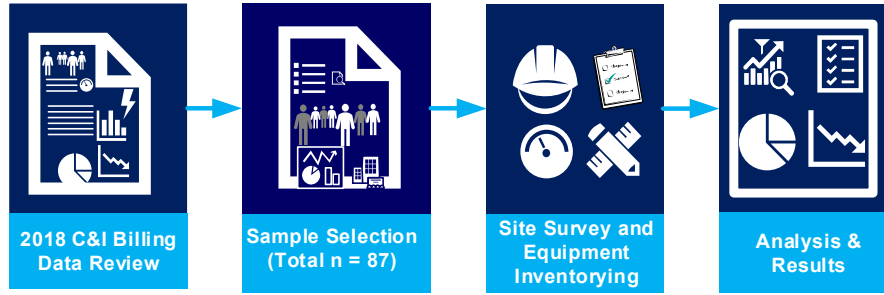


# Rhode Island C&I Market Characterization Data Collection Study

DNV GL conducted the Rhode Island (RI) Commercial and Industrial (C&I) Market Characterization Data Collection Study to provide a clear understanding of the C&I building market in RI and assess the market share and sales trends for recently purchased high-efficiency equipment. The study gathered detailed on-site facility-level data on a wide range of energy-consuming building equipment. The DNV GL team recruited and visited 87 customers of different businesses types and sizes from across the state. Offices, Manufacturing/Industrial, and Retail facilities have major shares of electricity consumption in RI, therefore, bigger samples were surveyed: 17 Office, 17 Manufacturing/Industrial, and 10 Retail.

## Methodology



## Surveyed Business Types

Campuses	Manufacturing or Industrial
Education	Office
Food Sales	Other
Food Service	Public Assembly
Healthcare	Retail
Hospitals	Warehouse
Lodging	

## Summary of final population frame

Business Size	% Consumption
Small: <500 MWh	31%
Medium: 500 - 4,500 MWh	36%
Large: >4,500 MWh	33%
<b>TOTAL</b>	<b>100%</b>
<b>(27,508 C&amp;I accounts)</b>	<b>(3,503,559 kWh)</b>

## End-use equipment surveyed

- Lighting & Controls
- Heating
- Cooling
- Domestic Hot Water
- Motors & Speed Drives
- On-Site Generation

## Lighting Equipment Key Findings

**7.6 million** Lamps operating in RI

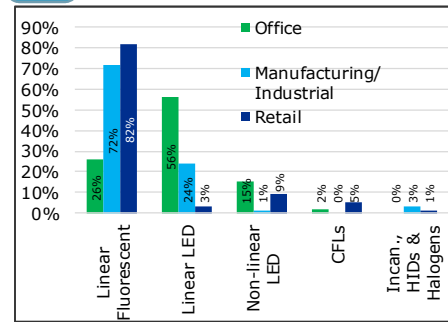
- 1.4M Linear LEDs
- 4.9M Linear Fluorescents
- 0.7M Non-linear LEDs
- 0.4M CFLs

### Linear Lighting Program Participation



2/3

or 66% of linear lamps are fluorescent technologies, providing an opportunity to convert them to LEDs for more energy savings.



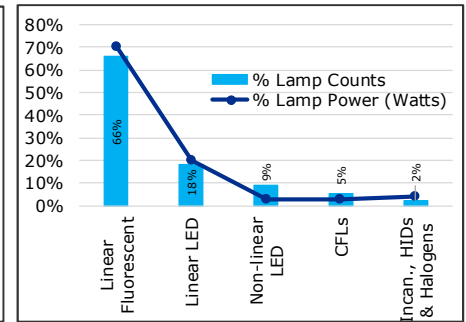
### OPPORTUNITIES



Manufacturing/Industrial and Retail businesses have great opportunities (>70%) to install LEDs while office have about 26%.



RI has a lot of potential for savings from installing controls for lighting equipment, such as occupancy sensors, daylighting sensors, timers, and dimming. Nearly 90% of the interior lighting is controlled manually.



## Non-Lighting Equipment Key Findings

153k



Cooling systems:  
**61%** were split or packaged air conditioners  
**28%** were packaged terminal or window units  
**11%** were heat pumps

52k



Domestic hot-water (DHW) heaters:  
**86%** are Storage water heaters  
**13%** are Instantaneous systems  
**1%** use central plants/heat exchangers.  
**72%** of the DHWs use non-electric fuels like natural gas, Propane, etc.

79k



Heating units:  
**39%** were packaged furnaces  
**14%** were hot water or steam boilers

### OPPORTUNITIES

- **66%** of the packaged AC and heat pumps were below federal standard efficiency.
- Nearly 21% of all heating systems are below federal efficiency standards

**23** businesses used on-site emergency generators  
**13** used natural gas as a fuel  
 Other fuels included diesel and propane