

5.7.19 Commercial Refrigeration - Unit Inventory and Energy Consumption

<u>Application</u>	<u>Estimated Inventory (thousand)</u>	<u>Unit Energy Consumption (kWh/yr)</u>	<u>Total Energy Consumption (TWh/yr)</u>	<u>Primary Energy Consumption (Tbtu/yr)</u>
Walk-In Coolers and Freezers				
Non-Supermarket, Cooler	468	16,200	7.6	78.9
Non-Supermarket, Freezer	234	21,400	5.0	52.1
Non-Supermarket, Combination	53	30,200	1.6	16.6
Supermarket	245	varies	4.9	51.0
Beverage Merchandisers (1)				
One-Door	460	3,076	1.4	14.7
Two-Door	414	6,080	2.5	26.2
Three-Door	46	8,960	0.4	4.3
Reach-In Refrigerators and Freezers (2)				
Freezers	1,156	4,158	4.8	56.0
Refrigerators	1,556	3,455	5.4	50.0
Ice Machine	1,491	5,429	8.1	84.2
Beverage Vending Machine (3)				
Fully-cooled	496	2,743	1.4	14.2
Zone-cooled	3,320	2,483	8.2	85.8

Note(s): 1) Beverage merchandisers are self-contained, upright, refrigerated cabinets that are designed to hold and/or display refrigerated beverage items for purchase without an automatic vending feature. Typically they have glass doors and bright lighting. These cases are commonly used in convenience stores, aisle locations in supermarkets, and some retail stores. Because the refrigeration system is self-contained, the heat is rejected to the building interior, and their energy use is not included in the supermarket refrigeration sections. 2) Commercial reach-in cabinets are upright, self-contained refrigerated cases with solid or glass doors whose purpose is to hold frozen and/or refrigerated food products. These cases are commonly used in commercial and institutional food-service establishments. These are self-contained units, i.e., the entire refrigeration system is built into the reach-in unit and heat is rejected to the surrounding interior air. 3) In a fully cooled beverage vending machine, all beverages enclosed within the machine are visible to the customer and, therefore, the entire internal volume is refrigerated. The zone-cooled packaged beverage vending machine only cools the beverage that are soon-to-be-vended, meaning only a small portion, or zone, of the internal volume is refrigerated.

Source(s): DOE/EERE/Navigant Consulting, Energy Savings Potential and R&D Opportunities for Commercial Refrigeration, Sept. 2009, Table 3-5, p. 31 for walk-in coolers and freezers, Table 3-12, p. 37 for beverage merchandiser, Table 3-11, p. 35 for reach-in freezers and refrigerators, Table 3-15, p. 41 for ice machines, and Table 3-16, p. 44 for beverage vending machine.