaskets Missing or Damaged	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	<1%	1%	<1%	1%	<1%	<1%	2%	<1%	<1%	<1%	<1%	1%	<1%
Replaced Fan Motor	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	3%	3%	1%	8%	3%	3%	<1%	*	<1%	<1%	<1%	3%	2%	*
0-1.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	7%	1%	6%	23%	12%	4%	1%	*	<1%	<1%	2%	8%	4%	*
2-8.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	42%	42%	38%	50%	43%	42%	81%	*	*	*	*	42%	37%	<1%
9-20.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	46%	54%	49%	25%	42%	51%	12%	*	*	*	*	48%	50%	*
21,30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	3%	2%	5%	<1%	2%	4%	6%	<1%	2%	<1%	2%	2%	8%	<1%
Over 30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	1%	<1%	2%	2%	2%	<1%	<1%	11%	<1%	<1%	<1%	<1%	2%	<1%
Age (Years)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	12.40	11.38	15.89	8.94	13.09	11.95	12.00	17.72	19.00	*	25.00	9.24	13.68	14.00
Both	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%
Neither	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%
Night Covers	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Strip Curtain	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%
None	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	99%	99%	98%	100%	97%	100%	100%	90%	100%	100%	98%	99%	99%	100%
Partially	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	1%	1%	2%	<1%	2%	<1%	<1%	8%	<1%	<1%	2%	1%	<1%	<1%
Ec (Electronically Commutated)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	72%	*	74%	*	74%	70%	*	*	100%	*	100%	69%	*	100%
Psc (Permanent Split Capacitor)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	12%	<1%	17%	<1%	13%	11%	<1%	*	<1%	*	<1%	21%	<1%	<1%
Sp (Shaded Pole)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	15%	*	9%	*	13%	19%	*	*	<1%	*	<1%	9%	*	<1%
0-2.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	39%	43%	38%	34%	37%	40%	*	30%	31%	60%	*	29%	46%	*
3-3.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	12%	9%	17%	7%	13%	11%	7%	10%	14%	24%	3%	13%	9%	<1%
4-5.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	28%	33%	26%	25%	29%	27%	17%	34%	*	*	18%	32%	24%	*
6-12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	16%	15%	15%	19%	18%	15%	20%	24%	16%	8%	5%	17%	18%	*
Over 12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	6%	1%	3%	16%	3%	8%	9%	2%	5%	<1%	<1%	8%	4%	<1%
Linear Feet of Doors or Opening	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	10.54	10.27	10.07	11.56	5.93	12.59	21.00	4.96	12.00	*	5.25	5.12	13.58	5.00
LED	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	27%	26%	23%	35%	35%	22%	*	38%	*	12%	4%	24%	47%	*
No Lighting Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	47%	43%	58%	40%	42%	52%	7%	35%	49%	*	*	53%	19%	*
Other	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	13%	21%	8%	10%	9%	17%	*	3%	19%	*	6%	14%	6%	*
T12	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	2%	2%	1%	1%	3%	1%	<1%	6%	<1%	<1%	<1%	1%	5%	<1%
T5	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	1%	<1%	1%	<1%	<1%	1%	<1%	1%	<1%	<1%	<1%	1%	1%	<1%
T8	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	10%	8%	9%	13%	12%	8%	6%	17%	1%	6%	4%	8%	23%	<1%
Door-Activated	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	49%	60%	45%	39%	43%	54%	*	5%	*	*	*	57%	11%	*
Manual Switch	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	20%	15%	27%	21%	24%	17%	*	*	2%	<1%	*	12%	34%	*
Motion Sensor	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	<1%	<1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%
No Control Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	29%	25%	24%	40%	32%	27%	1%	*	*	*	7%	27%	55%	<1%
Other	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	<1%	<1%	1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Schedule/Timer	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	1%	<1%	4%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Refrigeration Characteristics - Display Case Freezers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Anti-Sweat Door Heater Controls	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	*	*	<1%	*	*	*	*	*	*	*	*	*	*	*
Yes	Commercial Refrigeration: Cases: Display Freezer Door:Door Gaskets Missing / Damaged	<1%	<1%	1%	<1%	1%	<1%	<1%	2%	<1%	<1%	<1%	<1%	1%	<1%
Replaced Fan Motor	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	19%	*	<1%	<1%	<1%	*	*	<1%	*	*	*	<1%	*	*
0-1.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	4%	<1%	<1%	*	<1%	5%	*	<1%	*	*	*	*	<1%	*
2-8.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	*	*	*	*	*	*	*	<1%	*	*	*	*	3%	*
9-20.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	*	*	*	*	*	*	*	100%	*	*	*	*	*	*
21-30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	5%	<1%	*	<1%	<1%	6%	*	<1%	*	*	*	<1%	8%	*
Age (Years)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	12.40	11.38	15.89	8.94	13.09	11.95	12.00	17.72	19.00	*	25.00	9.24	13.68	14.00
Night Covers	Commercial Refrigeration: Cases: Display Freezer no Door: Curtains/Covers	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%
Strip Curtain	Commercial Refrigeration: Cases: Display Freezer no Door: Curtains/Covers	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%
Both	Commercial Refrigeration: Cases: Display Freezer no Door: Curtains/Covers	<1%	<1%	1%	<1%	1%	<1%	<1%	9%	<1%	<1%	<1%	<1%	<1%	<1%
Neither	Commercial Refrigeration: Cases: Display Freezer no Door: Curtains/Covers	99%	99%	99%	100%	99%	99%	100%	91%	100%	100%	100%	99%	99%	100%
Partially	Commercial Refrigeration: Cases: Display Freezer Door:Door Gaskets Missing / Damaged	1%	1%	2%	<1%	2%	<1%	<1%	8%	<1%	<1%	2%	1%	<1%	<1%
None	Commercial Refrigeration: Cases: Display Freezer Door:Door Gaskets Missing / Damaged	99%	99%	98%	100%	97%	100%	100%	90%	100%	100%	98%	99%	99%	100%
Sp (Shaded Pole)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	100%	*	100%	100%	*	100%	*	*	*	*	*	*	100%	*
0-2.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	12%	5%	*	<1%	*	11%	*	<1%	*	*	*	7%	13%	*
3-3.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	4%	<1%	2%	*	<1%	5%	*	<1%	*	*	*	*	3%	*
4-5.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	19%	*	11%	*	*	18%	*	*	*	*	*	*	14%	*
6-12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	40%	*	*	*	*	38%	*	*	*	*	*	*	*	*
Over 12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	25%	*	*	*	<1%	28%	*	<1%	*	*	*	*	28%	*
Linear Feet of Doors or Opening	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	10.54	10.27	10.07	11.56	5.93	12.59	21.00	4.96	12.00	*	5.25	5.12	13.58	5.00
LED	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	44%	*	*	*	<1%	48%	*	*	*	*	*	*	58%	*
No Lighting Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	37%	*	*	*	*	35%	*	<1%	*	*	*	*	19%	*
T12	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	8%	11%	<1%	*	<1%	9%	*	<1%	*	*	*	*	12%	*
T8	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	11%	6%	8%	*	*	8%	*	*	*	*	*	*	4%	12%
Door-Activated	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	5%	<1%	*	<1%	<1%	5%	*	<1%	*	*	*	*	6%	*
Manual Switch	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	*	*	*	*	*	*	*	<1%	*	*	*	*	*	*
No Control Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	*	*	*	*	*	*	*	100%	*	*	*	*	*	*
Schedule/Timer	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	2%	<1%	7%	<1%	*	<1%	*	<1%	*	*	*	*	*	<1%

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Refrigeration Characteristics - Non-Display Case Freezers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Anti-Sweat Door Heater Controls	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	1%	<1%	2%	1%	2%	<1%	<1%	<1%	*	<1%	<1%	1%	<1%	*
Door Gaskets Missing or Damaged	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	1%	<1%	3%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%
Replaced Fan Motor	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	4%	2%	<1%	*	<1%	7%	<1%	<1%	<1%	<1%	<1%	6%	4%	*
0-1.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	6%	3%	5%	*	8%	4%	*	*	<1%	*	13%	3%	1%	100%
2-8.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	44%	50%	26%	*	30%	57%	*	*	*	*	*	49%	42%	<1%
9-20.9 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	42%	42%	51%	*	52%	33%	*	*	*	*	*	40%	49%	<1%
21-30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	7%	4%	13%	<1%	9%	5%	4%	12%	<1%	*	<1%	7%	8%	<1%
Over 30 Years	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	1%	<1%	4%	<1%	2%	1%	<1%	12%	<1%	*	6%	1%	<1%	<1%
Age (Years)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Age	12.40	11.38	15.89	8.94	13.09	11.95	12.00	17.72	19.00	*	25.00	9.24	13.68	14.00
Both	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	<1%	1%	<1%	1%	<1%	<1%	9%	<1%	<1%	<1%	<1%	<1%	<1%
Neither	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	99%	99%	99%	100%	99%	99%	100%	91%	100%	100%	100%	99%	99%	100%
Night Covers	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%
Strip Curtain	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%
None	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	97%	99%	93%	100%	97%	98%	100%	*	100%	100%	100%	97%	97%	100%
Partially	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	2%	1%	4%	<1%	2%	1%	<1%	*	<1%	<1%	<1%	1%	3%	<1%
Ec (Electronically Commutated)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	*	<1%	*	*	*	*	*	*	*	*	*	*	*	*
Sp (Shaded Pole)	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Characteristics	*	100%	*	*	*	*	*	*	*	*	*	*	*	*
0-2.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	22%	24%	20%	21%	25%	20%	*	*	2%	*	*	23%	19%	*
3-3.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	17%	10%	22%	24%	18%	16%	2%	<1%	*	<1%	*	20%	15%	<1%
4-5.9 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	37%	40%	29%	39%	39%	35%	*	*	*	<1%	*	31%	36%	39%
6-12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	21%	25%	25%	9%	17%	25%	*	*	9%	*	*	13%	18%	24%	<1%
Over 12 Ft.	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	3%	1%	4%	7%	2%	4%	*	10%	2%	<1%	*	<1%	3%	3%	<1%
Linear Feet of Doors or Opening	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Linear Feet of Doors or Opening	10.54	10.27	10.07	11.56	5.93	12.59	21.00	4.96	12.00	*	5.25	5.12	13.58	5.00
LED	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	13%	12%	14%	13%	13%	12%	*	9%	*	*	*	<1%	9%	17%	*
No Lighting Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	73%	74%	69%	74%	78%	68%	*	*	*	*	*	89%	77%	58%	*
Other	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	11%	12%	9%	11%	8%	14%	*	*	7%	*	*	8%	12%	11%	<1%
T12	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	1%	1%	1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	5%	<1%
T8	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting	3%	1%	7%	1%	1%	4%	<1%	3%	<1%	<1%	<1%	4%	1%	10%	<1%
Door-Activated	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	64%	*	56%	*	55%	71%	*	*	100%	*	100%	72%	*	100%
Manual Switch	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	13%	<1%	37%	3%	17%	10%	<1%	<1%	<1%	<1%	<1%	14%	*	<1%
No Control Present	Commercial Refrigeration: Cases: Equipment Type: Cooler Display: Lighting Controls	23%	*	7%	*	29%	19%	*	*	<1%	*	<1%	14%	*	<1%

Refrigeration Characteristics - Systems

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
0-3000 BTU/hr	Commercial Refrigeration: System Capacity	1%	<1%	1%	<1%	1%	1%	<1%	<1%	<1%	*	<1%	1%	<1%	*
3001-6000 BTU/hr	Commercial Refrigeration: System Capacity	26%	*	24%	<1%	*	17%	*	6%	*	*	<1%	36%	9%	*
6001-9000 BTU/hr	Commercial Refrigeration: System Capacity	17%	*	21%	<1%	7%	25%	<1%	*	<1%	*	*	18%	4%	*
9001-12000 BTU/hr	Commercial Refrigeration: System Capacity	19%	22%	21%	<1%	24%	16%	*	*	<1%	*	*	14%	9%	*
12001-18000 BTU/hr	Commercial Refrigeration: System Capacity	18%	*	17%	*	10%	24%	*	*	*	*	*	<1%	16%	*	*
18001-36000 BTU/hr	Commercial Refrigeration: System Capacity	10%	8%	8%	*	9%	11%	*	<1%	*	*	*	<1%	8%	*	*
Over 36000 BTU/hr	Commercial Refrigeration: System Capacity	9%	3%	7%	*	11%	7%	<1%	*	<1%	*	*	<1%	7%	*	*
Ammonia Refrigerant	Ammonia Refrigerant	2%	1%	3%	1%	1%	2%	2%	2%	<1%	<1%	<1%	1%	2%	7%
Freon Refrigerant	Freon Refrigerant	98%	99%	97%	99%	98%	98%	98%	98%	100%	98%	98%	98%	99%	96%
Other Refrigerant	Other Refrigerant	1%	1%	1%	<1%	1%	1%	1%	<1%	<1%	2%	2%	1%	<1%	<1%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Refrigeration - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Commercial Refrigeration	27%	28%	29%	24%	19%	61%	6%	21%	24%	12%	39%	100%	93%	16%
Refrigerated Cases	25%	26%	27%	23%	18%	57%	6%	18%	21%	12%	34%	96%	93%	8%
Commercial Refrigeration: Cases-Equipment Type: Cooler Display	7%	8%	6%	8%	4%	21%	<1%	3%	1%	<1%	2%	32%	61%	1%
Commercial Refrigeration: Cases-Equipment Type: Cooler Non-Display	23%	23%	25%	21%	17%	50%	6%	17%	20%	12%	30%	90%	78%	8%
Commercial Refrigeration: Cases-Equipment Type: Freezer Display	3%	3%	1%	3%	<1%	12%	<1%	<1%	<1%	<1%	<1%	6%	39%	<1%
Commercial Refrigeration: Cases-Equipment Type: Freezer Non-Display	16%	16%	16%	14%	10%	39%	5%	4%	14%	10%	25%	71%	62%	3%
Walk-In Refrigeration	16%	14%	19%	15%	9%	44%	2%	6%	9%	4%	27%	79%	49%	11%
Commercial Refrigeration: Walk-Ins: Walk In Type: Cooler	15%	14%	18%	13%	8%	42%	2%	6%	8%	4%	23%	74%	49%	10%
Commercial Refrigeration: Walk-Ins: Walk In Type: Freezer	7%	5%	9%	7%	2%	27%	<1%	1%	9%	2%	14%	35%	24%	9%
Ice Machines	13%	12%	15%	12%	8%	35%	3%	4%	12%	7%	37%	72%	15%	5%
Refrigerated Vending Machines	8%	6%	12%	9%	5%	24%	6%	9%	20%	7%	17%	6%	9%	8%
Residential-Style Refrigeration	59%	58%	65%	54%	60%	53%	69%	53%	71%	76%	76%	32%	37%	48%
Refrigeration-Part of Larger System	13%	13%	15%	11%	8%	36%	2%	5%	12%	5%	16%	59%	51%	9%
Refrigeration-Standalone	23%	24%	25%	20%	17%	51%	7%	15%	30%	12%	33%	88%	69%	11%

Refrigeration - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Commercial Refrigeration: Cases	1.7	1.5	2.0	1.5	0.8	5.2	0.4	0.4	1.2	1.2	4.3	7.1	7.7	0.2
Commercial Refrigeration: Cases-Equipment Type: Cooler Display	0.2	0.2	0.3	0.2	0.1	0.9	<0.1	0.1	<0.1	<0.1	0.1	0.6	2.8	<0.1
Commercial Refrigeration: Cases: Equipment Type: Cooler Non-Display	1.0	0.8	1.3	0.9	0.5	2.9	0.2	0.3	0.9	0.9	3.5	4.3	2.4	0.2
Commercial Refrigeration: Cases: Equipment Type: Freezer Display	0.1	0.1	0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.8	<0.1
Commercial Refrigeration: Cases: Equipment Type: Freezer Non-Display	0.4	0.4	0.4	0.4	0.2	1.2	0.1	0.1	0.3	0.3	0.8	2.0	1.8	<0.1
Commercial Refrigeration: Walk-Ins	0.3	0.3	0.3	0.3	0.1	1.0	<0.1	0.1	0.2	0.1	0.4	1.3	1.2	0.4
Commercial Refrigeration: Walk-Ins: Walk In Type: Cooler	0.2	0.2	0.2	0.2	0.1	0.7	<0.1	0.1	0.1	0.1	0.3	0.9	0.8	0.3
Commercial Refrigeration: Walk-Ins: Walk In Type: Freezer	0.1	0.1	0.1	0.1	<0.1	0.3	<0.1	<0.1	0.1	<0.1	0.1	0.4	0.3	0.1
Ice Machines	0.2	0.1	0.2	0.2	0.1	0.5	0.1	<0.1	0.1	0.2	0.6	0.8	0.1	<0.1
Refrigerated Vending Machines	0.1	0.1	0.2	0.2	0.1	0.4	0.1	0.1	0.6	0.2	0.2	0.1	0.2	0.1
Residential-Style Refrigeration	1.6	1.6	1.7	1.3	1.1	3.9	1.6	0.8	3.7	2.3	8.6	0.8	0.8	0.7

Refrigeration - Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Commercial Refrigeration: Cases	6.6	6.0	7.6	6.5	4.6	9.3	6.1	2.4	5.8	9.5	12.8	7.4	8.3	2.7
Commercial Refrigeration: Cases: Equipment Type: Cooler Display	3.2	2.9	4.2	2.8	2.1	4.1	5.2	2.3	4.8	1†	2.3	2.0	4.5	1.2
Commercial Refrigeration: Cases: Equipment Type: Cooler Non-Display	4.1	3.5	5.0	4.1	3.0	5.7	3.9	1.8	4.4	7.3	11.6	4.8	3.0	2.1
Commercial Refrigeration: Cases: Equipment Type: Freezer Display	2.3	2.2	3.9	1.5	1.3	2.4	1.2	1.1	1†	1†	1†	2.6	2.1	1†
Commercial Refrigeration: Cases: Equipment Type: Freezer Non-Display	2.7	2.7	2.8	2.5	2.3	3.1	2.4	1.7	2.0	2.8	3.1	2.8	2.9	1.2
Commercial Refrigeration: Walk-Ins	1.9	2.0	1.9	1.8	1.4	2.3	1.6	1.8	2.1	2.4	1.5	1.7	2.4	3.7
Commercial Refrigeration: Walk-Ins: Walk In Type: Cooler	1.4	1.5	1.4	1.4	1.2	1.6	1.4	1.6	1.2	1.5	1.2	1.3	1.7	2.6
Commercial Refrigeration: Walk-Ins: Walk In Type: Freezer	1.2	1.2	1.2	1.2	1.0	1.3	1.6	1.5	1.1	2.0	1.0	1.1	1.4	1.6
Ice Machines	1.3	1.0	1.4	1.4	1.0	1.4	1.7	1†	1†	2.2	1.5	1.1	1†	1†
Refrigerated Vending Machines	1.6	1.6	1.3	2.1	1.3	1.9	1.1	1.3	3.0	2.6	1.2	1.6	2.4	1.1
Residential-Style Refrigeration	2.7	2.8	2.7	2.4	1.7	7.3	2.3	1.5	5.2	3.0	11.3	2.4	2.0	1.5

"†"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Water Heaters Characteristics - Water Heaters

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Before 1990	Water Heating: Age	2%	2%	2%	<1%	1%	2%	1%	2%	3%	1%	4%	<1%	3%	<1%
1990-1999	Water Heating: Age	9%	7%	9%	11%	9%	8%	10%	10%	14%	15%	4%	2%	7%	2%
2000-2004	Water Heating: Age	6%	5%	10%	2%	5%	7%	5%	5%	8%	6%	2%	10%	4%	15%
2005-2009	Water Heating: Age	24%	33%	22%	18%	24%	24%	21%	27%	21%	16%	48%	16%	22%	*
2010-2014	Water Heating: Age	36%	31%	33%	46%	35%	39%	44%	28%	31%	40%	30%	34%	49%	*
2015 or later	Water Heating: Age	23%	23%	23%	23%	25%	19%	19%	29%	23%	23%	12%	37%	15%	*
Average Age (Years)	Water Heating: Age	8.50	8.82	9.04	7.49	8.48	8.53	8.82	8.18	9.49	8.58	9.65	6.35	9.74	8.53
No	Water Heating: Drain Water Heat Recovery	97%	99%	98%	93%	97%	96%	100%	93%	94%	94%	98%	99%	98%	96%
Yes	Water Heating: Drain Water Heat Recovery	3%	1%	2%	7%	3%	4%	<1%	7%	6%	6%	2%	1%	2%	4%
No	Water Heating: Pipe Insulation	74%	75%	84%	59%	80%	62%	62%	82%	88%	70%	86%	79%	83%	69%
Yes	Water Heating: Pipe Insulation	26%	25%	16%	41%	20%	38%	38%	18%	12%	30%	14%	21%	17%	31%
Before 1990	Water Heating: Tank: Age	1%	1%	3%	1%	1%	1%	1%	2%	3%	1%	3%	<1%	<1%	<1%
1990-1999	Water Heating: Tank: Age	9%	5%	11%	11%	10%	7%	10%	13%	16%	16%	5%	3%	8%	<1%
2000-2004	Water Heating: Tank: Age	6%	5%	11%	2%	5%	8%	4%	6%	8%	6%	3%	10%	4%	15%
2005-2009	Water Heating: Tank: Age	26%	36%	25%	17%	26%	26%	23%	24%	25%	15%	*	17%	25%	*
2010-2014	Water Heating: Tank: Age	37%	32%	30%	49%	34%	41%	44%	24%	38%	39%	25%	34%	56%	*
2015 or later	Water Heating: Tank: Age	21%	21%	20%	20%	23%	17%	17%	31%	10%	22%	5%	35%	8%	*
Average Age (Years)	Water Heating: Tank: Age	8.66	8.40	9.74	7.69	8.78	8.47	8.87	8.57	10.43	8.75	10.24	6.63	8.49	8.32
District Steam	Water Heating: Tank: Type: Has Tank: Fuel	<1%	1%	<1%	<1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Electric	Water Heating: Tank: Type: Has Tank: Fuel	46%	45%	42%	50%	51%	35%	59%	53%	31%	30%	10%	26%	60%	*
Gas	Water Heating: Tank: Type: Has Tank: Fuel	47%	47%	50%	42%	42%	55%	35%	38%	59%	57%	67%	71%	37%	*
None	Water Heating: Tank: Type: Has Tank: Fuel	1%	1%	<1%	1%	1%	1%	<1%	<1%	<1%	3%	<1%	<1%	<1%	4%
Oil	Water Heating: Tank: Type: Has Tank: Fuel	3%	3%	3%	4%	3%	3%	3%	3%	3%	8%	10%	<1%	<1%	<1%
Other	Water Heating: Tank: Type: Has Tank: Fuel	1%	1%	<1%	1%	<1%	1%	<1%	3%	<1%	<1%	<1%	<1%	1%	<1%
Propane	Water Heating: Tank: Type: Has Tank: Fuel	3%	2%	4%	2%	3%	3%	1%	2%	8%	3%	10%	3%	2%	<1%
Solar	Water Heating: Tank: Type: Has Tank: Fuel	<1%	<1%	1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	3%	<1%	<1%	<1%
No	Water Heating: Tank: Type: Has Tank: Insulation Blanket	71%	63%	96%	47%	73%	66%	59%	78%	91%	71%	90%	76%	78%	*
Yes	Water Heating: Tank: Type: Has Tank: Insulation Blanket	29%	37%	4%	53%	27%	34%	41%	22%	9%	29%	10%	24%	22%	*
No	Water Heating: Tank: Type: Has Tank: Unconditioned Space: Insulation Blanket	70%	56%	95%	45%	71%	69%	62%	78%	92%	89%	*	74%	71%	*
Yes	Water Heating: Tank: Type: Has Tank: Unconditioned Space: Insulation Blanket	30%	44%	5%	55%	29%	31%	38%	22%	8%	11%	*	26%	29%	*

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Water Heaters Characteristics - Water Heaters Continued

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Conditioned Space	Water Heating: Tank: Type: Has Tank: Location	53%	39%	46%	74%	51%	56%	59%	54%	41%	64%	55%	44%	42%	*
Unconditioned Space	Water Heating: Tank: Type: Has Tank: Location	47%	61%	53%	26%	49%	44%	41%	46%	58%	35%	45%	55%	58%	*
Semi-enclosed Space	Water Heating: Tank: Type: Has Tank: Location	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	1%	<1%	<1%
Outside The Building	Water Heating: Tank: Type: Has Tank: Location	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	1%	<1%	<1%	<1%	<1%	<1%
No	Water Heating: Tank: Type: Has Tank: Recirculating System	90%	95%	94%	80%	96%	78%	94%	91%	91%	76%	*	95%	99%	100%
Yes	Water Heating: Tank: Type: Has Tank: Recirculating System	10%	5%	6%	20%	4%	22%	6%	9%	9%	24%	*	5%	1%	<1%
Less than 10 Gallons	Water Heating: Tank: Type: Has Tank: Size (Gallons)	16%	19%	6%	25%	14%	20%	25%	19%	7%	6%	<1%	1%	18%	18%
10-39 Gallons	Water Heating: Tank: Type: Has Tank: Size (Gallons)	20%	16%	24%	19%	25%	10%	24%	20%	25%	23%	7%	3%	18%	30%
40-99 Gallons	Water Heating: Tank: Type: Has Tank: Size (Gallons)	54%	51%	64%	44%	56%	49%	44%	55%	57%	53%	*	88%	62%	*
100-139 Gallons	Water Heating: Tank: Type: Has Tank: Size (Gallons)	8%	12%	5%	6%	4%	15%	7%	4%	6%	8%	33%	5%	2%	14%
More than 140 Gallons	Water Heating: Tank: Type: Has Tank: Size (Gallons)	3%	2%	1%	6%	<1%	7%	1%	2%	5%	10%	10%	3%	<1%	<1%
Average Size (Gallons)	Water Heating: Tank: Type: Has Tank: Size (Gallons)	47.15	51.30	42.68	48.44	38.17	65.40	37.11	39.94	60.31	63.30	88.21	58.57	37.99	39.41
High (136-150°F)	Water Heating: Tank: Type: Has Tank: Temperature Setting	9%	7%	11%	8%	5%	15%	6%	5%	1%	19%	17%	4%	<1%	
Low (90-125°F)	Water Heating: Tank: Type: Has Tank: Temperature Setting	61%	60%	63%	61%	64%	56%	72%	61%	55%	*	39%	*	*	
Medium (125-135°F)	Water Heating: Tank: Type: Has Tank: Temperature Setting	30%	33%	26%	31%	31%	29%	22%	34%	43%	33%	*	44%	37%	*
Before 1990	Water Heating: Tankless: Age	2%	11%	<1%	<1%	1%	5%	<1%	<1%	<1%	<1%	8%	<1%	*	*
1990-1999	Water Heating: Tankless: Age	5%	*	<1%	3%	<1%	20%	*	<1%	*	<1%	<1%	<1%	<1%	*
2000-2004	Water Heating: Tankless: Age	3%	3%	5%	<1%	4%	<1%	*	<1%	*	<1%	<1%	<1%	<1%	*
2005-2009	Water Heating: Tankless: Age	14%	<1%	11%	*	16%	9%	<1%	*	3%	*	*	7%	<1%	*
2010-2014	Water Heating: Tankless: Age	35%	*	*	*	38%	26%	*	*	*	*	*	*	<1%	*
2015 or later	Water Heating: Tankless: Age	40%	*	39%	*	40%	*	*	*	*	*	*	*	*	*
Average Age (Years)	Water Heating: Tankless: Age	7.23	12.92	5.64	5.74	6.55	9.15	8.29	6.52	5.25	5.75	7.93	3.37	19.43	20.00
Bathrooms	Water Heating: Tankless: Type: Tankless: Location	44%	*	40%	*	43%	*	*	*	*	<1%	6%	<1%	100%	*
Kitchen	Water Heating: Tankless: Type: Tankless: Location	9%	*	10%	8%	6%	19%	*	<1%	*	<1%	3%	*	<1%	<1%
Other	Water Heating: Tankless: Type: Tankless: Location	47%	*	50%	*	52%	*	*	*	*	100%	91%	*	<1%	*

Water Heaters Characteristics - Water Fixtures

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
No	Water Fixtures: Low Flow (<2.2 GPM)	34%	24%	55%	17%	40%	30%	20%	36%	50%	49%	28%	43%	39%	27%
Yes	Water Fixtures: Low Flow (<2.2 GPM)	66%	76%	45%	83%	60%	70%	80%	64%	50%	51%	72%	57%	61%	73%
Average GPM	Water Fixtures: Low Flow (<2.2 GPM)	2.49	1.70	1.97	6.34	3.91	1.76	1.57	1.92	1.88	2.03	1.90	2.18	2.21	29.99
No	Water Fixtures: Low Flow Aerator (<2.2 GPM)	33%	21%	61%	14%	40%	29%	21%	38%	51%	54%	12%	44%	37%	21%
Yes	Water Fixtures: Low Flow Aerator (<2.2 GPM)	67%	79%	39%	86%	60%	71%	79%	62%	49%	46%	88%	56%	63%	79%
No	Water Fixtures: Low Flow Showerhead (<2.5 GPM)	34%	*	23%	*	*	34%	12%	*	*	*	*	<1%	*	*
Yes	Water Fixtures: Low Flow Showerhead (<2.5 GPM)	66%	*	77%	*	*	66%	88%	*	*	*	*	100%	*	*

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Water Heaters Characteristics - Washer and Dryer

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Before 2000	Laundry: Clothes Dryer: Age (Years)	56%	<1%	33%	*	63%	2%	*	*	<1%	<1%	<1%	<1%	*	*
2000-2009	Laundry: Clothes Dryer: Age (Years)	22%	91%	27%	4%	15%	75%	*	15%	*	*	*	*	*	*
2010-2014	Laundry: Clothes Dryer: Age (Years)	7%	4%	12%	4%	7%	11%	<1%	4%	*	*	*	<1%	*	*
2015 or Later	Laundry: Clothes Dryer: Age (Years)	15%	6%	28%	1%	15%	12%	*	*	<1%	*	5%	*	*	*
Average Age (Years)	Laundry: Clothes Dryer: Age (Years)	14.73	9.71	11.92	18.87	15.48	9.49	13.67	15.83	7.54	9.01	8.58	7.70	*	10.00
0-19 Cycles	Laundry: Clothes Dryer: Cycles Per Month	9%	3%	22%	5%	7%	22%	*	2%	*	*	*	*	*	*
20-49 Cycles	Laundry: Clothes Dryer: Cycles Per Month	13%	*	14%	3%	8%	*	*	7%	<1%	<1%	5%	*	*	*
50-99 Cycles	Laundry: Clothes Dryer: Cycles Per Month	5%	<1%	7%	6%	4%	7%	1%	2%	*	*	*	*	*	<1%
100-199 Cycles	Laundry: Clothes Dryer: Cycles Per Month	70%	*	*	*	80%	3%	*	*	<1%	<1%	*	<1%	*	<1%
200+ Cycles	Laundry: Clothes Dryer: Cycles Per Month	4%	*	2%	1%	<1%	*	3%	4%	<1%	<1%	<1%	<1%	*	<1%
No	Laundry: Clothes Dryer: Energy Star	95%	96%	84%	100%	96%	92%	100%	97%	*	*	100%	*	*	*
Yes	Laundry: Clothes Dryer: Energy Star	5%	4%	16%	<1%	4%	8%	<1%	3%	*	*	<1%	*	*	*
Electricity	Laundry: Clothes Dryer: Fuel	18%	17%	23%	12%	11%	48%	*	6%	*	*	*	*	*	*
Natural Gas	Laundry: Clothes Dryer: Fuel	71%	83%	55%	88%	75%	52%	*	78%	*	*	*	*	*	*
Other	Laundry: Clothes Dryer: Fuel	11%	<1%	22%	<1%	13%	<1%	<1%	16%	<1%	<1%	<1%	*	*	<1%
0-3.9 Cu. Ft.	Laundry: Clothes Dryer: Size (ft³)	10%	*	6%	*	13%	3%	*	4%	*	*	*	<1%	*	*
4-7.9 Cu. Ft.	Laundry: Clothes Dryer: Size (ft³)	32%	*	33%	*	25%	*	*	*	*	*	*	*	*	*
8-14.9 Cu. Ft.	Laundry: Clothes Dryer: Size (ft³)	33%	*	32%	<1%	34%	33%	<1%	*	*	*	13%	*	*	*
15-29.9 Cu. Ft.	Laundry: Clothes Dryer: Size (ft³)	23%	<1%	30%	<1%	25%	17%	<1%	27%	<1%	*	10%	<1%	*	*
30+ Cu. Ft.	Laundry: Clothes Dryer: Size (ft³)	2%	<1%	<1%	*	3%	<1%	<1%	4%	<1%	<1%	<1%	<1%	*	*
Average Size (Cu. Ft.)	Laundry: Clothes Dryer: Size (ft³)	11.53	6.96	10.95	24.78	12.41	9.63	5.18	13.91	5.39	13.07	7.45	6.50	*	*
Commerical	Laundry: Clothes Dryer: Type	76%	*	79%	85%	77%	70%	*	93%	<1%	*	*	<1%	*	*
Commercial Front Loading	Laundry: Clothes Dryer: Type	75%	*	78%	85%	76%	70%	*	93%	<1%	*	*	<1%	*	*
Commercial Top Loading	Laundry: Clothes Dryer: Type	1%	<1%	2%	<1%	1%	<1%	<1%	1%	<1%	7%	<1%	<1%	*	<1%
Residential	Laundry: Clothes Dryer: Type	24%	*	21%	15%	23%	30%	*	7%	100%	*	*	100%	*	*
Residential Front Loading	Laundry: Clothes Dryer: Type	23%	*	19%	13%	22%	27%	*	6%	*	*	27%	*	*	*
Residential Top Loading	Laundry: Clothes Dryer: Type	1%	<1%	1%	2%	1%	3%	<1%	1%	*	<1%	2%	*	*	<1%
Before 2000	Laundry: Clothes Washer: Age	42%	<1%	37%	*	*	2%	*	*	<1%	<1%	<1%	<1%	*	*
2000-2009	Laundry: Clothes Washer: Age	43%	95%	39%	*	28%	82%	*	*	*	*	*	*	*	*
2010-2014	Laundry: Clothes Washer: Age	7%	3%	10%	6%	7%	6%	<1%	3%	*	*	*	*	*	*
2015 or Later	Laundry: Clothes Washer: Age	8%	2%	15%	2%	7%	10%	*	6%	*	*	9%	*	*	*
Average Age (Years)	Laundry: Clothes Washer: Age	13.75	9.79	12.87	18.05	15.41	9.41	17.62	14.74	8.43	5.99	8.81	8.55	*	10.00

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Water Heaters Characteristics - Washer and Dryer Continued

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
0-19 Cycles	Laundry: Clothes Washer: Cycles Per Month	11%	3%	25%	7%	9%	23%	*	3%	*	*	*	*	*	*
20-49 Cycles	Laundry: Clothes Washer: Cycles Per Month	15%	*	19%	3%	10%	*	*	9%	<1%	<1%	5%	*	*	*
50-99 Cycles	Laundry: Clothes Washer: Cycles Per Month	7%	<1%	9%	9%	6%	12%	1%	5%	*	*	*	*	*	<1%
100-199 Cycles	Laundry: Clothes Washer: Cycles Per Month	62%	*	44%	*	72%	3%	*	*	<1%	<1%	*	<1%	*	<1%
200+ Cycles	Laundry: Clothes Washer: Cycles Per Month	6%	*	3%	5%	2%	*	3%	8%	<1%	<1%	<1%	<1%	*	<1%
No	Laundry: Clothes Washer: Energy Star	85%	*	62%	99%	85%	83%	*	90%	*	*	92%	*	*	*
Yes	Laundry: Clothes Washer: Energy Star	15%	*	38%	1%	15%	17%	*	10%	*	*	8%	*	*	*
No	Laundry: Clothes Washer: Ozone Laundry	100%	99%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	*	100%
Yes	Laundry: Clothes Washer: Ozone Laundry	<1%	1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
0-3.9 Cu. Ft.	Laundry: Clothes Washer: Size (ft³)	47%	78%	25%	*	34%	59%	*	*	*	*	*	*	*	*
4-7.9 Cu. Ft.	Laundry: Clothes Washer: Size (ft³)	33%	20%	45%	*	38%	28%	*	*	*	*	5%	*	*	*
8-14.9 Cu. Ft.	Laundry: Clothes Washer: Size (ft³)	13%	<1%	23%	*	19%	7%	6%	8%	<1%	*	13%	*	*	*
15-29.9 Cu. Ft.	Laundry: Clothes Washer: Size (ft³)	4%	2%	5%	*	3%	4%	<1%	2%	<1%	*	10%	<1%	*	*
30+ Cu. Ft.	Laundry: Clothes Washer: Size (ft³)	3%	<1%	1%	*	5%	1%	<1%	5%	<1%	<1%	<1%	<1%	*	*
Average Size (Cu. Ft.)	Laundry: Clothes Washer: Size (ft³)	6.39	3.61	7.06	17.03	7.39	5.41	4.24	6.25	4.90	9.55	6.69	4.49	*	*
Commercial	Laundry: Clothes Washer: Type	74%	*	75%	*	70%	83%	*	88%	<1%	*	*	<1%	*	*
Commercial Front Loading	Laundry: Clothes Washer: Type	71%	*	70%	*	68%	79%	*	87%	<1%	*	*	<1%	*	*
Commercial Top Loading	Laundry: Clothes Washer: Type	3%	1%	5%	<1%	2%	4%	<1%	1%	<1%	*	19%	<1%	*	<1%
Residential	Laundry: Clothes Washer: Type	26%	*	25%	*	30%	17%	*	12%	100%	*	*	100%	*	*
Residential Front Loading	Laundry: Clothes Washer: Type	8%	5%	10%	8%	9%	6%	11%	3%	*	*	18%	*	*	<1%
Residential Top Loading	Laundry: Clothes Washer: Type	18%	*	15%	13%	21%	11%	*	9%	*	*	14%	*	*	*
No	Laundry: Clothes Washer: Xeros Beads	99%	100%	99%	97%	98%	100%	100%	100%	100%	100%	88%	*	*	100%
Yes	Laundry: Clothes Washer: Xeros Beads	1%	<1%	1%	3%	2%	<1%	<1%	<1%	<1%	<1%	12%	*	*	<1%

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Water Heating - Water Heaters - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Water Heater	81%	70%	89%	86%	79%	89%	77%	78%	91%	78%	92%	90%	84%	80%
Water Heater: Natural Gas	45%	39%	51%	46%	42%	56%	41%	42%	55%	46%	46%	65%	43%	34%
Water Heater: Electricity	41%	35%	44%	45%	41%	38%	41%	43%	39%	34%	35%	28%	47%	53%
Water Heater: Fuel Oil	3%	3%	2%	3%	3%	3%	3%	2%	5%	3%	8%	2%	2%	2%
Water Heater: District Steam	<1%	1%	<1%	<1%	<1%	1%	<1%	1%	1%	1%	1%	<1%	<1%	<1%
Water Heater: Propane	4%	1%	8%	4%	4%	6%	2%	1%	4%	3%	20%	11%	3%	3%
Water Heater: Solar	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Water Heater: Other Fuel Type	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	<1%
Water Heater: Storage With Dedicated Heater	67%	56%	78%	68%	65%	73%	64%	61%	76%	66%	76%	79%	69%	68%
Water Heater: Tankless	9%	7%	10%	11%	9%	10%	7%	11%	12%	6%	17%	10%	9%	8%
Water Heater: Indirect Storage	4%	5%	4%	5%	4%	5%	4%	4%	7%	4%	9%	4%	3%	4%
Water Heater: Heat Pump Water Heater	2%	3%	2%	2%	2%	4%	3%	1%	1%	3%	3%	3%	4%	1%
Water Heater: Other Type	4%	4%	3%	4%	3%	8%	1%	7%	8%	7%	<1%	3%	<1%	<1%
Water Heater: Dedicated Water Heating System	70%	54%	83%	78%	67%	84%	62%	69%	85%	62%	89%	86%	75%	77%
Water Heater: Shared Water Heating System	11%	16%	6%	8%	12%	6%	15%	9%	7%	15%	4%	4%	10%	4%

Water Heating - Water Heaters - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Any Water Heating Equipment	1.1	1.0	1.1	1.2	0.9	1.7	1.3	0.7	1.6	1.1	2.0	1.1	0.9	0.9
Water Heater: Storage With Dedicated Heater	0.9	0.7	0.9	1.1	0.7	1.4	1.0	0.5	1.2	1.0	1.3	1.0	0.8	0.8
Water Heater: Tankless	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.3	<0.1	0.4	0.1	0.1	0.1
Water Heater: Indirect Storage	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	0.1	0.1	0.2	<0.1	<0.1	<0.1
Water Heater: Heat Pump Water Heater	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Water Heater: Other Type	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Water Heating - Water Heaters - Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Any Water Heating	1.3	1.4	1.2	1.4	1.2	1.9	1.7	1†	1.7	1.4	2.1	1.2	1.1	1.1
Water Heater: Storage With Dedicated Heater	1.3	1.2	1.2	1.6	1.1	1.9	1.5	1†	1.6	1.6	1.7	1.3	1.1	1.1
Water Heater: Tankless	1.4	1.4	1.5	1.1	1.3	1.7	1.3	1.1	2.6	1†	2.5	1†	1.0	1.4
Water Heater: Indirect Storage	1.5	2.2	1.1	1†	1.3	1.8	2.5	1.1	1†	1.3	2.2	1†	1†	1†
Water Heater: Heat Pump Water Heater	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†	1†
Water Heater: Other Type	1†	1.8	1†	1†	1.5	1†	7.5	1†	1†	1†	1†	1†	1†	1†

"†=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Water Heating - Water Fixtures - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Water Fixtures: Fixture Type: Faucet	85%	78%	90%	91%	83%	94%	92%	70%	94%	94%	82%	98%	85%	76%
Water Fixtures: Fixture Type: Irrigation Nozzle	1%	<1%	1%	1%	1%	<1%	1%	<1%	2%	<1%	1%	<1%	<1%	3%
Water Fixtures: Fixture Type: Other	1%	1%	1%	2%	1%	3%	1%	1%	<1%	2%	<1%	2%	<1%	<1%
Water Fixtures: Fixture Type: Showerhead	9%	5%	12%	11%	7%	14%	10%	3%	8%	21%	36%	2%	<1%	9%
Water Fixtures: Fixture Type: Spray Nozzle	6%	6%	7%	4%	4%	12%	2%	7%	4%	1%	9%	21%	6%	3%

Water Heating - Water Fixtures - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Any Water Heating Equipment	1.1	1.0	1.1	1.2	0.9	1.7	1.3	0.7	1.6	1.1	2.0	1.1	0.9	0.9
Water Heater: Storage With Dedicated Heater	0.9	0.7	0.9	1.1	0.7	1.4	1.0	0.5	1.2	1.0	1.3	1.0	0.8	0.8
Water Heater: Tankless	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.4	0.1	0.1	0.1
Water Heater: Indirect Storage	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	0.1	0.1	0.2	<0.1	<0.1	<0.1
Water Heater: Heat Pump Water Heater	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Water Heater: Other Type	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Water Heating - Washer and Dryer - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Water Heater: Used For Laundry: Clothes Dryers	9%	6%	14%	8%	8%	15%	5%	9%	18%	19%	55%	7%	2%	2%
Water Heater: Used For Laundry: Clothes Washers	10%	6%	15%	9%	8%	15%	5%	9%	18%	19%	55%	7%	2%	2%

Water Heating - Washer and Dryer - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Water Heater: Used For Laundry: Clothes Dryers	0.3	0.2	0.3	0.3	0.2	0.5	0.1	0.5	0.5	0.3	0.9	0.1	<0.1	<0.1
Water Heater: Used For Laundry: Clothes Washers	0.3	0.2	0.4	0.3	0.2	0.6	0.1	0.6	0.6	0.3	1.1	0.1	0.1	<0.1

Water Heating - Washer and Dryer - Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Water Fixtures: Fixture Type: Faucet	7.6	15.6	6.6	3.0	2.1	20.0	3.0	2.4	3.8	9.7	17.9	4.6	1†	9.2
Water Fixtures: Fixture Type: Irrigation Nozzle	2.3	1†	1.6	1.4	2.4	4.1	1†	1†	1†	1†	4.0	1†	1†	8.7
Water Fixtures: Fixture Type: Other	3.5	1.2	1.8	5.7	5.6	1.1	1†	9.5	1†	1.0	1†	1.1	1†	1†
Water Fixtures: Fixture Type: Showerhead	9.4	21.1	1.0	1†	1†	23.8	1†	2.3	4.0	11.7	31.0	1†	1†	1†
Water Fixtures: Fixture Type: Spray Nozzle	2.3	2.4	2.0	1.0	1.6	1.6	1.1	2.5	1.5	1.0	1.0	1.2	1†	1†
Water Heater: Used For Laundry: Clothes Dryers	2.7	3.1	2.2	3.3	2.4	3.4	2.1	5.6	3.0	1.4	1.6	1†	2.1	1†
Water Heater: Used For Laundry: Clothes Washers	3.2	3.4	2.8	3.7	2.9	3.7	2.3	6.5	3.5	1.7	2.0	1.1	3.0	1†

"†=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Cooling - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Central Cooling	68%	64%	67%	76%	63%	87%	71%	61%	73%	75%	35%	85%	71%	56%
Package System	29%	26%	25%	38%	25%	43%	29%	27%	31%	24%	11%	42%	35%	21%
Package System AC	29%	26%	25%	38%	25%	42%	29%	27%	31%	23%	11%	42%	35%	20%
Package System HP	2%	2%	1%	2%	1%	3%	1%	2%	2%	1%	1%	3%	3%	1%
Split System	37%	33%	40%	37%	34%	45%	35%	32%	43%	48%	25%	43%	36%	32%
Split System AC	27%	23%	29%	28%	25%	33%	26%	25%	31%	33%	19%	29%	23%	25%
Split System HP	12%	11%	12%	14%	11%	16%	11%	9%	19%	18%	9%	17%	11%	11%
Chiller	5%	6%	4%	4%	3%	12%	7%	2%	9%	5%	3%	3%	1%	3%
Room Cooling	29%	35%	27%	21%	30%	24%	31%	27%	36%	23%	52%	27%	23%	21%
Window or Wall Unit	26%	33%	25%	19%	28%	21%	29%	25%	34%	21%	49%	24%	20%	20%
Window or Wall AC	25%	31%	24%	18%	26%	20%	28%	23%	33%	21%	46%	23%	18%	18%
Window or Wall HP	2%	2%	1%	2%	1%	4%	2%	2%	1%	0%	8%	3%	0%	0%
Portable AC	2%	3%	2%	2%	2%	2%	3%	2%	4%	3%	4%	1%	1%	1%
Ductless Minisplit	2%	2%	2%	2%	2%	3%	2%	1%	5%	1%	3%	3%	2%	1%
Ductless Minisplit AC	1%	1%	1%	1%	1%	2%	1%	1%	4%	0%	1%	2%	1%	0%
Ductless Minisplit HP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Room or Window Unit	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%

Cooling - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Package System	0.8	0.6	0.9	1.0	0.5	2.0	0.7	0.6	1.8	1.0	0.8	1.1	0.7	0.8
Package System AC	0.7	0.5	0.8	0.9	0.5	1.7	0.6	0.5	1.6	0.9	0.7	0.9	0.6	0.7
Package System HP	0.1	0.1	0.1	0.1	0.0	0.3	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0
Split System	0.9	0.8	0.9	1.0	0.7	1.6	0.8	0.6	2.1	1.3	0.9	1.0	0.5	0.8
Split System AC	0.6	0.6	0.6	0.7	0.5	1.1	0.6	0.4	1.2	1.0	0.6	0.6	0.3	0.6
Split System HP	0.3	0.2	0.3	0.3	0.2	0.5	0.2	0.1	0.8	0.3	0.3	0.4	0.2	0.2
Chiller	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Room Cooling	1.2	1.5	1.3	0.8	0.9	3.1	1.1	0.4	3.3	2.1	10.5	0.5	0.3	0.4
Window or Wall Unit	1.2	1.5	1.2	0.7	0.8	3.0	1.0	0.4	3.1	2.0	10.3	0.5	0.3	0.4
Window or Wall AC	1.1	1.3	1.1	0.7	0.7	2.6	1.0	0.4	2.9	1.8	8.2	0.4	0.3	0.3
Window or Wall HP	0.1	0.1	0.1	0.1	0.0	0.5	0.0	0.0	0.1	0.3	2.1	0.0	0.0	0.0
Portable AC	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Ductless Minisplit	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0
Ductless Minisplit AC	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Ductless Minisplit HP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Other Room or Window Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Cooling - Average Quantities

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Package System	2.8	2.3	3.5	2.7	2.1	4.6	2.5	2.3	5.7	4.2	7.0	2.5	1.8	3.6
Package System AC	2.5	2.0	3.2	2.4	1.9	3.9	2.2	1.9	5.1	3.8	6.8	2.2	1.6	3.5
Package System HP	5.2	3.9	9.6	4.4	3.0	9.1	5.0	5.5	8.9	7.9	3.2	3.7	3.2	5.1
Split System	2.4	2.3	2.3	2.8	2.0	3.6	2.3	1.8	4.8	2.7	3.8	2.3	1.4	2.5
Split System AC	2.3	2.5	2.1	2.6	2.0	3.4	2.3	1.8	4.1	3.1	3.3	2.0	1.5	2.5
Split System HP	2.2	1.9	2.6	2.2	1.8	3.4	2.2	1.3	4.3	1.8	3.9	2.4	1.4	2.1
Chiller	0.6	0.3	0.8	0.9	0.0	1.2	0.4	0.2	0.8	2.4	0.8	0.0	0.0	0.0
Room Cooling	4.4	4.3	4.8	3.7	2.9	13.2	3.4	1.7	9.1	8.8	20.3	1.9	1.5	2.0
Window or Wall Unit	4.5	4.5	4.9	3.8	2.9	14.3	3.5	1.6	9.0	9.3	20.9	1.9	1.5	2.0
Window or Wall AC	4.3	4.3	4.4	3.7	2.8	13.1	3.6	1.6	8.9	8.5	17.8	1.8	1.5	1.9
Window or Wall HP	6.7	6.1	18.8	2.6	3.7	11.3	0.8	2.1	20.5	94.7	25.2	1.8	10.1	17.7
Portable AC	1.2	0.7	2.4	0.3	1.1	1.3	1.0	1.1	0.7	1.7	1.5	1.9	0.0	1.7
Ductless Minisplit	1.9	1.3	2.5	2.1	1.6	2.8	1.5	1.0	4.5	4.5	3.7	1.3	1.0	1.0
Ductless Minisplit AC	2.0	1.6	2.6	1.7	1.8	2.5	1.6	1.2	4.4	3.9	2.5	1.4	1.1	1.0
Ductless Minisplit HP	34.8	23.0	53.2	37.2	26.1	68.2	24.8	16.2	87.1	218.4	101.5	19.8	22.4	11.5
Other Room or Window Unit	2.4	2.1	3.8	0.0	3.1	1.0	2.3	5.8	0.0	0.0	0.0	0.0	0.0	0.0

Heat Pumps - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Any Heat Pump	13%	15%	10%	16%	12%	22%	11%	12%	17%	15%	13%	22%	16%	12%
Package System Heat Pump	2%	2%	1%	2%	1%	3%	1%	2%	2%	1%	1%	3%	3%	1%
Split System Heat Pump	12%	11%	12%	14%	11%	16%	11%	9%	19%	18%	9%	17%	11%	11%
Window or Wall Unit Heat Pump	2%	2%	1%	2%	1%	4%	2%	2%	1%	0%	8%	3%	0%	0%
Ductless Minisplit Heat Pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Heat Pumps - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Any Heat Pump	0.49	0.44	0.55	0.49	0.30	1.30	0.33	0.26	1.23	0.69	2.53	0.59	0.29	0.33
Package System Heat Pump	0.09	0.07	0.09	0.11	0.04	0.28	0.07	0.10	0.22	0.11	0.02	0.12	0.08	0.05
Split System Heat Pump	0.27	0.21	0.31	0.31	0.20	0.54	0.24	0.12	0.82	0.32	0.35	0.41	0.16	0.23
Window or Wall Unit Heat Pump	0.12	0.14	0.14	0.05	0.05	0.45	0.01	0.04	0.13	0.26	2.10	0.05	0.04	0.05
Ductless Minisplit Heat Pump	0.01	0.01	0.01	0.02	0.01	0.03	0.00	0.00	0.05	0.01	0.06	0.01	0.01	0.00

Heat Pumps - Average Quantity

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Any Heat Pump	3.64	2.96	5.73	3.07	2.58	5.79	3.00	2.09	7.12	4.47	19.09	2.71	1.79	2.89
Package System Heat Pump	5.23	3.91	9.61	4.43	3.05	9.12	4.98	5.52	8.94	7.88	3.15	3.69	3.25	5.14
Split System Heat Pump	2.22	1.92	2.61	2.23	1.78	3.42	2.19	1.28	4.29	1.80	3.94	2.36	1.37	2.08
Window or Wall Unit Heat Pump	6.71	6.09	18.78	2.58	3.65	11.28	0.77	2.09	20.45	94.72	25.24	1.78	10.08	17.68
Ductless Minisplit Heat Pump	34.79	22.97	53.20	37.25	26.12	68.23	24.80	16.20	87.07	218.38	101.54	19.84	22.42	11.51

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Cooling Characteristics - Package Systems

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
0-2.49 Tons	Package System Size	8%	2%	15%	7%	8%	8%	11%	<1%	8%	10%	6%	1%	<1%	1%
2.5-3.99 Tons	Package System Size	15%	21%	8%	15%	23%	12%	22%	1%	10%	16%	7%	6%	9%	4%
4-4.99 Tons	Package System Size	11%	17%	7%	7%	6%	13%	12%	9%	8%	6%	7%	11%	4%	15%
5-11.25 Tons	Package System Size	47%	52%	48%	44%	53%	45%	44%	*	48%	*	*	65%	*	*
11.26-19.99 Tons	Package System Size	11%	4%	16%	15%	10%	12%	3%	*	10%	22%	<1%	16%	<1%	*
20-63.29 Tons	Package System Size	8%	4%	6%	12%	1%	10%	7%	5%	16%	16%	*	<1%	10%	7%
Over 63.29 Tons	Package System Size	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%
Rated Cooling Capacity (Tons)	Package System Size	8.66	7.32	8.05	10.37	6.10	9.72	7.73	9.23	10.16	15.29	7.40	7.27	8.36	9.47
Rated Cooling Capacity (Tons)	Package System Size - AC	8.86	7.51	8.56	10.35	6.22	10.07	8.17	9.04	11.47	17.02	5.77	7.33	8.56	8.70
Rated Cooling Capacity (Tons)	Package System Size - HP	5.92	4.27	3.83	13.84	3.95	6.07	4.91	15.00	3.88	3.35	*	6.04	*	14.22
0-8.9 EER	Package System Efficiency	5%	10%	3%	5%	2%	8%	3%	8%	1%	<1%	<1%	4%	5%	*
9-9.9 EER	Package System Efficiency	24%	13%	21%	32%	37%	16%	27%	*	7%	*	*	19%	*	*
10-10.9 EER	Package System Efficiency	19%	32%	14%	16%	19%	19%	23%	9%	3%	<1%	*	16%	*	*
11-11.9 EER	Package System Efficiency	29%	32%	29%	28%	36%	26%	28%	*	*	<1%	*	40%	*	15%
12-12.9 EER	Package System Efficiency	16%	10%	18%	18%	6%	21%	9%	12%	*	*	*	18%	<1%	6%
13-13.9 EER	Package System Efficiency	5%	3%	10%	1%	1%	7%	6%	<1%	7%	*	*	3%	*	<1%
14-14.9 EER	Package System Efficiency	2%	<1%	3%	1%	<1%	3%	2%	<1%	4%	<1%	<1%	<1%	<1%	<1%
15+ EER	Package System Efficiency	<1%	<1%	1%	<1%	<1%	1%	1%	<1%	1%	<1%	<1%	<1%	<1%	<1%
Cooling Efficieny (EER)	Package System Efficiency	10.81	10.67	11.16	10.59	10.45	11.02	10.81	10.38	11.83	11.55	10.77	10.89	9.97	9.92
Cooling Efficieny (EER)	Package System Efficiency - AC	10.58	10.67	10.50	10.57	10.39	10.70	10.52	10.36	11.56	9.20	10.70	10.95	9.97	10.02
Cooling Efficieny (EER)	Package System Efficiency - HP	12.46	*	13.01	10.48	12.11	12.48	13.39	10.80	12.80	13.35	*	9.20	*	9.00
Before 1980	Package System Age	3%	3%	6%	<1%	<1%	4%	3%	<1%	14%	<1%	<1%	1%	2%	<1%
1981-1990	Package System Age	4%	1%	9%	2%	8%	2%	5%	3%	3%	5%	<1%	2%	<1%	<1%
1991-2000	Package System Age	13%	9%	13%	17%	19%	10%	8%	5%	15%	*	*	14%	5%	*
2001-2010	Package System Age	51%	76%	40%	33%	39%	57%	65%	*	17%	*	*	35%	*	*
2011-2016	Package System Age	23%	10%	30%	31%	23%	23%	14%	33%	*	*	*	28%	*	8%
After 2016	Package System Age	7%	<1%	2%	16%	11%	4%	5%	12%	3%	<1%	<1%	20%	<1%	2%
Average Age	Package System Age	12.02	12.29	14.49	9.90	12.66	11.71	12.10	10.09	14.96	14.17	15.81	9.10	12.26	12.84
Average Age	Package System Age - AC	12.19	12.52	15.96	9.39	13.06	11.77	11.91	9.83	15.91	18.87	15.81	9.71	12.36	12.04
Average Age	Package System Age - HP	11.90	8.38	11.09	16.66	10.31	12.26	11.97	*	4.21	2.00	*	16.25	*	17.07
Air Source Heat Pump	Package System Heat Pump	*	*	*	*	*	*	*	*	*	<1%	*	100%	*	100%
Ground Source Heat Pump	Package System Heat Pump	1%	<1%	<1%	4%	<1%	1%	2%	*	<1%	<1%	*	<1%	*	<1%
Water Source Heat Pump	Package System Heat Pump	*	*	*	*	*	*	*	*	*	100%	*	<1%	*	<1%
Cooling Exclusively	Package System Heat or Cool	30%	57%	18%	13%	20%	37%	45%	7%	14%	*	*	12%	10%	*
Heating and Cooling	Package System Heat or Cool	70%	43%	82%	87%	80%	63%	55%	93%	86%	*	*	88%	90%	*
Rooftop Unit	Package System RTU	72%	57%	72%	84%	80%	66%	52%	92%	81%	94%	94%	89%	90%	98%
2017	Packaged Systems Year of Last Tune-Up	63%	*	18%	*	*	70%	88%	*	*	*	*	*	*	<1%
2018	Packaged Systems Year of Last Tune-Up	19%	4%	*	10%	*	16%	6%	*	*	*	<1%	9%	*	*
Before 2016	Packaged Systems Year of Last Tune-Up	8%	9%	6%	8%	*	5%	3%	*	<1%	<1%	*	*	*	<1%
Never	Packaged Systems Year of Last Tune-Up	10%	12%	3%	11%	11%	10%	3%	<1%	*	<1%	<1%	8%	<1%	*
Yes	Packaged System Variable or Multi-Speed Fan Control	12%	4%	38%	1%	1%	19%	5%	4%	*	*	<1%	3%	*	2%
ECM Fan Motor	ECM Fan Motor	2%	3%	6%	<1%	2%	2%	1%	<1%	<1%	*	<1%	10%	<1%	2%
Economizer	Economizer	37%	4%	73%	*	*	34%	*	*	*	*	<1%	*	*	2%

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Cooling Characteristics - Continued

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
0-2.49 Tons	Split System Size	41%	28%	49%	43%	43%	37%	44%	19%	63%	27%	*	26%	2%	*
2.5-3.99 Tons	Split System Size	24%	25%	21%	27%	24%	23%	23%	25%	21%	39%	13%	26%	*	*
4-4.99 Tons	Split System Size	17%	19%	15%	17%	16%	20%	20%	19%	4%	16%	*	13%	*	<1%
5.0-11.25 Tons	Split System Size	17%	25%	14%	13%	16%	18%	13%	35%	9%	19%	10%	30%	*	<1%
11.26-19.99 Tons	Split System Size	1%	2%	<1%	<1%	<1%	2%	<1%	<1%	3%	<1%	<1%	2%	<1%	<1%
20-63.29 Tons	Split System Size	1%	1%	1%	<1%	1%	1%	<1%	2%	<1%	<1%	<1%	3%	<1%	<1%
Rated Cooling Capacity (Tons)	Split System Size	3.20	3.69	3.11	2.87	3.08	3.50	2.86	4.80	2.45	3.12	2.92	4.43	4.32	2.16
Rated Cooling Capacity (Tons)	Split System Size - AC	3.68	3.55	3.92	3.35	3.81	3.38	3.13	5.82	3.07	3.71	2.52	4.28	4.59	2.20
Rated Cooling Capacity (Tons)	Split System Size - HP	2.52	3.81	1.62	2.42	2.04	3.78	2.24	2.31	1.89	2.66	3.25	5.04	2.80	2.15
0-8.9 ERR	Split System Efficiency	1%	<1%	<1%	3%	<1%	3%	<1%	<1%	6%	<1%	<1%	<1%	<1%	<1%
9-9.9 EER	Split System Efficiency	25%	19%	31%	21%	29%	15%	23%	17%	32%	29%	*	10%	*	*
10-10.9 EER	Split System Efficiency	8%	3%	3%	19%	9%	6%	12%	12%	3%	<1%	1%	5%	<1%	<1%
11-11.9 EER	Split System Efficiency	33%	35%	35%	30%	32%	38%	28%	*	29%	*	25%	56%	*	*
12-12.9 EER	Split System Efficiency	13%	23%	11%	7%	13%	15%	14%	7%	12%	9%	15%	22%	<1%	3%
13-13.9 EER	Split System Efficiency	8%	9%	9%	5%	8%	6%	12%	1%	4%	6%	2%	6%	<1%	*
14-14.9 EER	Split System Efficiency	10%	5%	10%	14%	8%	15%	10%	8%	7%	15%	*	<1%	<1%	3%
15+ EER	Split System Efficiency	2%	5%	2%	1%	2%	3%	<1%	12%	7%	<1%	<1%	<1%	<1%	3%
Cooling Efficiency (EER)	Split System Efficiency	11.46	11.85	11.35	11.24	11.33	11.82	11.48	11.82	11.41	11.41	11.54	11.35	10.39	11.06
Cooling Efficiency (EER)	Split System Efficiency - AC	10.78	11.31	10.70	10.56	10.67	11.08	10.87	10.57	10.82	10.36	10.17	11.38	10.39	10.81
Cooling Efficiency (EER)	Split System Efficiency - HP	12.48	12.58	12.75	12.07	12.33	12.94	12.29	13.69	12.55	12.76	13.22	11.22	*	11.04
1981-1990	Split System Age	5%	1%	8%	5%	6%	2%	1%	3%	13%	2%	<1%	5%	<1%	*
1991-2000	Split System Age	14%	12%	19%	10%	11%	23%	16%	19%	1%	23%	*	7%	12%	*
2001-2010	Split System Age	36%	35%	30%	47%	32%	47%	39%	18%	34%	*	*	46%	*	*
2011-2016	Split System Age	34%	32%	36%	34%	37%	26%	35%	33%	51%	22%	17%	33%	*	*
After 2016	Split System Age	11%	21%	6%	4%	13%	3%	9%	27%	2%	25%	2%	8%	17%	3%
Average Age	Split System Age	10.16	8.18	11.34	10.85	9.55	11.89	9.73	8.89	9.87	10.31	11.53	10.13	8.20	19.93
Average Age	Split System Age - AC	12.54	9.78	13.81	13.91	12.39	12.96	12.82	10.66	14.69	10.46	9.84	11.12	8.48	27.53
Average Age	Split System Age - HP	6.86	5.46	6.75	8.20	5.52	10.44	5.79	6.09	5.05	10.01	12.37	5.26	2.00	8.38
Air Source	Split System Heat Pump	98%	97%	99%	98%	99%	96%	99%	100%	100%	92%	100%	89%	100%	100%
Water Source	Split System Heat Pump	2%	3%	1%	2%	1%	4%	1%	<1%	<1%	8%	<1%	11%	<1%	<1%
Ground Source	Split System Heat Pump	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooling Exclusively	Package System Heat or Cool	61%	72%	44%	73%	59%	67%	72%	45%	54%	49%	*	70%	*	*
Heating and Cooling	Package System Heat or Cool	39%	28%	56%	27%	41%	33%	28%	55%	46%	51%	*	30%	*	*
2017	Packaged Systems Year of Last Tune-Up	37%	*	29%	*	41%	29%	*	*	*	*	*	32%	*	*
2018	Packaged Systems Year of Last Tune-Up	24%	1%	22%	*	24%	23%	*	*	12%	*	*	24%	*	*
Before 2016	Packaged Systems Year of Last Tune-Up	34%	*	46%	5%	29%	46%	*	*	*	*	6%	*	*	*
Never	Packaged Systems Year of Last Tune-Up	5%	11%	3%	1%	6%	2%	4%	<1%	11%	<1%	<1%	3%	5%	*
Yes	Split System Heat Pumps with Auxiliary Heat	6%	*	7%	3%	6%	7%	2%	*	<1%	<1%	*	*	*	*
Primary	Split System Heat Pump Use	68%	*	71%	*	64%	82%	*	92%	*	*	*	*	100%	*
Secondary	Split System Heat Pump Use	32%	*	29%	*	36%	18%	*	8%	*	*	*	*	<1%	*
ECM Fan Motor	ECM Fan Motor	9%	6%	20%	3%	7%	15%	6%	<1%	*	4%	*	<1%	<1%	<1%
Economizer	Economizer	7%	<1%	13%	3%	8%	2%	<1%	<1%	36%	<1%	<1%	<1%	<1%	<1%
Ductless	Ductless	42%	45%	47%	27%	41%	47%	33%	33%	77%	24%	72%	42%	*	*
Variable Refrigerant Flow (VRF)	Variable Refrigerant Flow (VRF)	10%	8%	14%	2%	10%	9%	6%	8%	40%	<1%	2%	1%	<1%	<1%

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Cooling Characteristics - Chillers

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Centrifugal	Chiller Type	*	100%	*	*	*	*	*	*	*	*	*	*	*	*
Reciprocating	Chiller Type	*	<1%	*	*	*	*	*	*	<1%	*	*	*	*	*
Screw	Chiller Type	6%	<1%	*	<1%	*	6%	*	*	*	<1%	*	*	*	*
Scroll	Chiller Type	*	<1%	*	*	*	*	<1%	*	*	*	*	*	*	*
0-74.9 Tons	Chiller Size	*	<1%	*	*	*	*	*	*	*	*	*	*	*	*
75-149.9 Tons	Chiller Size	*	*	*	*	*	*	*	*	*	*	*	<1%	*	*
150-299.9 Tons	Chiller Size	*	*	6%	<1%	*	*	*	*	*	*	*	<1%	*	*
300-599.9 Tons	Chiller Size	13%	<1%	*	7%	*	13%	<1%	*	*	*	*	*	*	*
600+ Tons	Chiller Size	3%	<1%	<1%	7%	*	3%	<1%	*	*	*	*	<1%	*	*
Design Nominal Capacity (Tons)	Chiller Size	186	234	220	132	20	193	189	8	250	172	*	*	*	*
Before 1980	Chiller Age	5%	*	<1%	<1%	*	5%	<1%	*	<1%	<1%	100%	*	*	*
1981-1990	Chiller Age	*	18%	<1%	*	*	*	*	*	<1%	<1%	<1%	*	*	*
2000-2010	Chiller Age	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2010-2016	Chiller Age	*	<1%	*	<1%	*	*	*	*	<1%	*	<1%	*	*	*
After 2016	Chiller Age	2%	<1%	*	<1%	*	2%	<1%	*	*	<1%	<1%	*	*	*

Cooling Characteristics - Window or Wall Unit

Metric/Bin	Category	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
0-6,000 BTU/hr	Window or Wall Unit Size	30%	39%	16%	20%	19%	39%	37%	23%	16%	*	*	21%	<1%	*
6,000-11,999 BTU/hr	Window or Wall Unit Size	39%	30%	53%	*	36%	41%	20%	31%	15%	10%	*	4%	*	*
12,000-13,999 BTU/hr	Window or Wall Unit Size	8%	7%	9%	14%	12%	5%	6%	7%	*	8%	4%	*	*	25%
14,000-19,999 BTU/hr	Window or Wall Unit Size	15%	17%	14%	7%	18%	12%	22%	19%	19%	2%	*	6%	*	*
20,000-29,999 BTU/hr	Window or Wall Unit Size	7%	8%	6%	4%	15%	1%	12%	20%	6%	5%	<1%	*	*	<1%
30,000+ BTU/hr	Window or Wall Unit Size	1%	<1%	2%	<1%	<1%	1%	2%	<1%	1%	<1%	<1%	<1%	<1%	<1%
Rated Cooling Capacity (BTU/hr)	Window or Wall Unit Size	11.0	11.9	10.8	8.6	9.5	12.1	13.8	8.0	9.8	12.6	10.2	12.7	9.8	10.9
0-8.99 EER	Window or Wall Unit Efficiency	1%	1%	2%	<1%	1%	1%	1%	<1%	7%	4%	<1%	4%	<1%	<1%
9-9.99 EER	Window or Wall Unit Efficiency	46%	64%	21%	12%	24%	62%	26%	*	*	*	*	*	*	*
10-10.99 EER	Window or Wall Unit Efficiency	22%	15%	24%	*	45%	5%	*	*	*	*	*	*	<1%	*
11-11.99 EER	Window or Wall Unit Efficiency	26%	19%	50%	10%	19%	31%	25%	10%	9%	*	*	*	*	*
12-13.99 EER	Window or Wall Unit Efficiency	1%	1%	2%	1%	1%	1%	<1%	3%	<1%	4%	<1%	7%	*	<1%
14+ EER	Window or Wall Unit Efficiency	4%	<1%	2%	*	9%	<1%	1%	<1%	6%	<1%	8%	<1%	<1%	<1%
Cooling Efficiency (EER)	Window or Wall Unit Efficiency	10.5	10.1	10.9	11.8	10.9	10.3	10.6	10.0	10.6	10.1	10.7	10.3	10.7	10.7
Before 1990	Window or Wall Unit Age	4%	6%	3%	1%	1%	7%	17%	<1%	<1%	<1%	<1%	3%	7%	<1%
1990-1999	Window or Wall Unit Age	19%	20%	19%	16%	17%	20%	8%	7%	13%	*	*	5%	13%	*
2000-2004	Window or Wall Unit Age	11%	12%	10%	10%	12%	11%	11%	13%	6%	*	9%	*	9%	<1%
2005-2009	Window or Wall Unit Age	16%	18%	16%	10%	15%	18%	34%	21%	*	*	1%	3%	*	*
2010-2016	Window or Wall Unit Age	48%	43%	49%	*	54%	43%	29%	*	*	*	*	*	*	*
After 2016	Window or Wall Unit Age	2%	1%	2%	3%	2%	1%	1%	3%	<1%	7%	<1%	5%	*	<1%
Average Age	Window or Wall Unit Age	11.0	11.9	10.8	8.6	9.5	12.1	13.8	8.0	9.8	12.6	10.2	12.7	9.8	10.9
Window or Wall: Energy Star	Window or Wall Unit Energy Star	30%	33%	20%	32%	39%	20%	18%	*	*	*	*	*	*	4%
Window or Wall: Louvered Sides	Window or Wall Unit Louvered Sides	46%	54%	35%	10%	27%	61%	56%	21%	*	*	*	29%	*	*
Hard Wired	Window or Wall Unit Plugged In	9%	6%	21%	7%	2%	15%	15%	5%	2%	<1%	9%	6%	9%	*
Plugged Into Wall	Window or Wall Unit Plugged In	91%	94%	79%	93%	98%	85%	85%	95%	98%	100%	91%	94%	91%	*
Primary	Window or Wall Unit Heat Pump Use	99%	100%	*	*	*	99%	*	*	*	*	100%	*	*	*
Secondary	Window or Wall Unit Heat Pump Use	1%	<1%	*	*	*	1%	*	*	*	*	<1%	*	*	*

"*"=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Kitchen Equipment - Penetration

Equipment Type	Statewide	Downstate	Upstate	Long Island/Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/Hospitals	Lodging/Hospitality	Food Service	Grocery	Warehouse
Cooking Equipment	19%	17%	23%	18%	12%	48%	7%	6%	30%	9%	35%	82%	32%	4%
Cooking Equipment: Gas	13%	12%	15%	12%	8%	34%	3%	3%	18%	6%	16%	63%	18%	3%
Cooking Equipment: Electric	11%	10%	14%	9%	6%	30%	4%	3%	20%	5%	22%	42%	22%	2%
Cooking Equipment: Propane	3%	1%	5%	3%	2%	4%	1%	1%	5%	1%	14%	10%	3%	<1%
Cooking Equipment: Other Fuel	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	1%	1%	1%	1%	<1%	<1%
Cooking Equipment: Commercial Fryer	9%	7%	12%	9%	6%	23%	2%	2%	5%	3%	19%	57%	12%	<1%
Cooking Equipment: Commercial Fryer: Electricity	1%	1%	1%	1%	<1%	4%	<1%	<1%	1%	1%	2%	4%	2%	<1%
Cooking Equipment: Commercial Fryer: Natural Gas	7%	6%	8%	6%	4%	18%	1%	1%	3%	2%	10%	46%	8%	<1%
Cooking Equipment: Commercial Fryer: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Commercial Fryer: Propane	1%	<1%	3%	2%	1%	2%	<1%	<1%	1%	<1%	8%	6%	2%	<1%
Cooking Equipment: Combination Oven	7%	5%	9%	8%	4%	21%	2%	1%	14%	5%	17%	30%	11%	1%
Cooking Equipment: Combination Oven: Electricity	1%	<1%	1%	1%	<1%	2%	<1%	<1%	1%	1%	1%	2%	1%	<1%
Cooking Equipment: Combination Oven: Natural Gas	5%	4%	6%	6%	3%	15%	1%	1%	11%	4%	6%	24%	8%	1%
Cooking Equipment: Combination Oven: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Combination Oven: Propane	1%	<1%	1%	2%	1%	2%	<1%	<1%	1%	<1%	9%	3%	<1%	<1%
Cooking Equipment: Griddle	7%	5%	9%	7%	4%	18%	2%	1%	10%	4%	18%	32%	9%	<1%
Cooking Equipment: Griddle: Electricity	1%	1%	1%	1%	<1%	4%	<1%	<1%	3%	1%	1%	5%	3%	<1%
Cooking Equipment: Griddle: Natural Gas	5%	4%	6%	5%	3%	12%	1%	1%	6%	3%	10%	25%	5%	<1%
Cooking Equipment: Griddle: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Griddle: Propane	1%	<1%	2%	1%	1%	2%	<1%	<1%	3%	<1%	8%	4%	1%	<1%
Cooking Equipment: Convection Oven	5%	5%	7%	5%	3%	16%	2%	2%	10%	3%	12%	20%	8%	1%
Cooking Equipment: Convection Oven: Electricity	2%	2%	2%	1%	1%	5%	1%	1%	3%	1%	3%	5%	2%	<1%
Cooking Equipment: Convection Oven: Natural Gas	3%	3%	4%	3%	2%	11%	1%	1%	6%	2%	7%	14%	5%	1%
Cooking Equipment: Convection Oven: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Convection Oven: Propane	1%	<1%	1%	1%	1%	1%	<1%	<1%	1%	<1%	4%	2%	1%	<1%
Cooking Equipment: Holding Cabinet	4%	3%	5%	3%	2%	12%	1%	1%	11%	2%	9%	13%	5%	<1%
Cooking Equipment: Holding Cabinet: Electricity	3%	2%	5%	3%	1%	10%	1%	1%	10%	2%	8%	12%	5%	<1%
Cooking Equipment: Holding Cabinet: Natural Gas	1%	1%	1%	1%	<1%	2%	<1%	<1%	2%	<1%	1%	3%	<1%	<1%
Cooking Equipment: Holding Cabinet: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%
Cooking Equipment: Holding Cabinet: Propane	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%
Cooking Equipment: Steam Cooker	2%	1%	2%	2%	1%	5%	<1%	<1%	5%	2%	3%	7%	2%	<1%
Cooking Equipment: Steam Cooker: Electricity	1%	1%	1%	1%	<1%	2%	<1%	<1%	3%	1%	1%	3%	1%	<1%
Cooking Equipment: Steam Cooker: Natural Gas	1%	1%	1%	1%	<1%	3%	<1%	<1%	2%	1%	1%	3%	<1%	<1%
Cooking Equipment: Steam Cooker: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Steam Cooker: Propane	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	1%	<1%	<1%
Cooking Equipment: Conveyor Oven	1%	1%	1%	1%	1%	3%	<1%	1%	2%	1%	1%	4%	3%	<1%
Cooking Equipment: Conveyor Oven: Electricity	1%	1%	1%	<1%	<1%	2%	<1%	<1%	<1%	<1%	<1%	2%	2%	<1%
Cooking Equipment: Conveyor Oven: Natural Gas	1%	1%	1%	1%	<1%	2%	<1%	<1%	1%	1%	<1%	3%	1%	<1%
Cooking Equipment: Conveyor Oven: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Conveyor Oven: Propane	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Rack Oven	1%	1%	1%	1%	<1%	3%	<1%	<1%	2%	1%	2%	3%	1%	1%
Cooking Equipment: Rack Oven: Electricity	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Rack Oven: Natural Gas	1%	<1%	1%	1%	<1%	2%	<1%	<1%	1%	<1%	1%	3%	1%	1%
Cooking Equipment: Rack Oven: Other Fuel	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Cooking Equipment: Rack Oven: Propane	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%
Cooking Equipment: Dishwasher	8%	7%	11%	7%	4%	25%	3%	2%	17%	7%	21%	36%	4%	2%

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Kitchen Equipment - Saturation

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Cooking Equipment: Commercial Fryer	0.2	0.1	0.2	0.1	0.1	0.4	<0.1	<0.1	<0.1	<0.1	0.3	1.1	0.3	<0.1
Cooking Equipment: Commercial Fryer: Electricity	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Cooking Equipment: Commercial Fryer: Natural Gas	0.1	0.1	0.2	0.1	0.1	0.3	<0.1	<0.1	<0.1	<0.1	0.2	1.0	0.2	<0.1
Cooking Equipment: Commercial Fryer: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Commercial Fryer: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Cooking Equipment: Combination Oven	0.1	0.1	0.1	0.1	0.1	0.3	<0.1	<0.1	0.2	<0.1	0.2	0.7	0.1	<0.1
Cooking Equipment: Combination Oven: Electricity	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Combination Oven: Natural Gas	0.1	0.1	0.1	0.1	0.1	0.2	<0.1	<0.1	0.1	<0.1	0.1	0.6	0.1	<0.1
Cooking Equipment: Combination Oven: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Combination Oven: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Cooking Equipment: Griddle	0.1	0.1	0.1	0.1	0.1	0.2	<0.1	<0.1	0.1	<0.1	0.1	0.6	0.3	<0.1
Cooking Equipment: Griddle: Electricity	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Cooking Equipment: Griddle: Natural Gas	0.1	<0.1	0.1	0.1	<0.1	0.2	<0.1	<0.1	0.1	<0.1	0.1	0.5	0.2	<0.1
Cooking Equipment: Griddle: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Griddle: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Convection Oven	0.2	0.2	0.2	0.1	0.1	0.6	0.1	<0.1	0.2	<0.1	0.7	0.5	0.3	0.6
Cooking Equipment: Convection Oven: Electricity	<0.1	<0.1	<0.1	0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.5	0.2	0.1	<0.1
Cooking Equipment: Convection Oven: Natural Gas	0.1	0.2	0.1	<0.1	<0.1	0.4	<0.1	<0.1	0.2	<0.1	0.2	0.4	0.1	0.6
Cooking Equipment: Convection Oven: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Convection Oven: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Holding Cabinet	0.1	<0.1	0.1	0.1	<0.1	0.2	<0.1	<0.1	0.1	<0.1	0.1	0.3	0.2	<0.1
Cooking Equipment: Holding Cabinet: Electricity	0.1	<0.1	0.1	0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	0.1	0.3	0.2	<0.1
Cooking Equipment: Holding Cabinet: Natural Gas	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Cooking Equipment: Holding Cabinet: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Holding Cabinet: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Steam Cooker	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	0.1
Cooking Equipment: Steam Cooker: Electricity	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Steam Cooker: Natural Gas	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Cooking Equipment: Steam Cooker: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Steam Cooker: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Conveyor Oven	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1
Cooking Equipment: Conveyor Oven: Electricity	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Conveyor Oven: Natural Gas	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Cooking Equipment: Conveyor Oven: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Conveyor Oven: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Rack Oven	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1
Cooking Equipment: Rack Oven: Electricity	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Rack Oven: Natural Gas	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1
Cooking Equipment: Rack Oven: Other Fuel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Rack Oven: Propane	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cooking Equipment: Combination Oven	0.1	0.2	0.2	0.1	0.1	0.5	0.1	<0.1	0.2	0.1	0.2	0.5	<0.1	0.1

"*=Does not meet threshold of absolute precision <0.15 at 90% confidence level

Kitchen Equipment - Average Quantity

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Cooking Equipment: Commercial Fryer	1.8	1.9	1.8	1.7	1.8	1.8	2.0	1.3	1†	1†	1.7	2.0	2.2	1†
Cooking Equipment: Combination Oven	1.5	2.5	1.1	1†	1.8	1.4	1.2	1†	1.2	1†	1.3	2.2	1.3	1†
Cooking Equipment: Griddle	1.4	1.3	1.3	1.6	1.5	1.4	1†	1†	1†	1†	1†	1.8	3.1	8.4
Cooking Equipment: Convection Oven	3.1	3.9	2.4	2.9	2.1	4.0	2.5	1†	2.1	1†	5.6	2.6	3.2	60.9
Cooking Equipment: Holding Cabinet	1.7	1.6	1.4	2.3	2.2	1.4	1†	1†	1.0	1†	1.5	2.5	3.8	1†
Cooking Equipment: Steam Cooker	1.3	1.4	1†	1.9	1†	2.1	3.0	1†	1.1	1†	1†	1†	1.7	50.4
Cooking Equipment: Conveyor Oven	2.0	1†	1.7	5.8	1†	3.2	1†	4.0	1.1	1†	1†	2.6	2.7	1†
Cooking Equipment: Rack Oven	1.5	1.5	2.8	1†	1.9	1.3	1†	1†	1†	1†	4.1	2.5	1†	1†
Cooking Equipment: Dishwasher	1.7	2.2	1.5	1.1	1.3	2.0	4.4	1.0	1.1	1†	1.2	1.4	1†	4.4

Kitchen Equipment - Characteristics

Equipment Type	Statewide	Downstate	Upstate	Long Island/ Hudson Valley	Small (<75 MWh/Year)	Medium/Large (≥75 MWh/Year)	Office	Retail	Education	Health Services/ Hospitals	Lodging/ Hospitality	Food Service	Grocery	Warehouse
Cooking Equipment: Dishwasher: Multitank	2%	<1%	2%	6%	2%	2%	<1%	<1%	12%	<1%	9%	1%	<1%	<1%
Cooking Equipment: Dishwasher: Single Tank	43%	37%	45%	59%	51%	40%	8%	<1%	48%	48%	54%	74%	100%	51%
Cooking Equipment: Dishwasher: Under Counter	51%	61%	46%	29%	41%	55%	91%	100%	40%	52%	32%	16%	<1%	49%

†=Does not meet threshold of absolute precision <0.15 at 90% confidence level