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Energy Consumption of Major Household Appliances Shipped in Canada

Summary Report

Trends for
1990–2009



Natural Resources Canada's Office of Energy Efficiency
Leading Canadians to Energy Efficiency at Home, at Work and on the Road

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Foreword

Since 1996, as part of the National Energy Use Database initiative, the Canadian Appliance Manufacturers Association (CAMA) has provided the Office of Energy Efficiency (OEE) of Natural Resources Canada (NRCan) with annual appliance shipment data for the six major household appliance categories: refrigerators, freezers, dishwashers, electric ranges, clothes washers and electric clothes dryers.

To keep the data confidential, appliance manufacturers suggested that a third party receive and prepare the database in a format in which no one (other than the third party) could determine the shipment data for an individual model or manufacturer. NRCan retained the services of Electro-Federation Canada, chosen by CAMA, as the third party.

The data gathered for this summary report provide important information on various aspects of energy consumption related to new appliances in Canada. The data also enable NRCan to improve its ecoENERGY programs, which are designed to provide support for Canadians as they seek to achieve greater energy efficiency and further reduce greenhouse gas (GHG) emissions.

To further improve the quality and representation of new appliance energy efficiency data in Canada, the OEE is exploring options to improve the coverage of the Canadian market through ongoing discussions with CAMA. Through CAMA's considerable efforts, this year's analysis includes additional freezer and compact refrigerator data received from its members. This reflects changes in the freezer

marketplace and the provision of more comprehensive information on compact refrigerators.¹ The OEE would like to thank the participating manufacturers and CAMA for their co-operation in this project.

This summary report was prepared by Tami van Wyk of the Demand Policy and Analysis Division of the OEE. The project manager was Diane Friendly, while overall direction was provided by Andrew Kormylo.

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¹ Further discussion of the effects of this additional freezer and compact refrigerator data is provided in Chapters 1 and 2 of this summary report.

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Highlights

The *Energy Consumption of Major Household Appliances Shipped in Canada, Summary Report* contains an analysis of the shipment data for major household appliances (refrigerators, freezers, dishwashers, electric ranges, clothes washers and electric clothes dryers) between 1990 and 2009.

Highlights of this summary report include the following:

- The reduction in average annual unit energy consumption (UEC) ranged from 6 percent (electric clothes dryers) to 81 percent (clothes washers) during the study period. These energy efficiency improvements can be attributed to a variety of factors, including
 - the research and development carried out by manufacturers;²
 - consumer demand for more energy-efficient products;
 - standards that limit the amount of energy each appliance may consume, such as the minimum energy performance standards (MEPS);³
 - information initiatives such as the EnerGuide for Equipment program and the ENERGY STAR® Initiative in Canada,⁴ which help consumers identify the most energy-efficient products on the market; and
- various incentives and rebates offered by the federal, provincial/territorial and municipal governments and utilities.
- A household operating an average set of major household appliances purchased in 2009 might expect them to consume fewer than 2800 kilowatt hours per year (kWh/yr) of electricity—approximately half as much as a set purchased in 1990.
- To illustrate the significance of energy efficiency improvements on overall energy consumption, this summary report quantified energy savings from all shipped appliances in Canada between 1992⁵ and 2009. In 2009, the estimated energy savings reached 54 petajoules (PJ) (or 15 billion kWh), the equivalent of one year's energy for approximately 510 000 households.
- The majority of appliances in Canada (between 81 and 96 percent) were shipped to retailers in 2009.
- The share of ENERGY STAR qualified appliance shipments in Canada increased to 90 percent of all dishwashers, 69 percent of all clothes washers and 53 percent of all refrigerators in 2009.

² For more information on the role of the members of the Canadian Appliance Manufacturers Association (CAMA), refer to the *Energy Consumption of Major Household Appliances Shipped in Canada, Trends for 1990–2008* (Ottawa: 2010), p. 9. Available at oee.nrcan.gc.ca/publications/statistics/cama10/chapter1.cfm.

³ For more information on the MEPS and the *Energy Efficiency Regulations*, refer to *Energy Consumption of Major Household Appliances Shipped in Canada, Trends for 1990–2008* (Ottawa: 2010), p. 3. Available at oee.nrcan.gc.ca/publications/statistics/cama10/chapter1.cfm.

⁴ For more information on the ENERGY STAR Initiative in Canada, including qualifying criteria for major household appliances, visit oee.nrcan.gc.ca/energystar

⁵ Note that even though the MEPS did not come into effect until 1995, the baseline year used for all estimates of energy savings was 1992. This is because energy efficiency began to improve almost immediately after the *Energy Efficiency Act* came into force in 1992.

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Refrigerators

More than 53 percent of refrigerators shipped in Canada in 2009 were ENERGY STAR® qualified products exceeding the minimum energy performance standards (MEPS) by at least 20 percent. Also in 2009, as in all years studied since 1990, Type 3 refrigerators⁶ (those with a top-mounted freezer and automatic defrost) were the most popular standard-size type in Canada. However, their market share declined from 85 percent in 1990 to 49 percent in 2009 in favour of Types 5 and 5A (those with a bottom-mounted freezer) and Type 7 (those with a side-mounted freezer).

1.1 Average annual unit energy consumption by model year

A refrigerator shipped in 2009 consumed (on average) significantly less energy than one shipped in 1990; the average annual unit energy consumption (UEC) decreased by more than half during this period, from 956 to 430 kilowatt hours per year (kWh/yr). The largest decrease occurred in the 18.5 to 20.4 cubic foot (cu. ft.) category, which saw a 60 percent decrease in energy consumption from 1133 to 456 kWh/yr.

⁶ The definitions of the various types of refrigerators can be found in Appendix B.

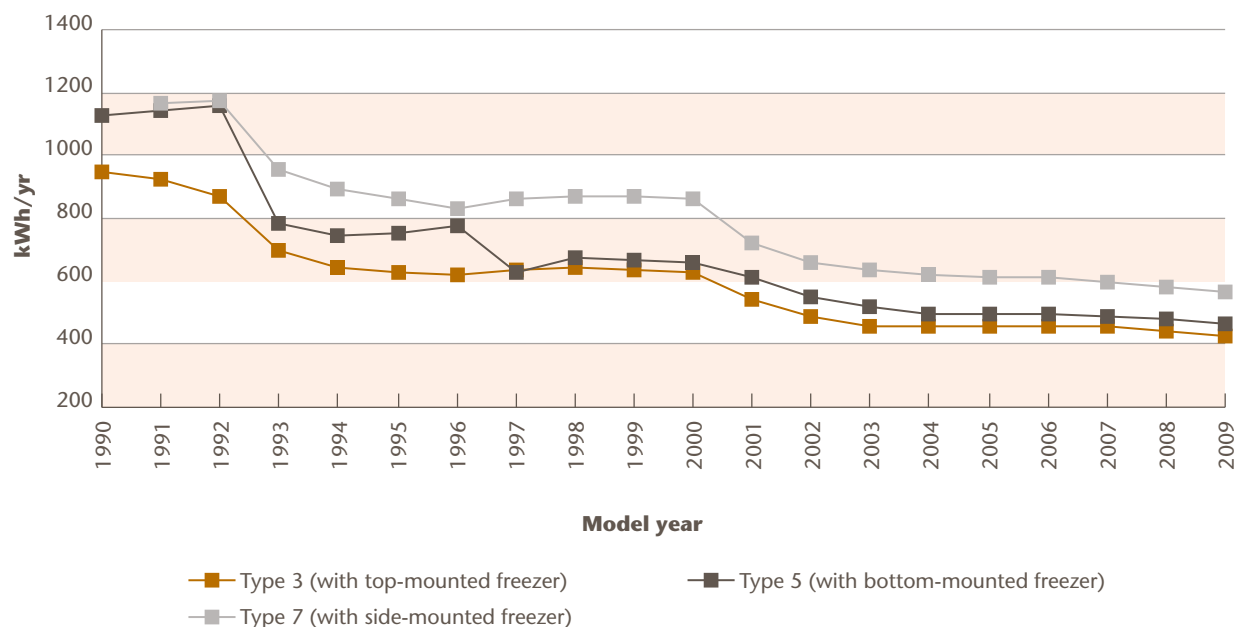
1.2 Distribution of shipments by type

Refrigerators are manufactured in a range of sizes and with a variety of features, all of which affect energy consumption. Consequently, EnerGuide groups refrigerators according to both type and size, enabling the comparison of energy consumption among similar models.

Refrigerators are categorized as standard (full-size) with and without automatic defrost (with and without through-the-door ice service), and compact models.⁷ The standard-size refrigerator types with the greatest market share in 2009 were Type 3 (49 percent), Type 5 (24 percent) and Type 7 (7 percent). Substantial supplementary data received from compact refrigerator manufacturers in 2009 show a 17 percent market share for compact models in that year (see Table A.4 in Appendix A). Table A.8 summarizes regional shipment data by type.

The popularity of different refrigerator types has implications for energy consumption. Figure 1 shows the average annual UEC for Type 3, Type 5 and Type 7 (standard-size) refrigerators. The energy consumption of all three types has decreased over time. In 2009, Type 3, 5 and 7 refrigerators consumed (on average) 424, 463 and 563 kWh/yr, respectively. Table A.7 in Appendix A summarizes the average annual UEC for all standard-size and compact refrigerator types over the study period.

⁷ Compact refrigerators are those with a volume of less than 219.5 litres (7.75 cu. ft) and a height of less than 91.4 centimetres (36 inches).

Figure 1 Average annual UEC of standard-size refrigerators by type, 1990–2009

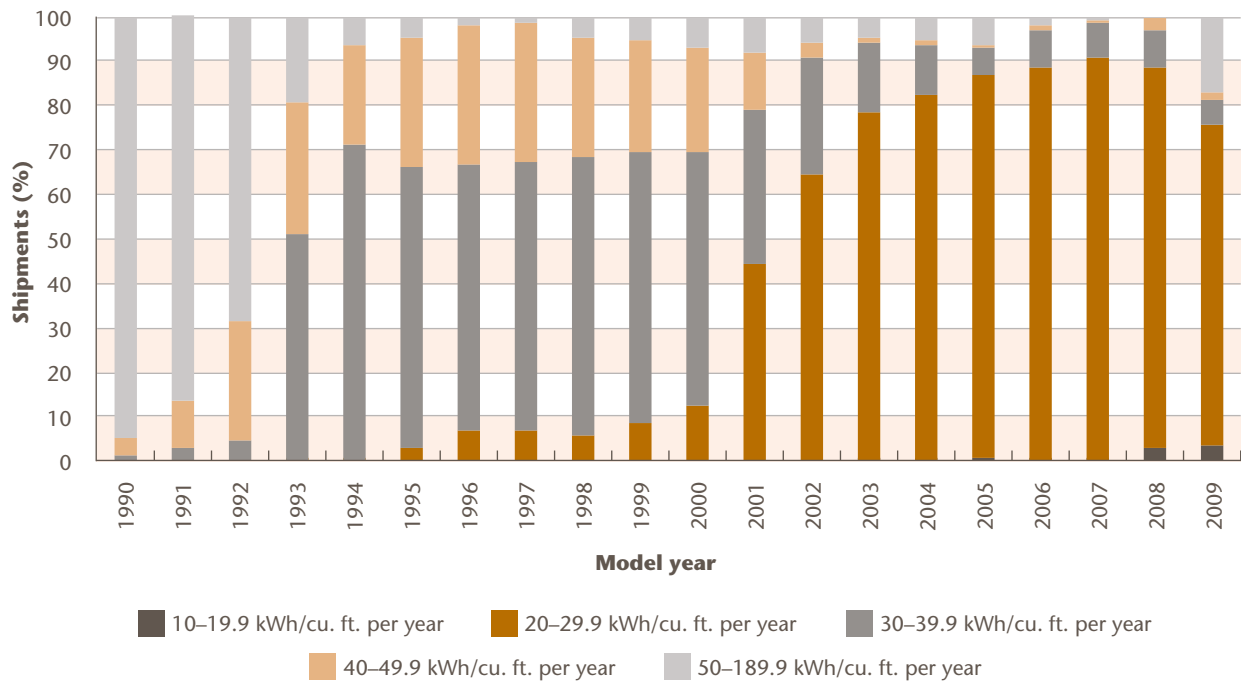
1.3 Distribution of shipments by unit energy consumption per volume

While the average annual UEC of refrigerators shipped between 1990 and 2009 decreased, the energy consumption per unit of *volume* decreased even more because of the higher efficiency gains of larger refrigerators.

Figure 2 shows the distribution of shipped refrigerators by their average annual UEC per cubic foot from 1990 to 2009. Almost two decades ago, the vast majority of shipped refrigerators (around 95 percent) consumed more than 50 kWh/cu. ft. per year, whereas in 2009, 76 percent consumed less than 30 kWh/cu. ft. per year. This

percentage is a decrease from the previous year (89 percent) due to the supplementary compact refrigerator data obtained in 2009.⁸ Also in 2009, refrigerators of the lowest energy range (less than 20 kWh/cu. ft. per year) achieved a market penetration of 3.5 percent (up from 3 percent in the previous year).

⁸ Although compact refrigerators consume considerably more energy per unit of volume, overall they consume the smallest amount of energy of all refrigerators (see Tables A.14 and A.15 in Appendix A).

Figure 2 Distribution of refrigerators by average annual UEC per cubic foot, 1990–2009

Note: The significant increase in 2009 shipments consuming 50–189.9 kWh/cu. ft. per year is attributable to the supplementary compact refrigerator data provided by refrigerator manufacturers.

A series of tables in Appendix A outline regional refrigerator shipment data by type, average annual UEC, channel (builder vs. retail) and volume.

Freezers

Full-sized chest freezers (Type 10)⁹ were again the most popular type in 2009. However, their market share declined from 65 percent in 1990 to 35 percent. Compact chest freezers (Type 18) were becoming increasingly popular, accounting for over 30 percent of the market share.

2.1 Average annual unit energy consumption by model year

The freezer data presented here should be treated with caution because they may be less representative of the Canadian market than the data for other appliances. Note that freezer data for 1990 are not provided because they are based on a particularly small number of shipments. Also note that supplementary data received from freezer manufacturers in 2009 will provide a more complete analysis of this appliance over the coming years.

A freezer shipped in 2009 consumed (on average) 356 kilowatt hours per year (kWh/yr), whereas one shipped in 1991 consumed 445 kWh/yr, representing a 20 percent improvement in average annual unit energy consumption (UEC) during that period.

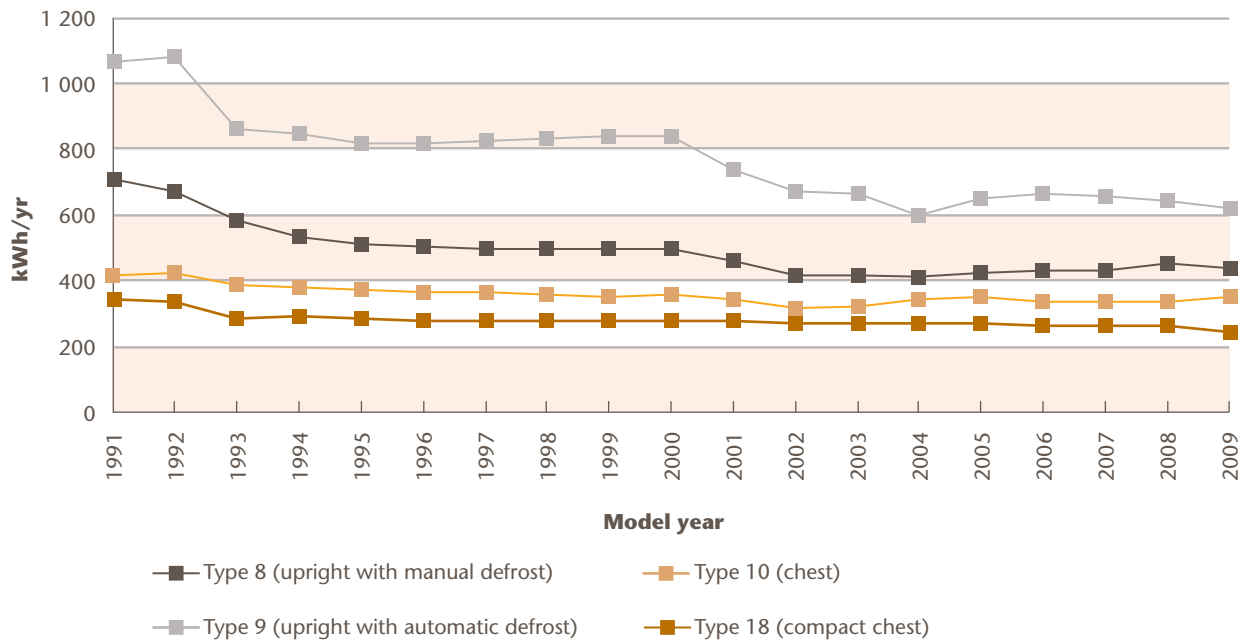
2.2 Distribution of shipments by type

The type of freezer has implications for energy consumption. Figure 3 shows how the average annual UEC for each type of freezer changed from 1991 to 2009. Upright freezers with automatic defrost (Type 9) consumed the greatest amount of energy (and accounted for a growing segment of the freezer market). However, the average annual UEC of Type 9 freezers improved the most during this period (see Table A.23 in Appendix A). Meanwhile, compact chest freezers (Type 18) consumed the smallest amount of energy. See Table A.18 for a breakdown of market share of the various freezer types.

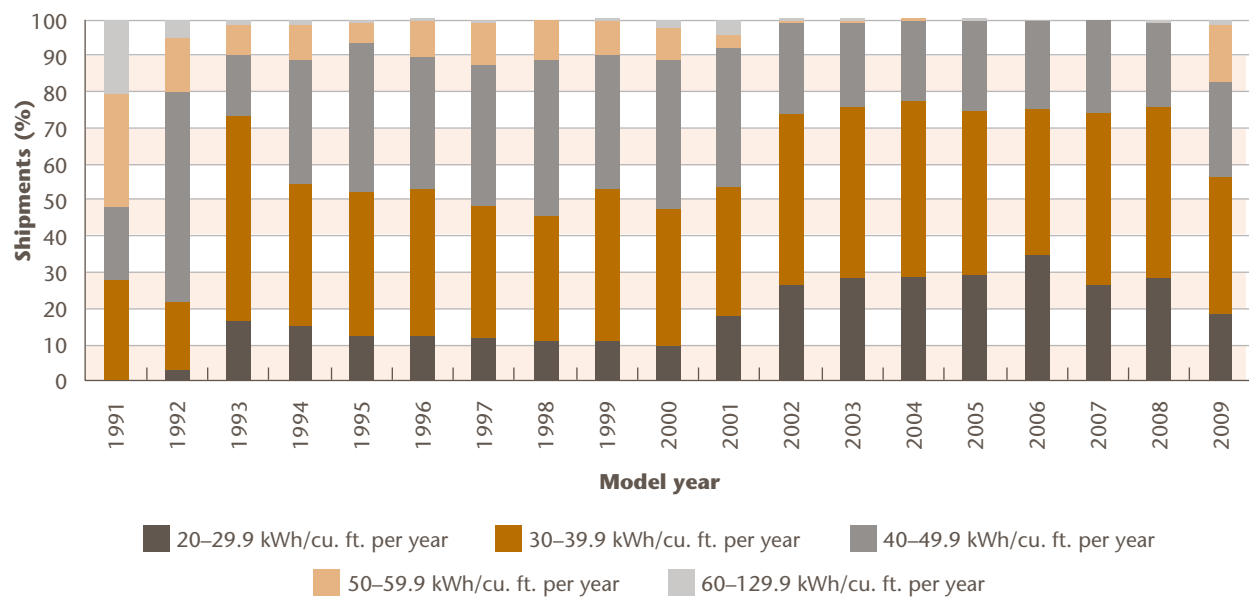
2.3 Distribution of shipments by unit energy consumption per volume

Figure 4 shows the distribution of freezers by average annual UEC per cubic foot from 1991 to 2009. The data show that, beginning in 2002, new freezers relied on a smaller amount of energy per volume for their cooling purposes. This improvement coincides with the 2001 amendment to the minimum energy performance standards (MEPS). Figure 4 also demonstrates that in 2009, based on supplementary freezer data obtained, the shift was towards more compact freezers (those consuming 50 kWh/yr and over). This is most likely a more accurate picture of the current freezer market.

⁹ The definitions of the various types of freezers can be found in Appendix B.

Figure 3 Average annual UEC of freezers by type, 1991–2009

Note: The average annual UEC is not shown for 1990 because the data for this year are based on a small number of shipments and may be unrepresentative of the actual market.

Figure 4 Distribution of freezers by average annual UEC per cubic foot, 1991–2009

For a regional breakdown of freezer shipments by type, average annual UEC per cu. ft. and channel, please refer to Tables A.19, A.20 and A.21 in Appendix A.

Dishwashers

The average annual unit energy consumption (UEC) of dishwashers in 2009 was 325 kilowatt hours (kWh),¹⁰ compared with 1026 kWh in 1990. Also, almost 90 percent of standard dishwashers on the market in 2009 were ENERGY STAR[®] qualified products exceeding the minimum energy performance standards (MEPS) by at least 41 percent.

3.1 Average annual unit energy consumption by model year

The energy consumption of shipped dishwashers improved dramatically between 1990 and 2009. Figure 5 shows that during this period, the average annual UEC of shipped dishwashers decreased by 68 percent, from 1026 kilowatt hours per year (kWh/yr) to 325 kWh/yr. The most significant improvements in energy consumption occurred before the introduction of the (MEPS) in 1995, and between 2001 and 2005, a period coinciding with the 2004 amendment to the MEPS.

However, the more recent improvements in energy consumption do not entirely reflect an actual improvement in energy efficiency. In the 2004 amendment to the MEPS, the number of loads used to calculate average energy consumption was reduced from 264 to 215 per year. Therefore, the energy rating of any dishwasher would be lower according to the new standard, and data before and after 2004 are not directly comparable.¹¹ Using current assumptions about frequency of use would reduce the average annual UEC of dishwashers to 836 kWh/yr in 1990, resulting in a change of 61 percent over the period.

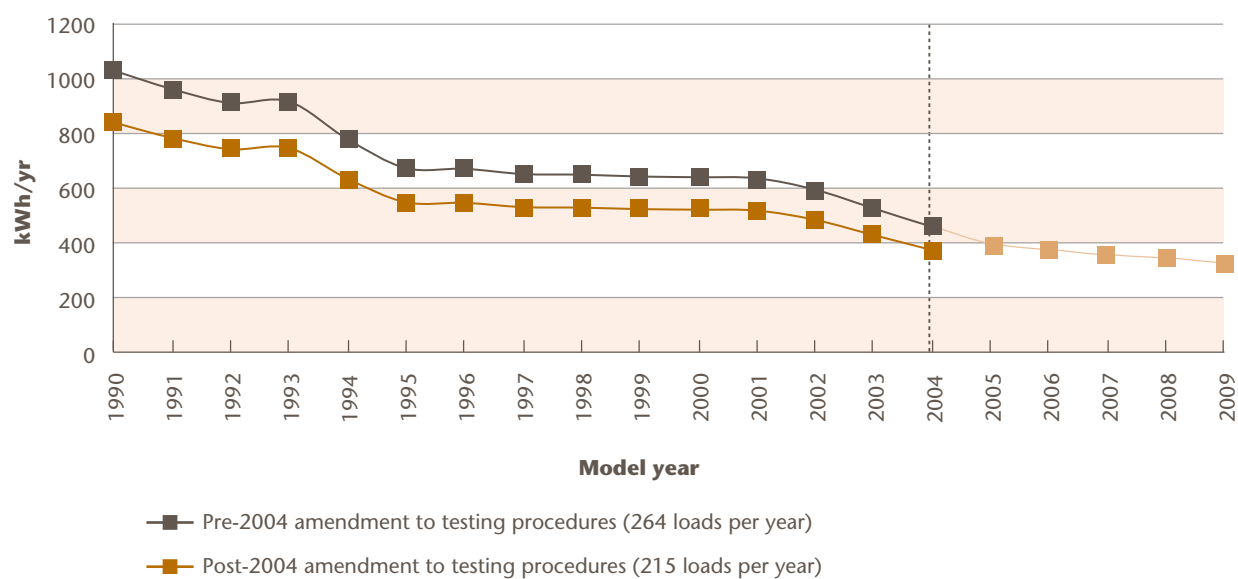
3.2 Distribution of shipments by unit energy consumption

Figure 6 shows the distribution of shipped dishwashers by average annual UEC between 1990 and 2009. In 1990, all shipped dishwashers consumed 700 kWh/yr or more. By 2009, 90 percent of them consumed fewer than 350 kWh/yr.

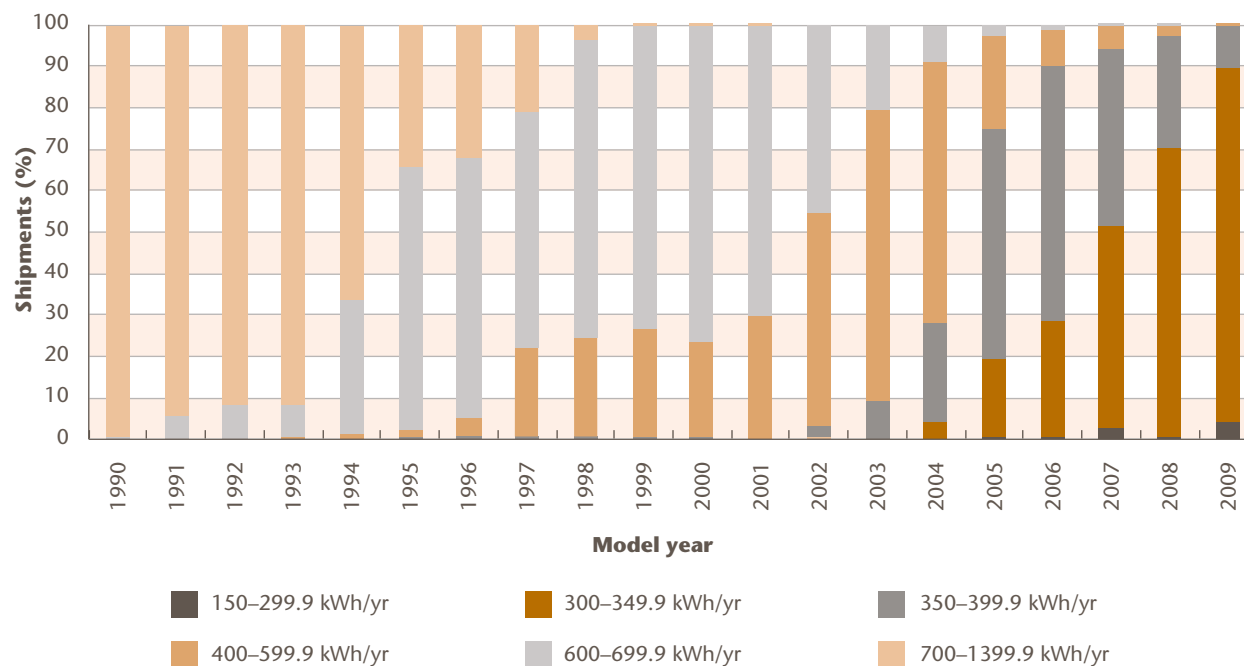
Dishwashers consuming less than 300 kWh/yr also appeared in shipments for the first time in 2006 and attained a share of 4 percent in 2009.

¹⁰ Includes hot water requirements.

¹¹ Natural Resources Canada, *EnerGuide Appliance Directory 2009*, p. 193.

Figure 5 Average annual UEC of dishwashers, 1990–2009

Note: Due to changes in the methodology for estimating average annual UEC for dishwashers, the data prior to 2004 are not directly comparable with those from 2004 to 2009.

Figure 6 Distribution of dishwashers by average annual UEC, 1990–2009

Tables A.24 and A.25 in Appendix A present regionally disaggregated data on the distribution of shipments of dishwashers by average annual UEC and distribution by channel.

Electric Ranges

In 2009, 96 percent of electric ranges consumed less than 600 kilowatt hours per year (kWh/yr), whereas in 1990, those that dominated the market consumed between 800 and 849 kWh/yr (42 percent).

4.1 Average annual unit energy consumption by model year

From 1990 to 2009, the average annual unit energy consumption (UEC) of shipped electric ranges decreased by 33 percent from 772 kWh/yr to 518 kWh/yr. Until 2002, little change in energy consumption occurred (see Table A.34 in Appendix A). Between 2002 and 2009, average annual UEC decreased from 756 to 518 kWh/yr, a drop of 31 percent. However, the improvement in energy consumption after 2002 does not entirely reflect an actual improvement in energy efficiency. In the 2003 amendment to the minimum energy performance standards (MEPS), several important changes were made to the calculation for the energy ratings. These changes included a reduction in the frequency of use of the self-cleaning cycle, from 11 to 4 times per year. These changes had the effect of reducing the overall average annual UEC of self-cleaning ranges by about 35 to 50 kWh/yr, meaning that the data prior to 2003 are not directly comparable with data after.¹²

¹² Natural Resources Canada, *EnerGuide Appliance Directory 2007*, p. 155.

4.2 Distribution of shipments by type

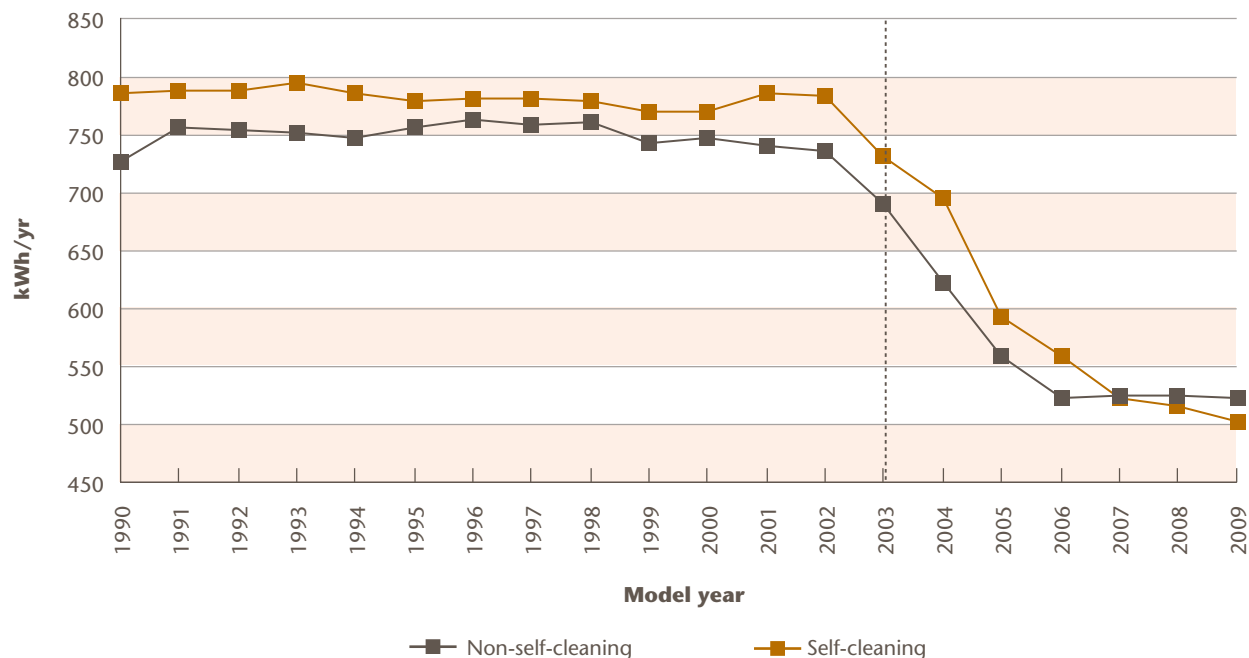
Electric ranges are divided into two types: self-cleaning and non-self-cleaning. In 1990, self-cleaning ranges accounted for less than 23 percent of electric range shipments. However, by 2009, 68 percent of electric ranges were self-cleaning.

Self-cleaning ranges have typically been more energy efficient than non self-cleaning ranges because they tended to be better insulated. However, over time, non-self-cleaning ranges have become increasingly efficient, such that in 2009, they actually (on average) consumed less energy than self-cleaning ranges (see Figure 7).¹³

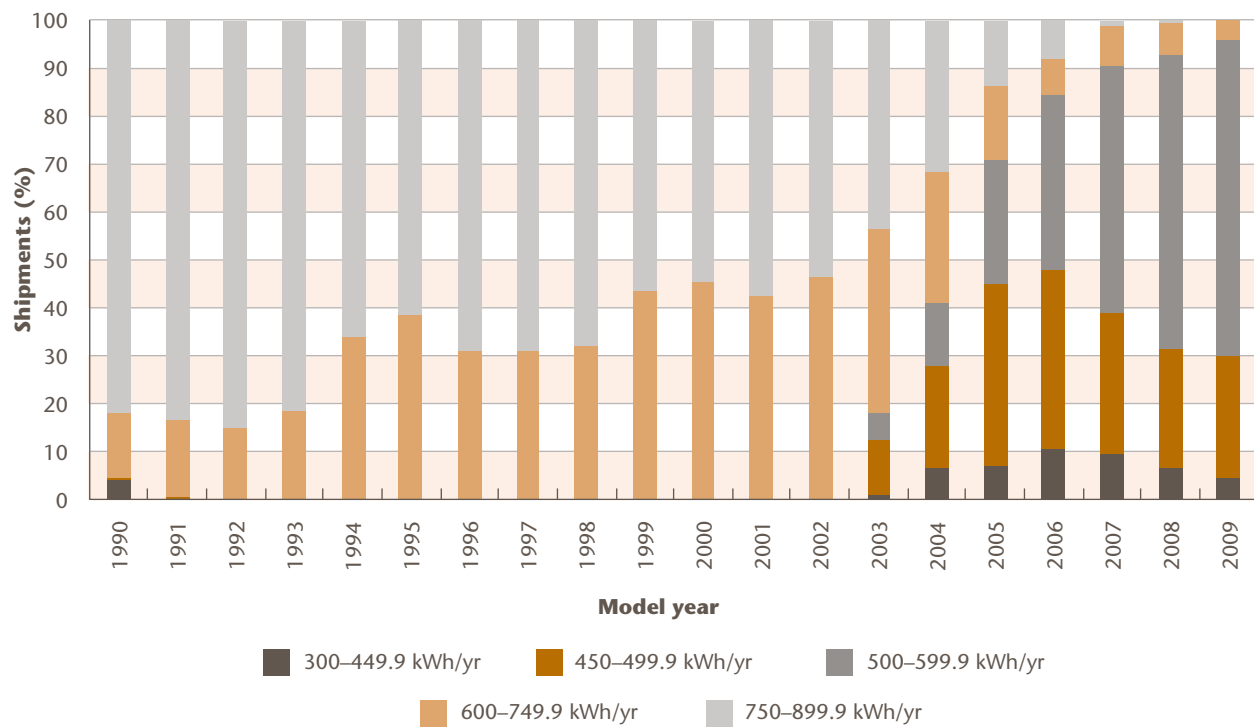
4.3 Distribution of shipments by unit energy consumption

Figure 8 shows the distribution of electric ranges by average annual UEC between 1990 and 2009. In 1990, 82 percent of electric ranges consumed 750 kWh/yr or more. By 2009, 96 percent of shipped electric ranges consumed fewer than 600 kWh/yr. Some of this decrease, however, is due to changes in how UEC ratings are now calculated for electric ranges.

¹³ One of the reasons for the improved efficiency of non-self-cleaning ranges relative to self-cleaning ranges is most likely that the latter tend to have more energy-consuming options, such as baking drawers, true temperature systems that manage temperature, larger heating elements, bridge elements and warming zones.

Figure 7 Average annual UEC of electric ranges by type, 1990–2009

Note: Due to the changes in the methodology for estimating average annual UEC, the data prior to 2003 are not directly comparable with those from 2003 to 2009.

Figure 8 Distribution of electric ranges by average annual UEC, 1990–2009

For a regional breakdown of electric range shipments by type, average annual UEC per cubic foot and channel, please refer to Tables A.30, A.31, A.32 and A.34 in Appendix A.

Clothes Washers

In 2009, the average annual unit energy consumption (UEC) of clothes washers was 234 kilowatt hours per year (kWh/yr),¹⁴ compared with 1218 kWh/yr in 1990. In addition, almost 70 percent of clothes washers shipped in Canada in 2009 were ENERGY STAR® qualified products exceeding the minimum energy performance standards (MEPS) by at least 36 percent.

5.1 Average annual unit energy consumption by model year

The average annual UEC of clothes washers decreased dramatically between 1990 and 2009 (see Table A.41 in Appendix A). During this period, the average annual UEC fell by 81 percent. This decrease is due both to energy efficiency improvements across all types of clothes washers and to the increasing popularity of front-loading units, which are more energy-efficient than top-loading units.

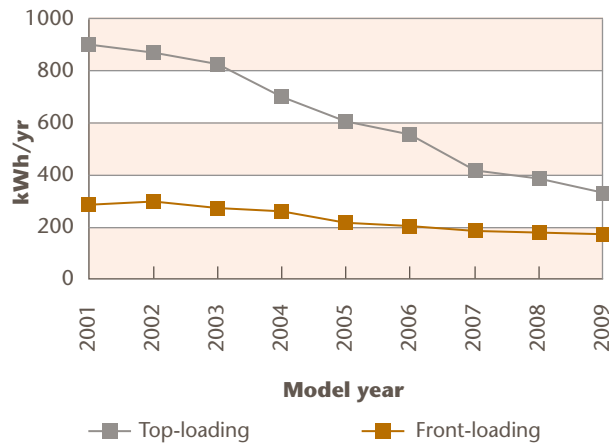
5.2 Distribution of shipments by type

Front-loading clothes washers became increasingly popular between 2001¹⁵ and 2009. In 2001, these clothes washers accounted for only 16 percent of shipments in Canada. However, by 2009, they accounted for 61 percent of shipments.

The popularity of front-loading clothes washers has implications for energy consumption because these washers tend to consume significantly less water and energy than do top-loading washers. As illustrated in Figure 9, although the energy efficiency of top-loading clothes washers has improved substantially, they still consumed more than twice as much energy (on average) as front-loading washers from 2001 to 2009.

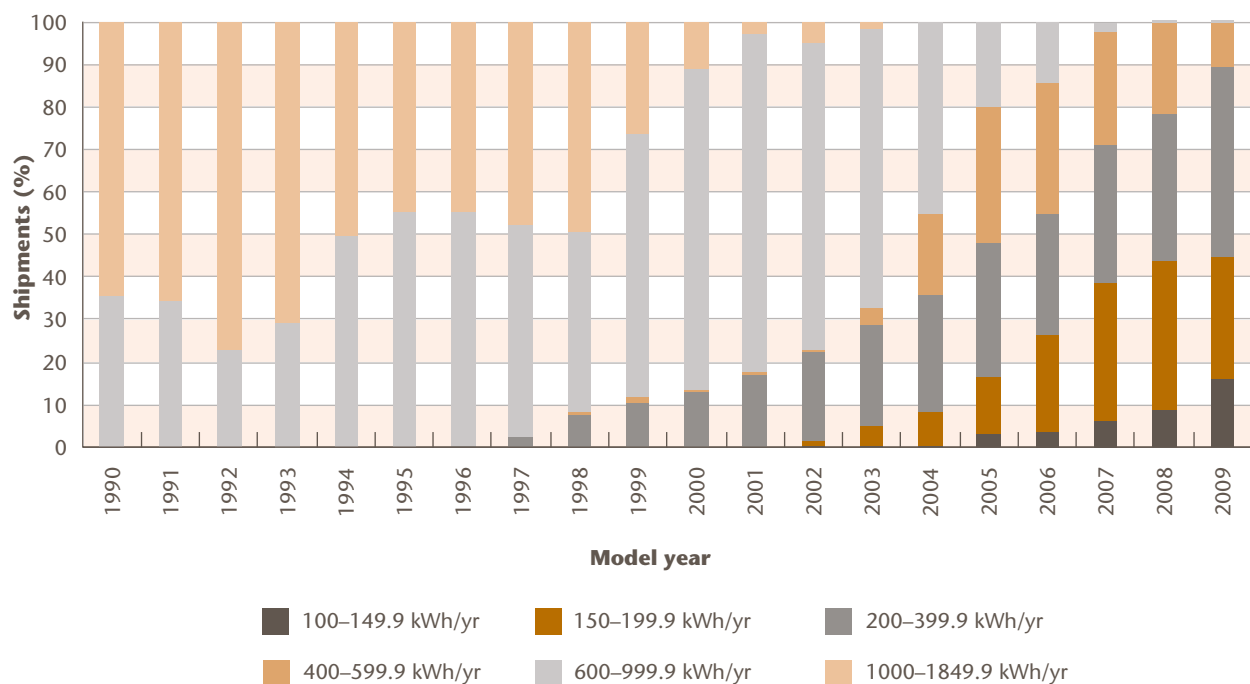
¹⁴ Includes hot water requirements.

¹⁵ 2001 is the first year for which there are comprehensive data on distribution by clothes washer type.

Figure 9 Average annual UEC of clothes washers by type, 2001–2009

5.3 Distribution of shipments by unit energy consumption

Figure 10 shows how the average annual UEC of shipped clothes washers changed between 1990 and 2009. In 1990, all clothes washers consumed 600 kWh/yr or more, and 64 percent consumed 1000 kWh/yr or more. By 2009, 89 percent of clothes washers consumed less than 400 kWh/yr and 16 percent consumed less than 150 kWh/yr (all ENERGY STAR qualified models).

Figure 10 Distribution of clothes washers by average annual UEC, 1990–2009

For regional shipment data by clothes washer type, volume and distribution by channel, refer to Tables A.37, A.38, A.39 and A.41 in Appendix A.

Electric Clothes Dryers

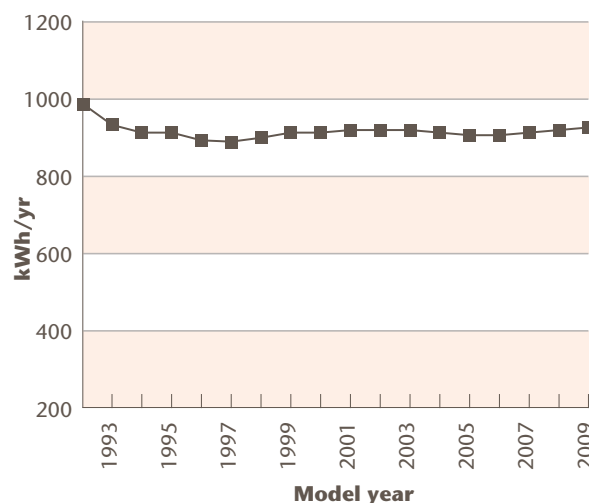
In 2009, the average annual unit energy consumption (UEC) of electric clothes dryers was 921 kilowatt hours per year (kWh/yr), compared with 983 kWh/yr in 1992.¹⁶ Owing to the nature of the appliance, there is little potential to improve the energy efficiency of electric clothes dryers with current technology.

6.1 Average annual unit energy consumption by model year

Figure 11 shows how the energy efficiency of electric clothes dryers changed from 1992 to 2009. Average UEC decreased by 10 percent between 1992 and 1996, and has remained relatively stable since. However, the average annual UEC increased slightly in each year since 2005, reaching 921 kWh/yr in 2009, mostly due to the use of larger capacity units (see Section 6.2). Overall, the average annual UEC was 6 percent lower in 2009 than in 1992.

The increasing share of front-loading clothes washers has helped reduce the energy consumption of clothes dryers because more moisture is removed before clothes reach the dryer (although this is not reflected in the UEC data). In addition, moisture detectors in electric clothes dryers automatically shut off the unit when a load is sufficiently dry.

Figure 11 Average annual UEC of electric clothes dryers, 1992–2009

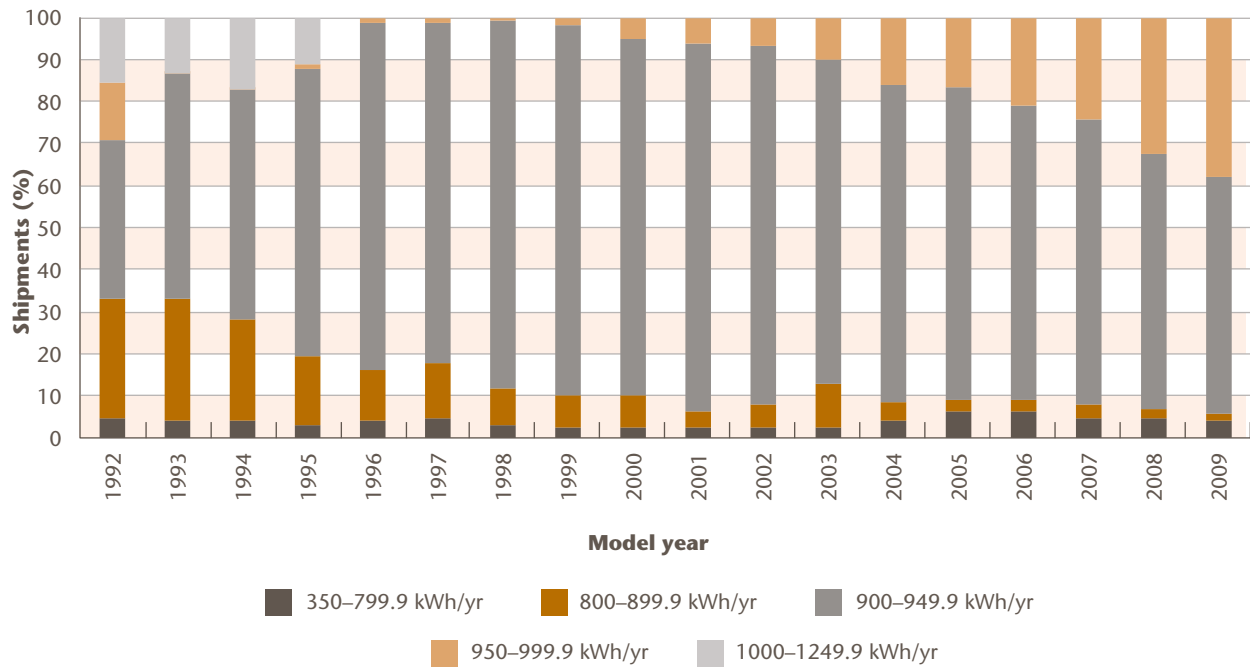


Note: The average annual UEC for electric clothes dryers is not shown for 1990 and 1991 because the data for these years are based on a small number of shipments and may be unrepresentative of the actual market.

6.2 Distribution of shipments by unit energy consumption

Figure 12 shows the distribution of electric clothes dryers shipped between 1992 and 2009 by average annual UEC. From 1992 to 2009, the share of electric clothes dryers consuming less than 900 kWh/yr decreased while the share of those consuming over 950 kWh/yr increased. This is mainly attributable to the increase in the use of larger capacity units over the period (12 percent). As outlined in Table A.48 in Appendix A, the average energy consumption per litre decreased by 26 percent, from 6.6 kWh/litre (kWh/L) in 1992 to 4.9 kWh/L in 2009.

¹⁶Note that data for 1990 and 1991 are not presented because they are based on a small number of shipments and may not be representative of the Canadian market in those years.

Figure 12 Distribution of electric clothes dryers by average annual UEC, 1992–2009

For a regional breakdown of electric clothes dryer data by UEC and distribution by channel, see Tables A.43, A.44 and A.46 in Appendix A.

Energy Consumption and Savings for All Major Household Appliances

The significant reduction in unit energy consumption (UEC) of many major household appliances has meant that less energy has been consumed by these appliances than if energy efficiency had not improved. In this chapter, energy consumption and savings are quantified to illustrate the significance of energy efficiency improvements over the past two decades, on both a household and national scale.

7.1 Energy consumption of all appliances

The average annual UEC of new appliances decreased significantly between 1990 and 2009 (see Figure 13). A household operating a full set of appliances purchased in 2009 might expect them to consume a little less than 2800 kilowatt hours per year (kWh/yr) of electricity on average, roughly half as much as a set of appliances purchased in 1990 (assuming similar operating patterns¹⁷).

Between 1990 and 2009, the decrease in average annual UEC was most significant for clothes washers (984 kWh/yr or 81 percent). This decrease is due both to energy efficiency improvements across all types of clothes washers and to the increasing popularity of front-loading units (which are more energy-efficient than top-loading units).

There were also significant improvements in average annual UEC for dishwashers during this same period (701 kWh/yr or 68 percent). However, part of this improvement is due to a change in how

UEC is measured (the assumption about frequency of use was revised downward to more accurately reflect household usage patterns) and does not represent an actual improvement in energy efficiency. Using similar assumptions about frequency of use would reduce the average annual UEC of dishwashers to 836 kWh/yr in 1990, resulting in an energy efficiency improvement of 61 percent over the period (as opposed to 68 percent).

Meanwhile, the average annual UEC of refrigerators decreased by 526 kWh/yr (55 percent) between 1990 and 2009, partly because of more efficient compressors and better insulation. This reduction occurred despite an increase in the shipments' share of larger refrigerators during the period, because greater efficiency gains occurred for larger units over the period. Consequently, even though the share of larger refrigerators increased, the average annual UEC of all refrigerators decreased. However, supplementary data received from refrigerator manufacturers in 2009 show an increase in their share of shipments of compact refrigerators (those with a volume of less than 10.4 cubic feet). The breakdown of refrigerators by volume is outlined in Table A.5 in Appendix A.

Electric ranges saw a reduction in average annual UEC of 254 kWh/yr (33 percent), but owing to the nature of this appliance, there is little potential to further reduce energy consumption with current technology. In addition, a portion of the observed reduction in UEC was due to a change in how it is measured and does not represent an actual improvement in energy efficiency (the assumption about frequency of use of the self-cleaning cycle was revised downward to more accurately reflect

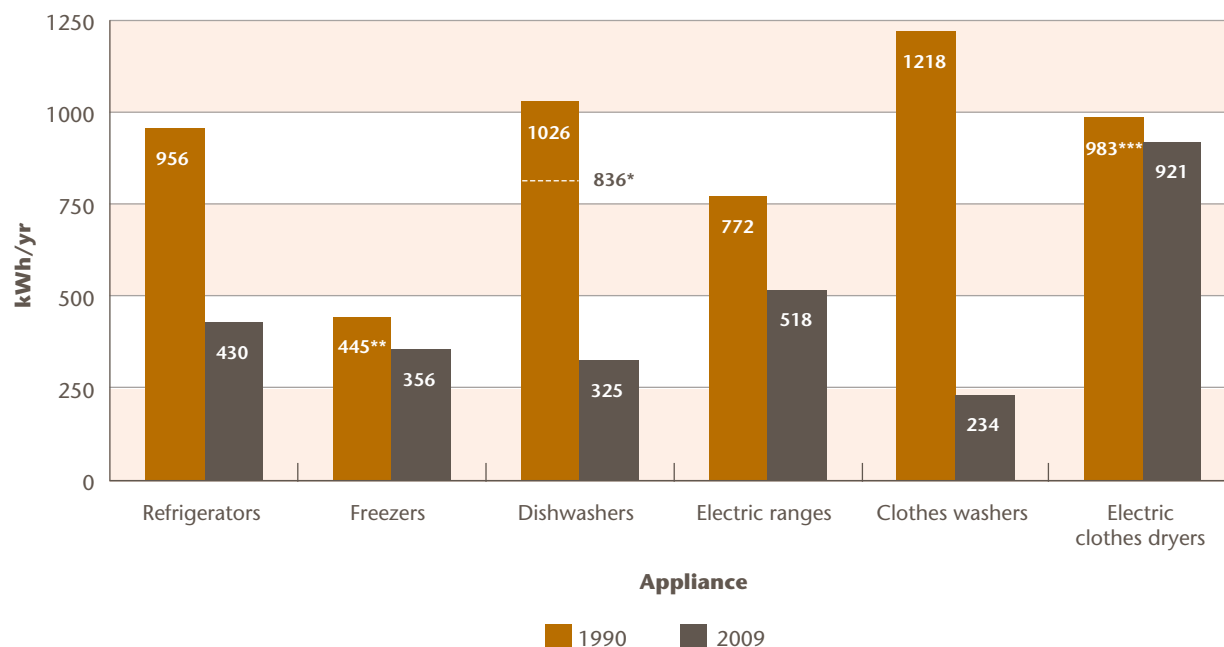
¹⁷ Except for dishwashers (whose rating is based on less frequent use after 2003) and self-cleaning electric ranges (whose rating is based on a lower number of cleaning cycles after 2002).

household usage patterns). The change reduced the average annual UEC of self-cleaning ranges by about 35 to 50 kWh/yr.

Freezers saw a relatively smaller reduction in UEC than did other appliances (89 kWh/yr or 20 percent) partly because of a switch away from chest freezers (Type 10) to less efficient upright units (Type 9). However, supplementary data received in 2009 from freezer manufacturers also show a considerable market share for compact chest freezers in that year. As previously noted, the data for freezers are less comprehensive than the data for other appliances and may not be fully representative of the trends in the Canadian market. Because of the greater effort invested by the Canadian Appliance Manufacturers Association (CAMA), this recent supplementary shipment data will help create a truer picture of the freezer market in the years ahead.

As with electric ranges, there is little potential to improve the energy efficiency of electric clothes dryers because of the nature of the appliance, although there has been a trend toward dryers with larger capacities. Between 1992 and 2009, the average annual UEC of electric clothes dryers decreased by 62 kWh/yr (6 percent). The increasing share of front-loading clothes washers helped reduce the energy consumption of clothes dryers because more moisture is removed before clothes reach the dryer (although this change is not incorporated into the data). In addition, moisture detectors in electric clothes dryers automatically shut off the unit when a load is sufficiently dry.

Figure 13 Average annual UEC of appliances, 1990 and 2009



* This figure represents the average annual UEC of dishwashers in 1990 if the frequency of use is assumed to be the same as in 2009.

** The average annual UEC for freezers is shown for 1991 because data for 1990 are based on a small number of shipments and may be unrepresentative of the actual market.

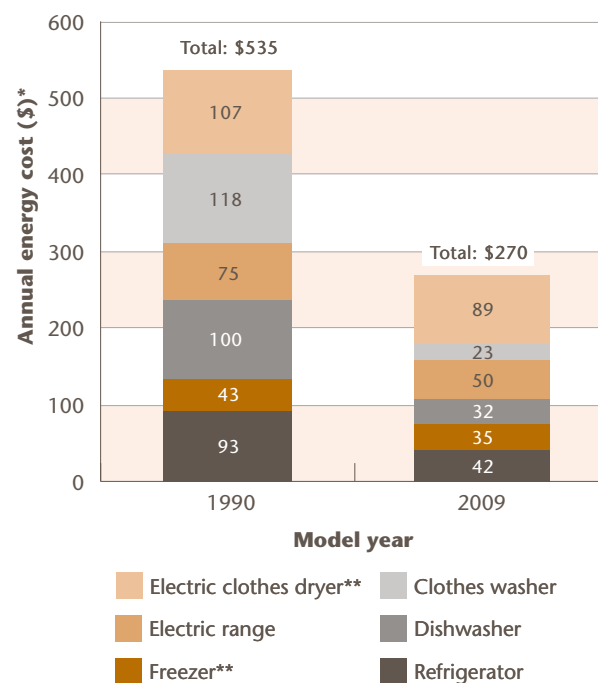
*** The average annual UEC for electric clothes dryers is shown for 1992 because data for 1990 and 1991 are based on a small number of shipments and may be unrepresentative of the actual market.

7.2 Electricity cost savings per household

The increased energy efficiency of major appliances should reduce energy costs for households, assuming usage patterns remain constant. Figure 14 shows the annual energy costs for an average set of appliances purchased in both 1990 and 2009. Assuming an electricity price of 9.7 cents/kWh,¹⁸ annual electricity costs for a set of appliances purchased in 1990 would be approximately \$535, while costs for a set of appliances purchased in 2009 would be reduced by almost half, to about \$270.

The magnitude of the cost savings is directly proportional to the reduction in average UEC of each appliance. Annual energy costs decreased the most for clothes washers and dishwashers. Energy costs decreased the least for electric clothes dryers and freezers. Note that part of the reduction in energy costs for dishwashers and electric ranges is due to changes in usage patterns and methodology and not to energy efficiency.

Figure 14 Average annual unit electricity cost for appliances purchased in 1990 and 2009



* Assuming a constant electricity price of 9.7 cents/kWh, which was the average Canadian residential price in 2009.

** The energy costs for freezers and electric clothes dryers are based on the average annual UEC in 1991 and 1992 respectively.

7.3 Energy consumption and energy savings for all shipped appliances

In this section, total energy consumption and savings are quantified for all major household appliances shipped between 1990 and 2009. This analysis is not intended to be a comprehensive national assessment of energy use by all major household appliances. Rather, it conveys a sense of the magnitude and relative importance of energy savings obtained across the country from different appliances.

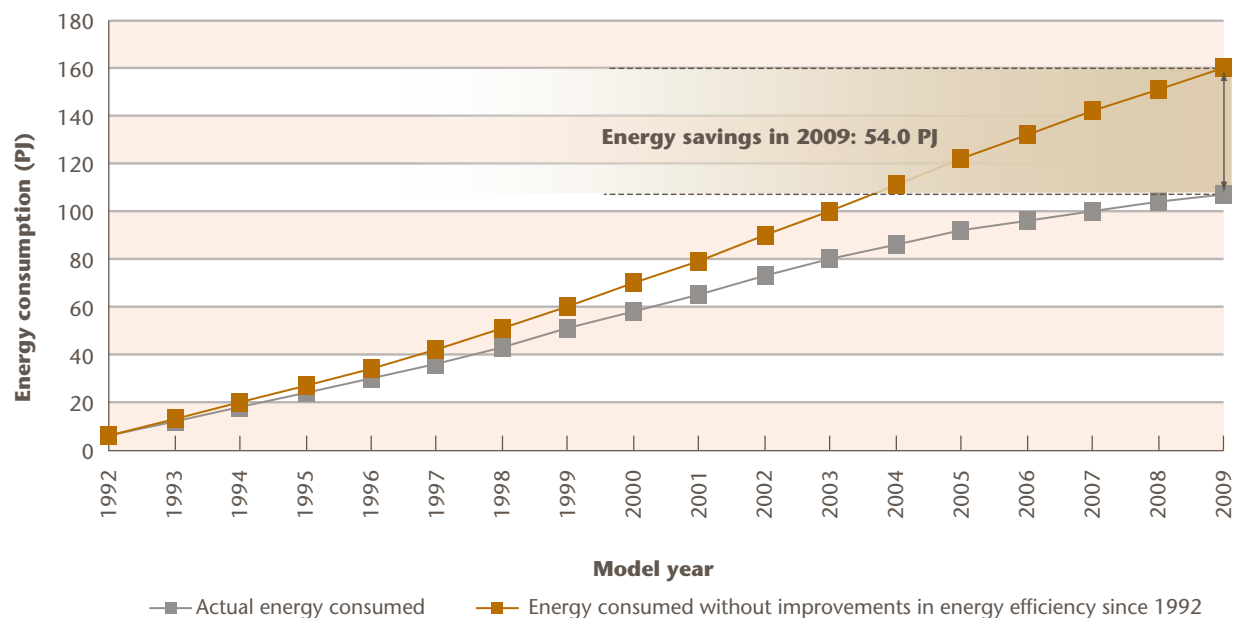
Figure 15 quantifies the energy savings that resulted from improvements in energy efficiency between 1992 and 2009, using the shipment data collected by Natural Resources Canada. The bottom

¹⁸ This was the average Canadian residential price in 2009, Natural Resources Canada, 2011, *Energy Use Data Handbook, 1990 to 2009*, Table 18, Residential Sector, oee.nrcan.gc.ca/corporate/statistics/neud/dpa/tablesandbook2/res_00_18_e_4.cfm.

line represents the total energy consumption of major household appliances shipped in Canada between 1992 and 2009, while the top line represents the total energy that would have been consumed if energy efficiency had not improved

since 1992. The area between the two lines is therefore an estimate of the energy savings resulting from the increased energy efficiency of appliances shipped during this period.

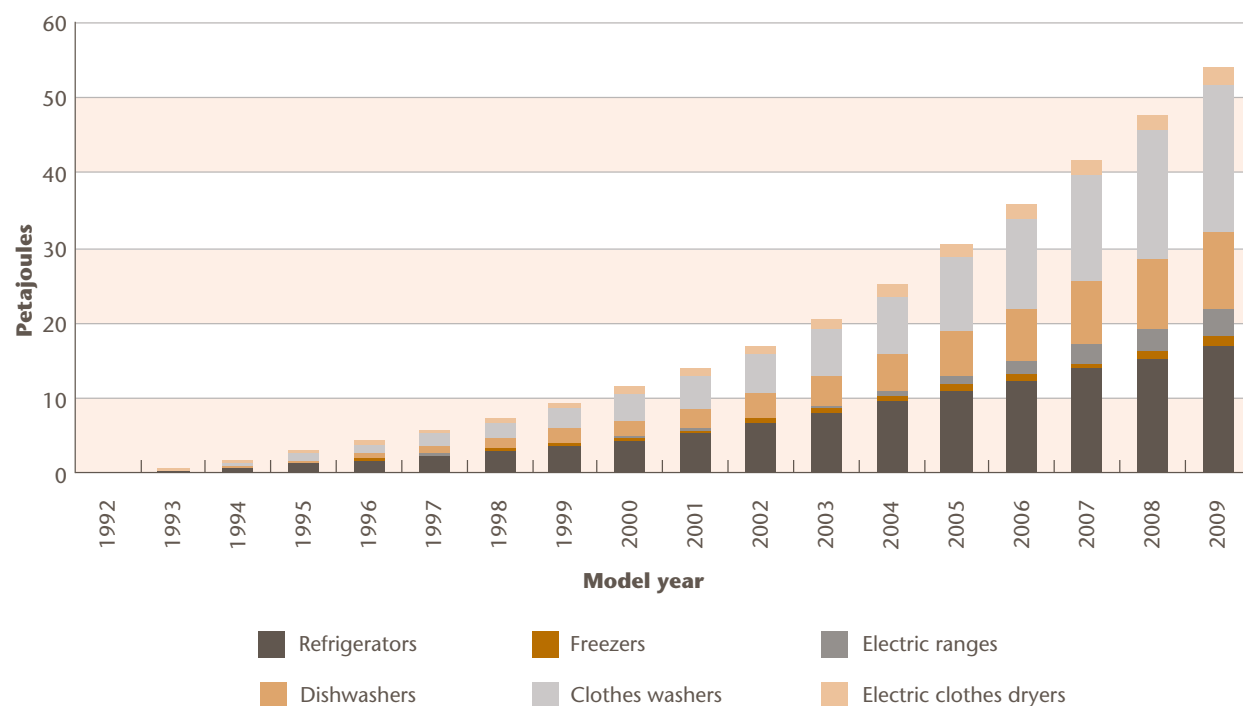
Figure 15 Energy consumption from all shipped appliances, with and without improvements in energy efficiency, 1992–2009



For example, the energy consumption of all appliances shipped between 1992 and 2009 is estimated to be just over 106 petajoules (PJ) (or 30 billion kWh), representing the energy consumed by all appliances shipped during that period, except for those that had reached the end of their service life. However, if energy efficiency had not improved since 1992, these appliances would have consumed over 160 PJ. The difference (54 PJ or the equivalent of one year's energy for over 510 000 households) represents the energy savings resulting from the improvement in energy efficiency of major household appliances during the 1992–2009 period.¹⁹

Figure 16 attributes the energy savings identified above (i.e. the area between the two lines in Figure 15) to each appliance. Clothes washers, refrigerators and dishwashers account for much of the energy savings because of significant improvements in the energy efficiency of these appliances. Electric clothes dryers and electric ranges accounted for a much lower energy saving because of smaller energy efficiency improvements. However, freezers accounted for the lowest energy saving because of their low penetration rate and the fact that the available shipment data accounts for a smaller portion of the market than it does for other appliances.

¹⁹ For details of the assumptions used in these calculations, refer to Appendix A.2 in *Energy Consumption of Major Household Appliances Shipped in Canada, Trends for 1990–2008* (Ottawa: 2010), p. 50. Available at oee.nrcan.gc.ca/publications/statistics/cama10/appendixa.cfm.

Figure 16 Energy savings by shipped appliance, 1992–2009

Limitations of the energy consumption and savings analysis

This analysis conveys a sense of the magnitude and relative importance of energy savings obtained across the country from different appliances. However, it is not a comprehensive national assessment of energy use by all major appliances for at least two reasons. First, the shipment data do not reflect the entire Canadian market. According to the (CAMA), the manufacturers represent more than 90 percent of the Canadian market. Second, we do not attempt to estimate the total Canadian stock for each appliance (although we do estimate stock directly associated with the shipment data from 1990 onwards).

In addition, with respect to energy savings, several factors, including the following, could affect the magnitude of the estimates presented here:

- *Appliance service life.* Continued use of appliances for longer than their assumed average service life would contribute to ongoing energy savings obtained from that appliance. However, if that appliance were replaced by a newer and more energy efficient model, an earlier replacement would contribute to greater energy savings.
- *Secondary appliances.* If new appliances are purchased to complement rather than replace existing appliances, no actual energy savings would result from their purchase (unless a secondary appliance is being replaced).

Conclusions

For the purposes of this summary report, shipment data for major household appliances (refrigerators, freezers, dishwashers, electric ranges, clothes washers and electric clothes dryers) between 1990 and 2009 were analysed. These data represent the majority of shipments to Canadian retailers and builders during this period, and were collected with the co-operation of the Canadian Appliance Manufacturers Association (CAMA).

Between 1990 and 2009, the average annual unit energy consumption (UEC) of most appliances decreased significantly. In fact, a household operating an average set of major appliances purchased in 2009 might expect them to consume roughly half as much as a set purchased in 1990. In addition to reducing energy demand and the associated impacts of electricity generation (such as greenhouse gas (GHG) emissions), this decrease in energy consumption reduces household expenditures on electricity.

The reduction in average annual UEC ranged from 6 percent (electric clothes dryers) to 81 percent (clothes washers) during the study period. These energy efficiency improvements can be attributed to a variety of factors, including the following:

- research and development carried out by manufacturers;
- consumer demand for more energy-efficient products;
- standards that limit the amount of energy that each appliance may consume (minimum energy performance standards [MEPS]);
- information initiatives such as the EnerGuide for Equipment program and the ENERGY STAR®

Initiative in Canada, which help consumers identify the most energy-efficient products on the market; and

- various incentives and rebates offered by federal, provincial/territorial and municipal governments and utilities.

To illustrate the significance of energy efficiency improvements during this period, this summary report includes quantifications of the energy savings obtained from all shipped appliances in Canada between 1992 and 2009, as follows:

- Clothes washers, refrigerators and dishwashers accounted for the majority of energy savings because of significant improvements in the energy efficiency of these appliances;
- Freezers accounted for the lowest energy savings because of their low penetration rate and because the available shipment data account for a smaller portion of the market than it does for other appliances (although this changed considerably in 2009 when supplementary data were obtained);
- Electric clothes dryers and electric ranges also accounted for lower energy savings because of more modest energy efficiency improvements.

Detailed Tables

Table A.1 ENERGY STAR® qualified appliances as a percentage of total shipments in Canada, 2000–2009

Appliance	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	(%)									
Dishwashers	1.6	9.7	29.8	56.5	80.9	90.8	79.7	76.2	89.3	89.5
Clothes washers	2.2	9.2	22.1	30.6	36.2	45.9	50.8	58.4	64.4	69.4
Refrigerators	–	11.4	22.3	40.7	34.2	37.6	37.3	44.3	53.4	53.4

Table A.2 Average annual UEC of ENERGY STAR qualified and non-ENERGY STAR qualified major household appliances, 2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Appliance	(KWh/yr)									
Refrigerators										
Total refrigerators	639	559	506	487	478	469	481	483	467	430
Non-ENERGY STAR qualified refrigerators	–	567	505	491	482	469	485	486	479	442
ENERGY STAR qualified refrigerators	–	495	509	481	469	470	475	480	457	420
Dishwashers										
Total dishwashers	637	634	592	524	457	396	373	354	343	325
Non-ENERGY STAR qualified dishwashers	639	644	635	617	606	568	402	377	374	350
ENERGY STAR qualified dishwashers	553	534	492	452	422	378	365	347	339	322
Clothes washers										
Non-ENERGY STAR qualified front-loading clothes washers	–	–	316	362	321	276	282	241	382	379
ENERGY STAR qualified front-loading clothes washers	–	–	300	274	258	217	201	183	178	172
Non-ENERGY STAR qualified top-loading clothes washers	–	–	916	892	746	636	581	425	399	353
ENERGY STAR qualified top-loading clothes washers	–	–	287	337	302	317	301	311	290	251
Total clothes washers	838	810	779	708	573	444	390	287	261	234
Non-ENERGY STAR qualified clothes washers	–	–	915	891	746	627	575	422	399	353
ENERGY STAR qualified clothes washers	–	–	299	294	267	228	211	191	185	181

Table A.3 ENERGY STAR qualified appliances as a percentage of total shipments by region/province, 2004–2009

Region/Province	Refrigerators					
	2004	2005	2006 (%)	2007	2008	2009
Canada	32.4	37.6	37.3	44.3	53.4	53.4
Atlantic	23.3	21.3	20.6	22.8	27.3	33.5
Quebec	36.9	37.2	38.6	43.1	55.0	54.1
Ontario	38.6	39.9	38.5	47.4	56.2	56.3
Prairies	33.0	40.6	39.8	48.8	55.0	53.4
British Columbia and Territories	29.3	30.4	31.3	34.5	47.1	52.0

Region/Province	Dishwashers					
	2004	2005	2006 (%)	2007	2008	2009
Canada	81.0	90.8	79.7	76.2	89.3	89.5
Atlantic	75.4	88.4	79.6	66.4	82.4	91.5
Quebec	81.3	92.9	82.1	74.1	88.4	91.3
Ontario	83.3	90.8	80.4	77.9	90.7	89.3
Prairies	78.4	90.3	75.3	77.9	89.3	88.9
British Columbia and Territories	79.5	87.9	82.8	73.9	88.9	86.4

Region/Province	Clothes washers					
	2004	2005	2006 (%)	2007	2008	2009
Canada	36.2	45.9	50.8	58.4	64.4	69.4
Atlantic and Quebec*	29.9	41.7	43.3	51.6	56.6	60.5
Ontario	37.6	50.1	54.6	60.7	67.6	72.9
Prairies	36.2	48.2	53.1	61.4	67.2	72.2
British Columbia and Territories	36.4	50.3	60.3	66.7	74.2	80.3

* For confidentiality reasons, the Atlantic provinces and Quebec have been grouped for this analysis.
Due to rounding, the numbers may not add up to 100.

Table A.4 Distribution of refrigerators by type, 1990–2009

Model year	Standard size								Compact	
	Type 1	Type 2	Type 3	Type 4 (%)	Type 5	Type 5A	Type 6	Type 7	Type 11 (%)	Type 13 (%)
1990	3.5	2.0	84.9	7.6	0.6	0.0	0.0	0.0	0.1	1.2
1991	3.1	0.3	84.3	9.0	0.8	0.0	0.0	0.3	0.3	2.0
1992	2.1	0.4	85.4	7.5	0.3	0.0	0.0	3.5	0.1	0.6
1993	1.1	0.6	85.5	6.8	0.7	0.0	0.0	4.2	0.1	0.9
1994	0.6	0.7	85.1	4.9	2.0	0.0	0.1	4.3	1.3	1.0
1995	0.2	0.6	84.8	4.6	1.6	0.0	0.1	5.2	1.9	1.0
1996	0.2	0.5	84.8	4.4	2.2	0.0	0.1	6.6	0.8	0.4
1997	0.4	0.1	83.8	3.8	3.2	0.0	0.0	8.3	0.4	0.0
1998	0.4	0.0	76.5	3.3	8.5	0.0	0.3	7.3	3.6	0.0
1999	0.1	0.0	76.6	2.4	8.4	0.0	0.4	7.5	4.6	0.0
2000	0.0	0.0	72.9	2.2	11.1	0.0	0.5	7.9	5.3	0.0
2001	0.0	0.0	71.1	2.1	11.1	0.0	0.4	9.1	6.1	0.1
2002	0.0	0.0	70.2	2.2	10.6	0.0	0.2	11.0	5.8	0.1
2003	0.0	0.0	68.2	2.4	13.9	0.0	0.1	11.2	2.0	2.2
2004	0.0	0.0	66.4	1.9	15.5	0.0	0.1	11.0	4.5	0.5
2005	0.0	0.0	64.8	1.1	17.9	0.0	0.0	9.6	6.3	0.1
2006	0.1	0.0	64.5	1.9	21.2	0.6	0.0	10.1	1.5	0.0
2007	0.1	0.0	61.0	1.6	22.3	1.2	0.0	13.5	0.3	0.0
2008	0.4	0.0	59.4	1.2	26.5	2.4	0.0	10.0	0.1	0.0
2009	0.1	0.0	48.9	0.8	23.8	2.5	0.0	7.1	13.6*	3.2*

* This significant increase in 2009 shipments in this category is attributable to the supplementary compact refrigerator data provided by refrigerator manufacturers.

Due to rounding, the numbers may not add up to 100.

The definitions of the various types of refrigerators can be found in Appendix B.

Table A.5 Distribution of refrigerators by volume, 1990–2009

Model year	Volume (cu. ft.)						
	0–10.4	10.5–12.4	12.5–14.4	14.5–16.4 (%)	16.5–18.4	18.5–20.4	20.5–32.4
1990	3.8	13.2	17.8	14.1	43.3	2.6	5.1
1991	2.6	14.2	11.0	14.2	47.9	5.4	4.7
1992	1.6	10.9	10.0	19.6	42.0	8.3	7.6
1993	2.2	8.0	7.1	16.6	45.3	12.2	8.7
1994	3.4	9.5	6.9	16.5	45.8	8.7	9.3
1995	3.7	14.1	6.7	15.0	39.5	10.8	10.2
1996	1.9	13.5	6.7	13.4	38.6	12.5	13.4
1997	0.9	11.1	6.9	12.2	39.2	12.7	16.9
1998	4.0	9.3	7.0	10.6	42.7	11.1	15.2
1999	5.3	7.6	6.9	9.9	43.5	10.0	16.8
2000	6.5	6.6	7.7	9.0	41.2	9.3	19.7
2001	8.1	5.6	6.7	8.7	36.4	11.4	23.2
2002	6.3	5.5	7.4	6.8	34.6	15.3	24.2
2003	4.9	3.9	6.1	8.6	37.0	15.7	23.9
2004	5.6	3.0	3.3	11.0	39.2	14.3	23.5
2005	7.0	2.5	2.3	9.7	41.6	15.2	21.7
2006	2.9	3.6	2.5	9.7	40.1	17.3	23.9
2007	1.6	3.3	2.2	8.7	39.9	17.3	27.0
2008	3.2	3.9	2.2	6.3	38.8	21.7	23.8
2009	19.1*	4.4	1.3	5.8	33.0	18.3	18.2

* This significant increase in 2009 shipments in this category is attributable to the supplementary compact refrigerator data provided by refrigerator manufacturers.

Due to rounding, the numbers may not add up to 100.

Table A.6 Distribution of refrigerators by average annual UEC per cubic foot, 1990–2009

Model year	kWh/cu. ft. per year				
	10–19.9	20–29.9	30–39.9 (%)	40–49.9	50–189.9
1990	0.0	0.0	1.5	3.9	94.6
1991	0.0	0.0	2.9	10.7	86.4
1992	0.0	0.0	4.8	26.9	68.3
1993	0.0	0.1	51.0	29.7	19.2
1994	0.0	0.4	70.9	22.4	6.4
1995	0.0	2.8	63.3	29.3	4.6
1996	0.0	6.6	60.0	31.2	2.1
1997	0.0	6.9	60.4	31.4	1.3
1998	0.0	5.9	62.4	27.1	4.5
1999	0.0	8.4	61.2	25.0	5.4
2000	0.0	12.2	57.4	23.6	6.8
2001	0.0	44.5	34.5	12.7	8.3
2002	0.0	64.3	26.6	3.1	6.1
2003	0.1	78.3	15.5	1.6	4.5
2004	0.4	82.1	11.0	1.3	5.2
2005	0.5	86.2	6.5	0.2	6.6
2006	0.4	88.2	8.5	0.9	2.0
2007	0.4	90.2	7.9	0.6	0.9
2008	3.1	85.6	8.2	2.6	0.5
2009	3.5	72.3	5.2	1.8	17.2*

* This significant increase in 2009 shipments in this category is attributable to the supplementary compact refrigerator data provided by refrigerator manufacturers.

Due to rounding, the numbers may not add up to 100.

Table A.7 Average annual UEC of refrigerators by type, 1990–2009

Model year	Standard size							
	Type 1	Type 2	Type 3	Type 4 (kWh/yr)	Type 5	Type 5A	Type 6	Type 7
1990	706.2	720.0	947.4	1321.4	1128.4	–	–	–
1991	685.0	636.0	923.2	1218.8	1140.0	–	–	1162.9
1992	696.5	464.8	873.5	1215.1	1160.4	–	–	1175.5
1993	512.4	477.4	702.4	889.3	782.5	–	772.2	953.2
1994	461.8	465.0	640.5	764.0	741.8	–	763.4	891.5
1995	382.7	465.0	630.8	768.6	752.6	–	743.4	865.6
1996	378.4	465.0	620.8	767.7	776.9	–	781.2	833.7
1997	397.2	465.0	635.0	773.7	631.1	–	818.9	860.6
1998	422.3	478.2	640.9	792.3	673.2	–	839.9	870.0
1999	403.7	–	635.9	798.7	665.1	–	771.6	870.9
2000	413.2	–	629.3	781.1	660.9	–	742.9	862.8
2001	403.0	–	544.1	701.2	610.2	–	707.2	725.9
2002	323.5	–	485.6	646.9	547.0	–	604.1	659.2
2003	321.0	–	460.8	625.2	522.4	–	553.5	636.7
2004	–	–	458.4	582.6	496.0	–	554.0	619.8
2005	321.0	–	453.8	566.0	493.2	–	550.8	611.2
2006	319.1	–	455.4	548.4	497.9	580.1	–	613.1
2007	318.9	–	453.5	543.8	490.8	572.7	555.0	595.1
2008	334.4	–	437.7	520.6	482.6	545.4	–	583.5
2009	320.2	–	424.4	539.2	463.4	560.0	680.0	562.7

Table A.7 Average annual UEC of refrigerators by type, 1990–2009 (continued)

Model year	Compact					Total
	Type 11	Type 12	Type 13 (kWh/yr)	Type 14	Type 15	(kWh/yr)
1990	337.0	–	370.0	–	–	956.2
1991	337.0	–	370.0	–	–	931.2
1992	337.0	–	370.0	507.0	–	901.7
1993	337.0	–	370.0	–	–	719.6
1994	328.7	–	370.0	–	–	650.4
1995	330.6	–	370.0	–	–	641.6
1996	318.1	–	370.0	–	–	640.4
1997	317.0	–	370.0	–	–	656.5
1998	320.8	419.0	432.1	–	–	653.5
1999	322.4	419.0	430.0	–	–	645.5
2000	323.4	419.0	430.0	–	–	639.5
2001	330.6	419.0	430.0	–	–	559.4
2002	331.1	419.0	405.0	–	–	506.3
2003	323.1	419.0	326.7	–	463.0	487.1
2004	321.3	419.0	356.7	–	–	477.7
2005	327.8	419.0	406.6	–	–	469.2
2006	328.6	–	339.1	–	–	481.0
2007	328.3	–	334.3	–	–	483.1
2008	338.1	–	332.2	–	–	467.3
2009	318.1	–	327.6	–	446.0	430.1

Table A.8 Distribution of refrigerators by type and region/province, 2004–2009

Region/Province	Type 3						Type 5					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	66.4	64.9	64.2	60.8	59.3	48.9	15.5	17.9	21.2	22.3	26.5	23.6
Atlantic	83.2	81.3	80.9	78.0	77.2	49.8	6.4	8.0	8.2	9.2	10.2	8.7
Quebec	69.5	68.9	65.8	63.9	61.4	53.2	18.8	20.9	25.3	25.9	31.2	29.3
Ontario	64.5	62.6	64.2	60.9	58.4	48.0	14.6	17.7	19.9	21.6	25.2	22.6
Prairies	69.2	65.5	59.5	54.4	55.9	47.1	13.6	17.6	22.5	22.2	26.0	21.2
British Columbia and Territories	59.6	56.5	63.4	60.1	56.6	45.1	13.6	15.6	19.0	22.3	26.4	27.3

Region/Province	Type 5A						Type 7					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	–	–	0.6	1.2	2.4	2.7	11.0	9.6	10.1	13.5	10.0	7.1
Atlantic	–	–	0.1	0.2	0.7	0.7	8.0	7.6	7.4	8.7	9.3	5.3
Quebec	–	–	0.3	0.6	1.4	1.6	6.1	4.9	4.7	8.0	4.9	3.6
Ontario	–	–	0.7	1.3	2.6	3.0	13.8	11.2	10.9	13.9	11.6	8.3
Prairies	–	–	1.0	1.8	3.4	3.4	14.4	12.3	13.9	19.5	12.8	8.3
British Columbia and Territories	–	–	0.6	1.3	3.1	3.6	13.2	11.3	13.5	14.5	12.3	10.0

Region/Province	Types 1, 2, 4, 6, 11, 12, 13, 15					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	7.0	7.6	3.8	2.2	1.8	17.7
Atlantic	2.4	3.1	3.3	3.8	2.6	35.5
Quebec	5.7	5.4	3.9	1.7	1.1	12.3
Ontario	7.2	8.5	4.3	2.4	2.2	18.1
Prairies	2.8	4.5	3.1	2.1	1.9	20.0
British Columbia and Territories	13.7	16.6	3.5	1.8	1.5	14.0

Due to rounding, the numbers may not add up to 100.

Table A.9 Distribution of refrigerators by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	18.6	17.0	20.4	18.5	17.7	12.8	81.4	83.0	79.6	81.5	82.3	87.2
Atlantic	19.1	15.8	14.6	11.3	11.6	8.4	80.9	84.2	85.4	88.7	88.4	91.6
Quebec	6.3	5.6	6.7	5.2	6.8	4.5	93.7	94.4	93.3	94.8	93.2	95.5
Ontario	22.5	19.9	23.8	22.2	18.1	14.4	77.5	80.1	76.2	77.8	81.9	85.6
Prairies	20.8	19.1	23.4	19.1	21.2	13.6	79.2	80.9	76.6	80.9	78.8	86.4
British Columbia and Territories	36.1	32.3	37.1	38.0	41.0	29.8	63.9	67.7	62.9	62.0	59.0	70.2

Table A.10 Distribution of refrigerators by volume and region/province, 2004–2009

Region/Province	Volume (cu. ft.)											
	0–10.4						10.5–12.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	4.3	6.9	3.1	1.7	3.2	19.1	2.6	2.5	3.6	3.3	3.9	4.4
Atlantic	1.9	3.8	5.2	3.9	7.8	39.0	6.4	7.4	5.7	4.9	6.5	7.4
Quebec	4.3	4.8	3.3	1.9	2.7	13.6	2.0	1.8	2.1	1.8	2.7	2.7
Ontario	4.4	7.5	3.4	1.5	3.0	19.1	1.3	1.6	3.7	3.7	3.6	4.1
Prairies	0.6	3.7	1.4	1.1	2.9	20.8	2.8	2.4	3.1	2.3	3.7	4.5
British Columbia and Territories	12.7	17.3	4.0	2.5	3.6	17.3	7.6	6.2	7.1	6.9	7.5	7.7

Region/Province	Volume (cu. ft.)											
	12.5–14.4						14.5–16.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	3.6	2.3	2.5	2.2	2.2	1.3	11.7	9.7	9.7	8.7	6.3	5.8
Atlantic	7.8	7.9	8.1	8.4	7.4	4.2	21.4	13.9	12.2	10.2	7.8	4.7
Quebec	2.8	2.1	2.0	1.9	1.9	1.2	8.0	6.6	6.6	6.0	4.0	4.3
Ontario	4.7	2.7	2.8	2.2	2.2	1.1	14.8	12.8	13.2	12.0	9.1	8.0
Prairies	3.0	1.6	1.6	1.8	1.9	1.1	10.5	8.7	8.4	7.2	5.2	5.1
British Columbia and Territories	0.8	0.6	2.1	1.6	1.6	1.1	9.3	6.3	5.9	5.7	3.9	3.3

Region/Province	Volume (cu. ft.)											
	16.5–18.4						18.5–20.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	39.5	41.7	39.9	39.8	38.8	33.0	14.0	15.2	17.3	17.3	21.7	18.3
Atlantic	40.3	47.1	47.9	50.0	46.6	28.7	9.4	8.3	9.2	9.6	10.7	7.6
Quebec	48.9	49.6	45.8	45.6	43.5	38.7	17.3	19.3	22.6	23.3	29.3	26.1
Ontario	34.6	37.9	37.3	37.7	37.3	31.6	12.9	14.1	15.5	15.4	19.0	16.0
Prairies	40.8	42.1	36.6	35.6	36.0	31.4	12.7	13.9	16.6	15.4	19.3	15.1
British Columbia and Territories	29.1	32.4	38.6	38.1	34.8	29.4	13.8	13.7	15.9	17.4	21.3	20.5

Region/Province	Volume (cu. ft.)					
	20.5–32.4					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	24.2	21.7	23.9	27.0	23.8	18.2
Atlantic	12.9	11.5	11.7	13.0	13.2	8.5
Quebec	16.7	15.7	17.7	19.5	15.9	13.3
Ontario	27.3	23.3	24.1	27.5	25.8	20.0
Prairies	29.6	27.7	32.3	36.6	31.0	21.9
British Columbia and Territories	26.7	23.5	26.4	27.8	27.3	20.7

Due to rounding, the numbers may not add up to 100.

Table A.11 Distribution of refrigerators for retail shipments by volume and region/province, 2004–2009

Region/Province	Volume (cu. ft.)											
	0–10.4						10.5–12.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	6.7	7.9	3.3	1.7	3.6	21.5	1.5	1.1	1.2	1.0	1.4	3.4
Atlantic	1.2	4.3	4.7	3.7	7.7	42.0	3.1	3.9	3.4	2.8	3.4	6.0
Quebec	4.5	4.7	3.2	1.8	2.7	14.0	0.6	0.7	0.6	0.7	0.8	2.0
Ontario	5.7	9.1	3.6	1.8	3.6	22.1	0.4	1.1	0.9	0.9	1.3	3.4
Prairies	0.7	4.1	1.7	1.1	3.3	23.8	0.9	0.7	1.1	0.7	1.3	3.7
British Columbia and Territories	19.4	24.7	5.2	1.8	5.2	23.2	2.8	3.0	3.1	2.4	3.8	5.5

Region/Province	Volume (cu. ft.)											
	12.5–14.4						14.5–16.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	2.2	1.4	2.2	2.3	2.5	1.3	8.2	6.6	6.4	5.7	3.6	3.2
Atlantic	6.5	5.4	6.9	8.3	7.6	2.9	22.0	14.3	11.2	8.9	6.9	3.6
Quebec	2.5	1.9	1.7	1.6	1.7	1.1	7.0	5.7	5.5	5.0	3.2	3.4
Ontario	1.8	0.9	2.0	2.4	2.6	1.2	9.1	6.7	6.5	5.8	3.7	2.9
Prairies	3.1	1.4	1.6	1.8	2.2	1.2	8.9	6.8	6.7	5.8	3.3	3.6
British Columbia and Territories	0.7	0.9	2.9	2.4	2.3	1.5	10.3	5.9	5.5	5.9	3.1	2.3

Region/Province	Volume (cu. ft.)											
	16.5–18.4						18.5–20.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	39.9	42.3	40.2	40.2	38.4	31.7	16.5	17.5	20.5	20.1	24.9	19.9
Atlantic	41.7	50.4	50.7	52.2	48.7	28.6	10.9	9.2	10.2	10.1	11.3	8.1
Quebec	49.5	50.4	46.2	46.2	43.4	38.3	18.4	20.4	24.1	24.5	31.4	27.3
Ontario	35.7	38.7	39.0	38.9	36.9	29.9	15.3	17.0	18.9	18.6	22.3	17.9
Prairies	39.7	41.4	32.7	33.4	33.4	29.5	15.4	16.6	21.0	18.2	23.1	16.2
British Columbia and Territories	24.2	28.2	37.1	37.0	33.2	25.3	17.2	15.6	19.6	22.2	24.7	21.9

Region/Province	Volume (cu. ft.)					
	20.5–32.4					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	25.0	23.0	26.2	29.0	25.6	19.0
Atlantic	14.7	12.5	13.0	13.9	14.4	8.9
Quebec	17.5	16.4	18.6	20.3	16.8	13.7
Ontario	32.0	26.7	29.0	31.8	29.7	22.5
Prairies	31.2	29.0	35.2	39.0	33.4	22.0
British Columbia and Territories	25.4	21.7	26.5	28.2	27.8	20.4

Due to rounding, the numbers may not add up to 100.

Table A.12 Distribution of refrigerators for builder shipments by volume and region/province, 2004–2009

Region/Province	Volume (cu. ft.)											
	0–10.4						10.5–12.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	0.5	2.0	2.3	1.6	1.3	2.3	10.2	9.2	13.1	13.5	15.3	10.9
Atlantic	4.9	2.6	8.6	5.6	8.9	6.5	20.2	26.1	19.7	21.1	30.0	22.3
Quebec	0.3	7.2	4.1	3.3	2.3	5.2	23.4	21.1	21.8	22.7	28.2	18.3
Ontario	0.1	1.3	2.7	0.4	0.4	1.0	4.5	3.7	12.5	13.6	14.1	8.1
Prairies	0.3	1.8	0.4	1.3	1.2	1.6	9.9	9.7	9.8	9.3	12.4	9.7
British Columbia and Territories	0.8	1.7	2.0	3.6	1.2	3.5	16.2	12.9	13.9	14.1	12.9	12.7

Region/Province	Volume (cu. ft.)											
	12.5–14.4						14.5–16.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	8.7	6.5	3.9	1.9	1.2	1.6	23.8	24.4	22.6	22.2	18.8	23.4
Atlantic	13.2	21.1	15.2	8.7	5.2	17.9	18.9	11.8	17.7	20.4	14.8	17.3
Quebec	7.6	7.0	6.7	6.9	3.7	3.5	22.2	22.0	21.1	25.1	16.2	22.3
Ontario	14.7	10.1	5.2	1.5	0.7	0.6	34.5	37.5	34.6	34.0	33.1	38.7
Prairies	2.7	2.4	1.6	1.8	1.2	1.1	17.0	16.4	14.1	12.9	12.1	14.7
British Columbia and Territories	0.9	0.4	0.6	0.2	0.5	0.3	7.6	7.1	6.5	5.4	5.1	5.8

Region/Province	Volume (cu. ft.)											
	16.5–18.4						18.5–20.4					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	36.3	38.5	38.6	37.7	40.7	41.7	4.1	4.0	4.6	5.1	7.1	7.6
Atlantic	34.6	28.9	31.4	32.6	30.3	29.5	3.2	3.3	3.2	5.2	6.4	2.1
Quebec	40.2	37.1	40.0	35.3	45.0	46.5	0.7	1.1	1.1	1.5	0.9	1.2
Ontario	30.8	35.0	32.0	33.8	39.1	42.0	4.6	2.8	4.6	4.4	4.4	4.3
Prairies	44.8	45.1	49.5	44.7	45.6	43.5	1.9	2.6	2.1	3.8	5.2	7.7
British Columbia and Territories	37.9	41.2	41.2	39.9	37.2	39.1	7.6	9.7	9.6	9.6	16.4	17.2

Region/Province	Volume (cu. ft.)					
	20.5–32.4					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	16.4	15.4	14.9	18.0	15.6	12.6
Atlantic	5.1	6.3	4.2	6.2	4.4	4.3
Quebec	5.5	4.7	5.3	5.1	3.7	2.9
Ontario	10.9	9.7	8.5	12.3	8.2	5.3
Prairies	23.4	21.9	22.6	26.2	22.3	21.8
British Columbia and Territories	29.0	27.1	26.3	27.2	26.6	21.4

Due to rounding, the numbers may not add up to 100.

Table A.13 Distribution of refrigerators by average annual UEC per cubic foot and region/province, 2004–2009

Region/Province	kWh/cu. ft. per year											
	10–19.9						20–29.9					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	0.4	0.5	0.4	0.4	3.1	3.5	82.1	86.2	88.2	90.2	85.6	72.3
Atlantic	0.0	0.1	0.1	0.2	0.8	0.9	83.3	80.3	79.3	80.1	73.8	49.3
Quebec	0.3	0.4	0.3	0.2	2.1	2.8	85.8	88.9	91.1	92.7	89.5	80.5
Ontario	0.3	0.6	0.4	0.4	3.4	3.7	83.8	86.5	87.4	90.1	85.8	72.5
Prairies	0.0	0.7	0.5	0.5	4.4	4.7	80.1	89.3	90.0	91.2	85.1	69.0
British Columbia and Territories	0.0	0.4	0.3	0.5	3.0	3.6	80.8	74.0	84.2	86.3	80.8	71.4

Region/Province	kWh/cu. ft. per year											
	30–39.9						40–49.9					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	11.0	6.5	8.5	7.9	8.2	5.2	1.3	0.2	0.9	0.6	2.6	1.8
Atlantic	11.9	16.1	17.6	17.7	17.8	10.7	3.7	0.3	1.6	1.0	7.2	3.8
Quebec	9.2	6.1	6.1	5.6	6.0	3.6	0.9	0.1	0.7	0.6	2.2	1.2
Ontario	10.7	5.4	8.6	8.1	7.7	4.6	0.8	0.1	1.1	0.4	2.4	1.7
Prairies	17.9	6.5	8.1	7.2	7.6	5.4	0.8	0.1	0.4	0.4	2.6	1.8
British Columbia and Territories	14.5	7.8	11.0	10.3	12.3	7.8	3.1	0.6	1.3	1.6	2.7	2.4

Region/Province	kWh/cu. ft. per year					
	50–189.9					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	5.2	6.6	2.0	0.8	0.5	17.2
Atlantic	1.1	3.2	1.4	0.9	0.4	35.2
Quebec	3.7	4.5	1.8	0.7	0.2	11.9
Ontario	4.4	7.4	2.5	0.9	0.7	17.5
Prairies	1.2	3.4	1.0	0.6	0.2	19.0
British Columbia and Territories	1.6	17.2	3.2	1.2	1.2	14.8

Due to rounding, the numbers may not add up to 100.

Table A.14 Average annual UEC of refrigerators by volume, 1990–2009

Model year	Volume (cu. ft.)						
	0–10.4	10.5–12.4	12.5–14.4	14.5–16.4 (kWh/yr)	16.5–18.4	18.5–20.4	20.5–32.4
1990	593	740	850	955	1066	1133	1138
1991	401	727	877	915	1018	978	1080
1992	427	697	750	924	940	998	1124
1993	414	593	600	700	731	799	875
1994	378	563	547	627	665	720	817
1995	366	554	540	626	662	715	794
1996	375	547	570	631	646	680	762
1997	367	548	567	632	664	695	750
1998	329	564	562	629	675	703	755
1999	346	552	575	629	666	667	756
2000	359	550	583	625	667	637	730
2001	376	502	493	562	582	534	630
2002	339	433	428	480	521	489	586
2003	337	429	424	449	475	496	570
2004	335	432	420	455	465	487	551
2005	335	412	425	415	468	477	544
2006	357	417	434	423	467	489	551
2007	377	419	438	428	462	486	548
2008	373	405	438	399	454	470	530
2009	326	396	438	383	440	456	520

Table A.15 Average annual UEC per cubic foot of refrigerators by volume, 1990–2009

Model year	Volume (cu. ft.)						
	0–10.4	10.5–12.4	12.5–14.4	14.5–16.4 (kWh/yr)	16.5–18.4	18.5–20.4	20.5–32.4
1990	74	65	63	62	61	58	51
1991	68	64	65	59	58	50	48
1992	59	61	56	60	54	51	50
1993	58	52	45	45	42	41	40
1994	70	49	41	41	38	37	38
1995	75	48	40	41	38	37	36
1996	74	48	42	41	37	35	35
1997	59	48	42	41	38	36	34
1998	85	49	42	41	39	36	34
1999	85	48	43	41	38	34	34
2000	83	48	43	40	38	33	33
2001	81	44	37	36	33	27	28
2002	88	38	32	31	30	25	26
2003	81	38	32	29	27	26	25
2004	85	38	31	29	27	25	24
2005	89	36	32	27	27	25	24
2006	60	36	32	27	27	25	24
2007	50	37	33	28	26	25	24
2008	41	35	33	26	26	24	23
2009	85*	35	33	25	25	23	22

* This substantial increase in average annual UEC per cu. ft. of volume in 2009 of refrigerators in the 0–10.4 cu. ft. category is mainly due to a shift towards (more energy-intensive) compact refrigerators with a volume of less than 4.4 cu. ft., as evidenced by the supplementary compact refrigerator data received in 2009.

Table A.16 Average annual UEC of refrigerators by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
Canada	464.3	457.2	458.2	459.2	447.2	430.8	480.7	471.7	486.9	488.6	471.6	430.1
Atlantic	463.8	436.8	437.6	439.2	428.5	433.3	477.8	468.4	471.9	475.2	470.5	404.0
Quebec	455.6	437.5	445.7	444.6	438.9	424.5	471.7	468.0	475.6	478.1	460.5	432.7
Ontario	451.9	444.1	442.0	443.0	426.9	408.6	489.0	475.0	490.6	490.9	475.1	432.5
Prairies	477.8	475.1	477.8	477.9	460.3	449.4	497.1	480.8	498.9	499.3	477.3	427.9
British Columbia and Territories	483.3	479.0	480.5	480.9	471.1	454.3	469.2	450.8	489.0	493.8	485.1	435.6

Table A.17 Distribution of refrigerators consuming less than 30 kWh/cu. ft. per year, by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006 (%)	2007 (%)	2008	2009	2004	2005	2006 (%)	2007 (%)	2008	2009
Canada	81.4	83.8	79.9	81.1	79.3	84.4	82.8	87.3	90.8	92.8	90.7	74.6
Atlantic	71.9	61.3	60.5	64.0	55.7	52.9	86.0	84.2	82.6	82.3	77.1	50.0
Quebec	69.3	63.4	66.0	65.6	64.3	72.8	87.2	90.8	93.2	94.5	93.6	83.7
Ontario	84.0	88.9	79.9	83.3	82.6	89.9	84.2	86.6	90.3	92.6	90.7	73.9
Prairies	84.8	85.4	86.9	85.1	82.7	86.8	85.7	91.1	91.6	93.2	91.3	71.6
British Columbia and Territories	78.8	83.7	80.5	78.6	80.0	81.4	69.1	70.0	86.8	91.8	86.6	72.2

Table A.18 Distribution of freezers by type, 1991–2009

Model year	kWh/cu. ft. per year				
	Type 8	Type 9	Type 10 (%)	Type 16	Type 18
1991	11.8	0.4	81.2	0.0	6.7
1992	12.9	0.3	79.2	0.0	7.6
1993	14.4	0.6	70.3	0.0	14.8
1994	12.9	0.6	71.3	0.0	15.1
1995	16.0	0.7	66.5	0.0	16.7
1996	17.1	1.1	64.0	0.1	17.7
1997	19.1	1.0	60.2	0.3	19.4
1998	21.2	1.8	57.5	0.0	19.5
1999	21.6	2.5	60.3	0.1	15.5
2000	23.9	3.1	56.2	1.2	15.5
2001	19.5	6.7	58.3	1.8	13.8
2002	24.9	9.8	48.9	0.0	16.4
2003	27.8	9.2	47.4	0.0	15.6
2004	29.4	8.3	45.5	0.0	16.8
2005	30.4	10.7	35.7	0.0	23.2
2006	28.5	8.7	45.6	0.0	17.2
2007	26.4	11.8	39.4	0.0	22.4
2008	20.1	11.4	42.9	0.5	25.1
2009	19.5	14.0	34.5	1.7	30.3*

* This significant increase in 2009 shipments in this category is attributable to the supplementary compact freezer data provided by freezer manufacturers.

Due to rounding, the numbers may not add up to 100.

The definitions of the various types of freezers can be found in Appendix B.

Table A.19 Distribution of freezers by average annual UEC per cubic foot, 1991–2009

Model year	kWh/cu. ft. per year				
	20–29.9	30–39.9	40–49.9 (%)	50–59.9	60–129.9
1991	0.0	28.3	20.3	31.2	20.3
1992	3.1	18.9	58.3	15.0	4.7
1993	16.5	57.0	16.5	8.4	1.5
1994	15.4	39.0	34.9	9.0	1.8
1995	12.7	39.6	41.2	5.4	1.1
1996	12.4	40.4	37.0	10.3	0.0
1997	11.7	36.7	39.0	12.0	0.6
1998	11.0	34.6	43.1	11.3	0.0
1999	10.8	42.3	37.0	9.6	0.3
2000	10.0	37.6	41.3	8.8	2.3
2001	17.5	36.3	38.2	3.9	4.0
2002	26.7	47.5	24.9	0.8	0.0
2003	28.6	47.4	23.2	0.8	0.0
2004	28.9	48.8	22.3	0.1	0.0
2005	29.5	45.2	25.3	0.0	0.0
2006	34.8	40.4	24.7	0.0	0.0
2007	26.7	47.5	25.9	0.0	0.0
2008	28.8	47.2	23.4	0.0	0.6
2009	18.6	37.7	26.4	15.5*	1.7*

* These significant increases in 2009 shipments in these categories are attributable to the supplementary compact freezer data provided by freezer manufacturers.

Due to rounding, the numbers may not add up to 100.

Table A.20 Distribution of freezers by type* and region/province, 2004–2009

Region/Province	Type 8						Type 9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	29.4	30.4	28.5	26.4	20.1	19.5	8.3	10.7	8.7	11.8	11.4	14.0
Atlantic	19.8	20.8	25.7	29.1	24.3	19.2	10.2	8.2	6.9	11.2	10.4	4.9
Quebec	41.3	41.1	44.9	39.9	31.9	28.5	5.6	6.0	3.5	8.2	8.6	11.5
Ontario	28.2	26.7	31.6	28.8	22.2	17.2	17.8	13.4	10.1	17.1	17.6	16.0
Prairies	31.7	27.9	31.9	26.8	17.8	14.6	12.6	12.1	9.6	16.0	16.4	17.4
British Columbia and Territories	30.0	28.8	30.0	31.6	22.0	18.1	15.0	14.6	14.3	16.6	16.3	9.6

Region/Province	Type 10						Type 18					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	45.5	35.7	45.6	39.4	42.9	34.5	16.8	23.2	17.2	22.4	25.1	30.3
Atlantic	38.0	37.0	29.0	27.3	28.2	38.0	32.0	34.1	38.4	32.4	37.1	35.2
Quebec	22.7	21.9	25.0	21.5	23.4	30.4	30.4	31.0	26.6	30.4	34.9	28.4
Ontario	18.9	19.9	22.6	21.6	23.3	34.3	35.1	39.8	35.7	32.4	36.4	30.6
Prairies	25.9	23.3	27.5	25.9	29.2	36.3	29.8	36.7	30.9	31.3	36.6	30.2
British Columbia and Territories	30.8	28.5	26.8	26.9	29.7	39.7	24.1	28.1	28.9	24.9	30.1	30.6

* The breakdown does not include the slight market share for Type 16 freezers that is now evident in the supplementary freezer data for 2009.

Table A.21 Distribution of freezers by average annual UEC per cubic foot and region/province, 2004–2009

Region/Province	kWh/cu. ft. per year											
	20–29.9						30–39.9					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	28.9	29.5	34.8	26.7	28.8	18.6	48.8	45.2	40.4	47.5	47.2	37.7
Atlantic	34.3	36.4	31.2	30.0	29.7	14.8	46.0	47.6	46.5	48.4	46.1	27.8
Quebec	27.9	29.9	36.6	26.8	31.0	22.2	51.3	48.7	45.7	50.3	48.6	44.4
Ontario	22.2	24.5	30.4	24.0	24.2	15.4	51.1	44.3	41.1	46.4	48.9	36.2
Prairies	33.2	31.9	40.2	26.6	29.4	19.0	47.3	45.6	36.1	49.9	46.6	38.2
British Columbia and Territories	36.7	37.5	38.0	37.7	37.5	25.0	40.6	35.4	32.6	32.6	36.4	28.4

Region/Province	kWh/cu. ft. per year											
	40–49.9						50–59.9*					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	22.3	25.3	24.7	25.9	23.4	26.4	0.1	0.0	0.0	0.0	0.0	15.5
Atlantic	19.3	16.0	22.3	21.6	24.1	29.5	0.3	0.0	0.0	0.0	0.0	25.2
Quebec	20.7	21.4	17.6	23.0	19.1	21.3	0.1	0.0	0.0	0.0	0.0	10.9
Ontario	26.6	31.1	28.5	29.6	26.4	29.6	0.1	0.0	0.0	0.0	0.0	16.9
Prairies	19.5	22.5	23.8	23.5	24.0	26.6	0.0	0.0	0.0	0.0	0.0	14.6
British Columbia and Territories	22.6	27.0	29.4	29.7	24.3	25.3	0.1	0.0	0.0	0.0	0.0	19.3

Region/Province	kWh/cu. ft. per year					
	60–129.9*					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	0.0	0.0	0.0	0.0	0.6	1.7
Atlantic	0.0	0.0	0.0	0.0	0.0	2.7
Quebec	0.0	0.0	0.0	0.0	1.2	1.2
Ontario	0.0	0.0	0.0	0.0	0.5	1.9
Prairies	0.0	0.0	0.0	0.0	0.0	1.6
British Columbia and Territories	0.0	0.0	0.0	0.0	1.9	2.1

* The significant increases in 2009 shipments in the categories over 50 kWh/cu. ft. per year are attributable to the supplementary compact freezer data provided by freezer manufacturers.

Due to rounding, the numbers may not add up to 100.

Table A.22 Distribution of freezers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006 (%)	2007 (%)	2008	2009	2004	2005	2006 (%)	2007 (%)	2008	2009
Canada	1.8	2.1	2.0	2.6	9.3	4.4	98.2	97.9	98.0	97.4	90.7	95.6
Atlantic	0.9	1.6	0.5	0.4	0.6	0.1	99.1	98.4	99.5	99.6	99.4	99.9
Quebec	0.9	0.7	0.4	0.2	4.2	2.5	99.1	99.3	99.6	99.8	95.8	97.5
Ontario	0.5	0.4	0.3	0.9	8.1	3.2	99.5	99.6	99.7	99.1	91.9	96.8
Prairies	5.0	4.4	7.2	4.1	13.2	5.8	95.0	95.6	92.8	95.9	86.8	94.2
British Columbia and Territories	15.5	18.6	16.0	13.2	27.3	17.8	84.5	81.4	84.0	86.8	72.7	82.2

Due to rounding, the numbers may not add up to 100.

Table A.23 Average annual UEC of freezers by type, 1991–2009

Model year	Type 8	Type 9 (kWh/yr)	Type 10	Type 18	Total (kWh/yr)
1991	706.4	1068.0	412.4	339.8	444.7
1992	670.4	1078.0	421.1	337.8	449.3
1993	581.3	863.3	385.1	287.8	401.7
1994	535.9	846.1	379.1	292.4	389.2
1995	508.9	817.1	371.1	282.0	381.6
1996	502.9	820.7	368.1	279.4	376.7
1997	494.8	823.7	362.4	278.7	376.5
1998	496.0	829.6	360.2	278.2	381.5
1999	493.1	838.6	353.2	276.3	383.4
2000	494.8	839.4	354.0	277.1	390.9
2001	456.9	740.5	345.1	275.7	383.9
2002	412.7	674.2	316.7	267.7	367.7
2003	414.8	665.4	317.8	268.3	369.1
2004	412.0	595.9	344.1	271.1	372.7
2005	420.8	650.1	351.8	269.1	385.6
2006	431.8	664.2	335.8	265.0	379.6
2007	432.9	654.1	337.6	265.7	384.0
2008	449.8	644.5	334.1	263.3	374.8
2009	438.9	622.7	348.4	243.7	356.3

Table A.24 Distribution of dishwashers by average annual UEC, 1990–2009

Model year	kWh/yr						
	0–299.9	300–349.9	350–399.9	400–499.9 (%)	500–599.9	600–699.9	700–1399.9
1990	0.0	0.0	0.0	0.0	0.0	0.2	99.8
1991	0.0	0.0	0.0	0.0	0.0	5.8	94.2
1992	0.0	0.0	0.0	0.0	0.0	8.5	91.5
1993	0.0	0.0	0.0	0.0	0.4	7.7	91.9
1994	0.0	0.0	0.0	0.5	0.5	32.9	66.1
1995	0.0	0.0	0.2	0.9	0.9	63.7	34.2
1996	0.0	0.0	0.2	0.9	3.9	63.0	32.0
1997	0.0	0.0	0.4	1.1	20.5	56.9	21.2
1998	0.0	0.0	0.2	1.2	23.4	71.6	3.7
1999	0.0	0.0	0.2	1.4	24.9	73.6	0.0
2000	0.0	0.0	0.1	3.9	19.3	76.7	0.0
2001	0.0	0.0	0.0	5.5	23.9	70.6	0.0
2002	0.0	0.0	3.2	13.6	37.8	45.5	0.0
2003	0.0	0.0	9.1	33.6	36.5	20.7	0.0
2004	0.0	4.0	24.3	46.4	16.5	8.8	0.0
2005	0.0	19.6	55.5	15.5	6.4	3.0	0.0
2006	0.3	28.2	61.8	5.7	2.7	1.3	0.0
2007	2.6	48.9	42.7	5.0	0.6	0.3	0.0
2008	0.7	69.7	26.9	2.7	0.0	0.0	0.0
2009	4.2	85.3	10.1	0.4	0.0	0.0	0.0

Due to rounding, the numbers may not add up to 100.

Table A.25 Distribution of dishwashers by average annual UEC and region/province, 2004–2009

Region/Province	kWh/yr											
	150–299.9						300–349.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	0.0	0.0	0.3	2.6	0.7	4.2	4.0	19.6	28.2	48.9	69.7	85.3
Atlantic	0.0	0.0	1.0	7.1	0.8	2.6	9.0	25.5	33.1	45.3	59.9	89.0
Quebec	0.0	0.0	1.1	4.9	0.7	3.2	4.0	21.9	26.3	46.9	70.3	85.6
Ontario	0.0	0.0	0.1	1.6	0.7	5.2	4.6	20.5	28.5	50.5	70.1	85.0
Prairies	0.0	0.0	0.0	1.3	0.6	3.4	2.7	15.2	25.8	47.6	70.5	85.3
British Columbia and Territories	0.0	0.0	0.1	2.3	0.7	5.7	3.4	20.0	35.5	51.8	68.6	84.5

Region/Province	kWh/yr											
	350–399.9						400–699.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	24.3	55.5	61.8	42.7	26.9	10.1	71.7	24.9	9.7	5.9	2.7	0.4
Atlantic	21.3	48.0	49.7	38.6	35.2	8.3	69.7	26.5	16.3	8.9	4.1	0.1
Quebec	28.0	59.7	66.8	43.8	26.9	10.9	68.1	18.4	5.9	4.3	2.1	0.3
Ontario	22.7	54.0	61.7	42.2	26.2	9.2	72.7	25.4	9.7	5.7	3.0	0.5
Prairies	23.5	59.2	64.2	45.5	26.6	10.9	73.8	25.7	10.0	5.6	2.4	0.4
British Columbia and Territories	24.1	44.7	50.0	36.8	27.3	9.7	72.6	35.3	14.4	9.2	3.4	0.1

Due to rounding, the numbers may not add up to 100.

Table A.26 Distribution of dishwashers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	14.3	14.7	15.5	15.5	15.5	15.2	85.7	85.3	84.5	84.5	84.5	84.8
Atlantic	15.3	11.6	11.8	9.1	10.9	10.9	84.7	88.4	88.2	90.9	89.1	89.1
Quebec	3.0	2.9	3.3	3.2	3.0	3.1	97.0	97.1	96.7	96.8	97.0	96.9
Ontario	15.1	15.1	15.5	15.0	12.3	13.4	84.9	84.9	84.5	85.0	87.7	86.6
Prairies	16.7	16.8	18.8	18.5	20.3	18.1	83.3	83.2	81.2	81.5	79.7	81.9
British Columbia and Territories	32.3	35.9	33.9	36.3	41.8	42.2	67.7	64.1	66.1	63.7	58.2	57.8

Due to rounding, the numbers may not add up to 100.

Table A.27 Average annual UEC of dishwashers, 1990–2009

Model year	kWh/yr
1990	1025.7
1991	959.0
1992	908.0
1993	913.5
1994	776.7
1995	670.9
1996	668.2
1997	649.2
1998	646.7
1999	640.1
2000	637.4
2001	633.7
2002	592.0
2003	523.9
2004	456.8
2005	395.7
2006	372.6
2007	353.8
2008	342.9
2009	324.7

Table A.28 Average annual UEC of dishwashers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(kWh/yr)						(kWh/yr)					
Canada	443.0	404.0	382.8	361.1	348.4	323.9	459.1	394.2	370.7	352.5	341.9	324.9
Atlantic	454.4	391.2	385.9	353.3	342.8	329.5	469.4	402.9	382.2	357.7	349.5	326.0
Quebec	449.2	417.0	386.8	363.7	342.2	328.0	454.3	386.5	367.3	350.0	342.9	325.6
Ontario	447.0	408.9	388.4	366.5	354.0	322.9	454.7	392.6	371.0	352.1	341.3	323.8
Prairies	442.1	396.4	381.2	359.4	347.0	325.0	465.2	399.3	371.8	354.6	341.1	325.8
British Columbia and Territories	434.6	404.2	376.3	356.3	345.6	322.8	472.6	408.4	372.6	352.7	340.4	323.2

Due to rounding, the numbers may not add up to 100.

Table A.29 Distribution of electric ranges by type, 1990–2009

Model year	Non-self-cleaning (%)	Self-cleaning
1990	77.1	22.9
1991	71.3	28.7
1992	71.6	28.4
1993	70.1	29.9
1994	69.4	30.6
1995	68.3	31.7
1996	66.6	33.4
1997	64.1	35.9
1998	59.2	40.8
1999	59.4	40.6
2000	55.6	44.4
2001	47.8	52.2
2002	42.7	57.3
2003	44.9	55.1
2004	42.3	57.7
2005	41.2	58.8
2006	40.1	59.9
2007	34.2	65.8
2008	30.4	69.6
2009	31.8	68.2

Due to rounding, the numbers may not add up to 100.

Table A.30 Distribution of electric ranges by average annual UEC, 1990–2009

Model year	kWh/yr				
	300–449.9	450–499.9	500–599.9 (%)	600–749.9	750–899.9
1990	3.8	0.0	0.0	14.3	81.9
1991	0.0	0.0	0.0	16.6	83.4
1992	0.0	0.0	0.0	15.0	85.0
1993	0.0	0.0	0.0	18.4	81.6
1994	0.0	0.0	0.0	34.0	66.0
1995	0.0	0.0	0.0	38.4	61.6
1996	0.0	0.0	0.0	30.8	69.2
1997	0.0	0.0	0.0	31.1	68.9
1998	0.0	0.0	0.0	32.0	68.0
1999	0.0	0.0	0.0	43.5	56.5
2000	0.0	0.0	0.0	45.2	54.8
2001	0.0	0.0	0.0	42.3	57.7
2002	0.0	0.0	0.0	46.3	53.7
2003	0.9	11.6	5.4	38.3	43.8
2004	6.3	21.5	13.3	27.4	31.5
2005	7.0	37.9	26.2	15.3	13.6
2006	10.4	37.5	36.6	7.4	8.1
2007	9.3	29.7	51.2	8.5	1.3
2008	6.7	25.0	61.2	6.4	0.7
2009	4.7	25.2	65.9	4.2	0.1

Due to rounding, the numbers may not add up to 100.

Table A.31 Distribution of electric ranges by type and region/province, 2004–2009

Region/Province	Non-self-cleaning						Self-cleaning					
	2004	2005	2006 (%)	2007 (%)	2008	2009	2004	2005	2006 (%)	2007 (%)	2008	2009
Canada	42.3	41.2	40.1	34.2	30.4	27.8	57.7	58.8	59.9	65.8	69.6	72.2
Atlantic	53.7	51.7	51.6	48.4	44.3	43.8	46.3	48.3	48.4	51.6	55.7	56.2
Quebec	40.4	37.6	31.8	28.0	23.7	19.0	59.6	62.4	68.2	72.0	76.3	81.0
Ontario	44.3	46.1	49.0	39.2	34.8	32.2	55.7	53.9	51.0	60.8	65.2	67.8
Prairies	39.7	36.5	32.7	31.1	29.3	27.5	60.3	63.5	67.3	68.9	70.7	72.5
British Columbia and Territories	40.7	38.6	35.5	33.8	31.7	30.9	59.3	61.4	64.5	66.2	68.3	69.1

Due to rounding, the numbers may not add up to 100.

Table A.32 Distribution of electric ranges by average annual UEC and region/province, 2004–2009

Region/Province	kWh/yr											
	300–449.9						450–499.9					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	6.3	7.0	10.4	9.3	6.7	4.7	21.5	37.9	37.5	29.7	25.0	25.2
Atlantic	1.5	4.3	9.3	11.8	8.4	4.7	16.8	32.5	35.3	28.1	28.7	28.9
Quebec	9.5	9.0	12.3	10.5	7.5	4.7	21.4	34.7	35.2	30.4	26.2	26.9
Ontario	5.0	6.2	9.6	8.8	6.7	5.5	20.8	39.4	38.5	29.6	23.9	23.8
Prairies	7.1	7.5	10.7	8.6	5.9	3.5	25.2	40.8	35.0	28.1	22.6	23.0
British Columbia and Territories	1.5	4.0	8.6	8.4	5.5	4.3	17.8	38.6	45.0	32.8	29.2	29.1

Region/Province	kWh/yr											
	500–599.9						600–749.9					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(%)						(%)					
Canada	13.3	26.2	36.6	51.2	61.2	65.9	27.4	15.3	7.4	8.5	6.4	4.2
Atlantic	14.6	29.8	44.2	53.6	58.8	64.9	20.5	12.4	5.4	6.2	3.8	1.3
Quebec	15.0	26.1	34.9	45.8	58.2	64.2	26.3	17.6	9.5	10.7	7.2	4.0
Ontario	12.3	26.1	35.7	52.6	62.0	67.0	27.4	14.0	6.7	8.0	6.7	3.6
Prairies	14.7	27.1	40.8	54.5	65.8	67.5	26.1	12.4	6.6	7.9	5.3	6.1
British Columbia and Territories	7.2	22.6	32.4	51.3	57.4	62.8	38.4	20.9	7.8	6.6	7.2	3.7

Region/Province	kWh/yr					
	750–899.9					
	2004	2005	2006	2007	2008	2009
	(%)					
Canada	31.5	13.6	8.1	1.3	0.7	0.1
Atlantic	46.6	20.9	5.8	0.2	0.2	0.1
Quebec	27.8	12.6	8.1	2.6	0.9	0.2
Ontario	34.4	14.4	9.5	0.9	0.7	0.0
Prairies	26.9	12.1	7.0	0.8	0.4	0.0
British Columbia and Territories	35.2	13.9	6.3	0.9	0.6	0.0

Due to rounding, the numbers may not add up to 100.

Table A.33 Distribution of electric ranges by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006 (%)	2007 (%)	2008	2009	2004	2005	2006 (%)	2007 (%)	2008	2009
Canada	21.5	22.1	26.9	21.1	19.0	18.7	78.5	77.9	73.1	78.9	81.0	81.3
Atlantic	19.5	17.3	17.4	12.8	11.3	14.7	80.5	82.7	82.6	87.2	88.7	85.3
Quebec	6.6	6.5	8.7	6.0	6.6	6.1	93.4	93.5	91.3	94.0	93.4	93.9
Ontario	28.2	29.1	33.2	26.9	21.4	23.0	71.8	70.9	66.8	73.1	78.6	77.0
Prairies	22.6	23.6	31.0	22.9	23.2	19.9	77.4	76.4	69.0	77.1	76.8	80.1
British Columbia and Territories	42.8	43.5	43.9	41.7	43.1	41.4	57.2	56.5	56.1	58.3	56.9	58.6

Due to rounding, the numbers may not add up to 100.

Table A.34 Average annual UEC of electric ranges by type, 1990–2009

Model year	Non-self-cleaning (kWh/yr)	Self-cleaning (kWh/yr)	Total (kWh/yr)
1990	785.7	726.8	772.2
1991	787.4	755.1	778.1
1992	788.3	754.1	778.6
1993	795.2	751.5	782.1
1994	785.4	746.6	773.6
1995	778.3	756.4	771.3
1996	780.3	762.5	774.4
1997	780.2	758.5	772.4
1998	778.5	759.6	770.8
1999	770.3	741.8	758.7
2000	770.7	746.3	759.9
2001	785.7	741.2	762.5
2002	783.9	735.2	756.0
2003	732.1	691.0	709.4
2004	694.1	622.4	652.7
2005	593.2	558.0	572.5
2006	558.9	522.7	537.2
2007	522.4	525.2	524.3
2008	516.3	524.1	521.7
2009	502.6	523.5	517.7

Table A.35 Average annual UEC of electric ranges by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(kWh/yr)						(kWh/yr)					
Canada	730.9	604.5	541.3	508.9	515.1	501.0	631.3	563.5	535.7	528.4	523.3	521.5
Atlantic	709.5	595.3	524.5	511.4	503.2	499.8	677.8	590.0	535.1	521.3	516.0	515.6
Quebec	714.3	620.3	562.1	534.1	545.2	478.6	625.9	563.8	537.4	529.2	521.6	521.9
Ontario	739.5	612.4	551.4	508.5	514.5	497.9	634.6	560.5	532.2	527.9	524.9	521.9
Prairies	724.1	586.1	532.7	503.6	508.4	509.7	610.2	553.3	538.2	528.6	523.9	520.9
British Columbia and Territories	728.7	600.3	518.2	501.3	512.1	507.0	684.2	587.8	538.7	531.2	527.4	524.0

Due to rounding, the numbers may not add up to 100.

Table A.36 Distribution of clothes washers by type, 2001–2009

Model year	Front-loading (%)	Top-loading
2001	15.7	84.3
2002	16.8	83.2
2003	21.5	78.5
2004	29.2	70.8
2005	42.3	57.7
2006	46.9	53.1
2007	55.3	44.7
2008	60.5	39.5
2009	61.4	38.6

Due to rounding, the numbers may not add up to 100.

Table A.37 Distribution of clothes washers by average annual UEC, 1990–2009

Model year	kWh/yr					
	100–149.9	150–199.9	200–399.9 (%)	400–599.9	600–999.9	1000–1849.9
1990	0.0	0.0	0.0	0.0	35.7	64.3
1991	0.0	0.0	0.0	0.0	34.3	65.7
1992	0.0	0.0	0.0	0.0	22.7	77.3
1993	0.0	0.0	0.0	0.0	29.4	70.6
1994	0.0	0.0	0.0	0.0	49.7	50.3
1995	0.0	0.0	0.0	0.0	55.6	44.4
1996	0.0	0.0	0.2	0.0	54.9	44.9
1997	0.0	0.0	2.7	0.0	49.4	47.9
1998	0.0	0.0	7.7	0.1	42.6	49.6
1999	0.0	0.0	10.6	1.3	61.7	26.4
2000	0.0	0.0	13.0	0.3	75.3	11.4
2001	0.0	0.0	17.0	0.1	79.9	3.0
2002	0.1	1.2	21.0	0.0	72.7	5.0
2003	0.3	4.7	23.5	4.3	65.6	1.6
2004	0.2	8.1	27.4	19.1	45.2	0.0
2005	2.8	14.0	31.4	31.7	20.1	0.0
2006	3.3	23.5	27.8	31.2	14.2	0.0
2007	5.9	32.6	32.4	26.6	2.5	0.0
2008	8.7	35.3	34.4	21.5	0.0	0.0
2009	15.9	29.1	44.3	10.5	0.2	0.0

Due to rounding, the numbers may not add up to 100.

Table A.38 Distribution of clothes washers by type and region/province, 2004–2009

Region/Province	Front-loading						Top-loading					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	29.2	42.3	46.9	55.3	60.5	61.4	70.8	57.7	53.1	44.7	39.5	38.6
Atlantic and Quebec*	22.8	36.2	39.0	46.9	51.6	49.3	77.2	63.8	61.0	53.1	48.4	50.7
Ontario	27.7	45.4	50.5	58.3	64.0	65.3	72.3	54.6	49.5	41.7	36.0	34.7
Prairies	28.9	44.9	49.2	58.7	63.7	66.0	71.1	55.1	50.8	41.3	36.3	34.0
British Columbia and Territories	30.2	48.6	59.1	66.2	72.6	76.7	69.8	51.4	40.9	33.8	27.4	23.3

* For confidentiality reasons, the Atlantic provinces and Quebec have been grouped together for this analysis.

Due to rounding, the numbers may not add up to 100.

Table A.39 Distribution of clothes washers by average annual UEC and region/province, 2004–2009

Region/Province	kWh/yr											
	100–149.9						150–199.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	0.2	2.8	3.3	5.9	8.7	15.9	8.1	14.0	23.5	32.6	35.3	29.1
Atlantic and Quebec	0.0	2.4	3.0	5.3	7.6	12.9	5.8	10.3	16.6	27.1	29.7	22.4
Ontario	0.0	3.2	3.5	6.5	9.5	17.0	7.9	16.1	25.8	33.3	37.0	31.7
Prairies	0.0	2.0	2.3	4.1	7.9	16.7	10.0	15.7	29.5	39.0	40.6	32.9
British Columbia and Territories	0.0	5.9	6.7	11.7	12.5	20.5	3.8	16.8	25.4	32.4	35.6	32.8

Region/Province	kWh/yr											
	200–399.9						400–499.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	27.4	31.4	27.8	32.4	34.4	44.4	2.5	3.4	11.5	26.3	21.5	10.5
Atlantic and Quebec	21.9	29.1	27.7	34.0	36.1	50.9	1.5	3.0	15.0	31.8	26.6	13.5
Ontario	29.0	33.2	28.8	31.9	33.3	41.6	3.9	4.3	10.6	24.8	20.2	9.5
Prairies	25.9	32.4	25.4	31.3	33.1	41.5	2.2	2.9	8.8	23.3	18.4	8.9
British Columbia and Territories	31.8	30.3	30.8	31.9	35.8	39.3	3.2	2.8	8.2	19.9	16.1	7.5

Region/Province	kWh/yr											
	500–599.9						600–999.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	16.6	28.3	19.8	0.3	0.0	0.0	45.2	20.1	14.2	2.5	0.0	0.2
Atlantic and Quebec	19.9	35.3	22.3	0.2	0.0	0.0	50.9	19.9	15.5	1.8	0.0	0.3
Ontario	16.5	23.5	17.9	0.3	0.0	0.0	42.8	19.7	13.3	3.2	0.1	0.2
Prairies	16.5	28.1	22.0	0.4	0.0	0.0	45.4	18.9	12.0	1.9	0.0	0.1
British Columbia and Territories	11.0	17.9	9.9	0.3	0.0	0.0	50.2	26.4	19.0	3.7	0.0	0.0

Due to rounding, the numbers may not add up to 100.

Table A.40 Distribution of clothes washers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006 (%)	2007 (%)	2008	2009	2004	2005	2006 (%)	2007 (%)	2008	2009
Canada	5.8	5.7	5.7	5.8	5.9	5.5	94.2	94.3	94.3	94.2	94.1	94.5
Atlantic and Quebec	2.0	1.9	1.6	1.6	1.6	1.8	98.0	98.1	98.4	98.4	98.4	98.2
Ontario	6.4	5.6	6.0	5.9	4.9	5.0	93.6	94.4	94.0	94.1	95.1	95.0
Prairies	8.5	8.1	7.9	7.8	8.4	7.6	91.5	91.9	92.1	92.2	91.6	92.4
British Columbia and Territories	18.5	16.7	15.6	15.4	18.9	14.0	81.5	83.3	84.4	84.6	81.1	86.0

Due to rounding, the numbers may not add up to 100.

Table A.41 Average annual UEC of clothes washers by type, 1990–2009

Model year	Front-loading (kWh/yr)	Top-loading	Total (kWh/yr)
1990	–	–	1218.0
1991	–	–	1197.4
1992	–	–	1175.5
1993	–	–	1094.1
1994	–	–	989.1
1995	–	–	965.9
1996	–	–	948.7
1997	–	–	930.1
1998	–	–	903.3
1999	–	–	859.9
2000	–	–	838.3
2001	287.0	904.7	810.1
2002	300.6	871.1	779.2
2003	274.8	826.9	708.4
2004	258.4	702.3	572.9
2005	218.8	608.8	443.6
2006	202.7	555.0	389.6
2007	183.9	415.1	287.2
2008	179.4	387.2	261.5
2009	172.0	331.9	233.8

Table A.42 Average annual UEC of clothes washers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	(kWh/yr)						(kWh/yr)					
Canada	653.0	529.9	499.9	319.5	297.1	270.5	568.0	438.4	382.9	285.2	259.2	231.6
Atlantic and Quebec	651.1	513.7	526.0	368.5	312.9	303.0	629.0	469.8	415.7	302.0	279.9	254.2
Ontario	641.0	510.4	475.6	321.6	306.7	272.1	550.7	420.7	369.1	281.3	251.3	223.5
Prairies	706.3	588.9	550.5	340.6	317.3	287.4	556.0	419.1	362.3	272.6	248.1	219.7
British Columbia and Territories	590.7	475.6	449.8	261.7	256.5	230.8	585.3	428.3	352.4	268.7	233.5	208.2

Table A.43 Distribution of electric clothes dryers by average annual UEC, 1992–2009

Model year	kWh/yr				
	350–799.9	800–899.9	900–949.9	950–999.9	1000–1249.9
	(%)				
1992	4.4	28.9	37.5	13.6	15.6
1993	4.1	28.9	53.6	0.1	13.2
1994	4.3	24.0	54.6	0.0	17.1
1995	3.2	16.2	68.5	0.8	11.3
1996	4.2	11.8	82.8	1.1	0.2
1997	4.9	12.9	80.7	1.4	0.0
1998	3.2	8.8	87.0	1.0	0.0
1999	2.7	7.2	88.3	1.8	0.0
2000	2.7	7.7	84.6	5.0	0.0
2001	2.3	4.3	87.1	6.3	0.0
2002	2.5	5.2	85.5	6.7	0.0
2003	2.7	10.0	77.0	10.3	0.0
2004	4.0	4.4	75.3	16.3	0.0
2005	6.1	3.2	74.1	16.6	0.0
2006	6.1	2.8	69.8	21.2	0.0
2007	4.9	2.9	67.8	24.4	0.0
2008	4.6	2.2	60.7	32.5	0.0
2009	4.2	1.7	56.1	38.1	0.0

Due to rounding, the numbers may not add up to 100.

Table A.44 Distribution of electric clothes dryers by average annual UEC and region/province, 2004–2009

Region/Province	kWh/yr											
	350–799.9						800–899.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	4.0	6.1	6.1	4.9	4.6	4.2	4.4	3.2	2.8	2.9	2.2	1.7
Atlantic and Quebec	1.8	3.7	3.9	3.0	3.4	2.4	3.6	2.6	2.0	2.1	3.2	2.5
Ontario	5.9	7.9	7.2	5.7	5.4	4.6	6.3	4.7	4.2	4.3	2.9	1.7
Prairies	2.8	4.6	4.9	3.8	3.8	3.5	3.4	2.1	1.9	1.9	1.3	1.0
British Columbia and Territories	9.4	14.8	14.7	12.0	11.0	9.0	5.5	3.3	3.0	3.4	2.2	1.5

Region/Province	kWh/yr											
	900–949.9						950–999.9					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	75.3	74.1	69.8	67.8	60.7	56.1	16.3	16.6	21.2	24.4	32.5	38.1
Atlantic and Quebec	82.1	81.0	79.4	76.3	77.4	73.7	12.4	12.7	14.7	18.6	16.0	21.4
Ontario	69.7	69.9	66.4	64.4	57.2	54.0	18.1	17.5	22.1	25.6	34.5	39.7
Prairies	74.8	72.9	63.2	63.0	57.6	54.0	19.0	20.4	29.9	31.3	37.2	41.6
British Columbia and Territories	65.1	64.6	62.9	63.1	55.3	48.6	19.9	17.4	19.5	21.6	31.4	40.9

Table A.45 Distribution of electric clothes dryers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006 (%)	2007	2008	2009	2004	2005	2006 (%)	2007	2008	2009
Canada	6.3	6.1	5.9	6.3	6.1	5.3	93.7	93.9	94.1	93.7	93.9	94.7
Atlantic and Quebec	2.0	1.9	1.5	1.6	1.6	1.8	98.0	98.1	98.5	98.4	98.4	98.2
Ontario	7.2	6.4	6.4	6.9	5.4	5.0	92.8	93.6	93.6	93.1	94.6	95.0
Prairies	8.9	8.5	8.1	8.2	8.9	7.2	91.1	91.5	91.9	91.8	91.1	92.8
British Columbia and Territories	18.9	17.3	15.4	15.7	18.6	13.8	81.1	82.7	84.6	84.3	81.4	86.2

Due to rounding, the numbers may not add up to 100.

Table A.46 Average annual UEC of electric clothes dryers, 1992–2009

Model year	kWh/yr
1992	983.3
1993	928.5
1994	910.4
1995	909.1
1996	887.4
1997	887.3
1998	900.2
1999	907.5
2000	909.8
2001	916.3
2002	915.6
2003	914.2
2004	911.9
2005	903.8
2006	904.6
2007	912.1
2008	916.0
2009	921.4

Table A.47 Average annual UEC of electric clothes dryers by channel and region/province, 2004–2009

Region/Province	Builder						Retail					
	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
Canada	843.1	832.2	821.4	838.2	842.5	876.7	916.5	908.5	909.7	917.0	920.8	876.7
Atlantic and Quebec	836.2	827.3	868.6	883.9	851.4	906.8	924.1	917.0	915.6	920.3	924.7	926.9
Ontario	817.1	796.4	803.1	829.2	842.7	893.4	907.7	900.5	904.9	913.2	916.0	921.0
Prairies	870.1	865.3	853.7	876.1	866.2	905.7	923.6	918.0	918.7	924.0	927.0	927.7
British Columbia and Territories	851.3	838.9	783.7	776.3	807.3	807.3	892.1	865.2	877.2	896.4	902.4	914.1

Table A.48 Electric clothes dryers drum capacity and average energy consumption, 1991–2009

Model year	Average electric clothes dryer drum capacity (litres)	Average energy consumption (kWh/litre)
1991	167.5	6.6
1992	161.6	6.1
1993	162.8	5.7
1994	171.2	5.3
1995	174.6	5.2
1996	172.7	5.1
1997	174.7	5.1
1998	174.0	5.2
1999	171.8	5.3
2000	174.7	5.2
2001	175.3	5.2
2002	176.3	5.2
2003	177.1	5.2
2004	176.8	5.2
2005	175.4	5.2
2006	179.7	5.0
2007	181.4	5.0
2008	182.8	5.0
2009	188.3	4.9

Table A.49 Cumulative energy consumption of all shipped appliances, with and without improvements in energy efficiency, 1992–2009

Model year	Actual energy consumed since 1992	Energy consumed without improvements in energy efficiency since 1992 (P)
1992	6.3	6.3
1993	12.5	13.0
1994	18.6	20.3
1995	24.2	27.1
1996	30.1	34.4
1997	36.6	42.4
1998	43.4	50.8
1999	50.8	60.3
2000	58.2	69.8
2001	65.3	79.4
2002	72.9	90.0
2003	79.9	100.6
2004	86.3	111.5
2005	91.8	122.3
2006	96.2	131.9
2007	100.5	142.2
2008	104.0	151.7
2009	106.8	160.7

Due to rounding, the numbers may not add up.

Table A.50 Energy savings by shipped appliance, 1992–2009

Model year	Refrigerators	Freezers	Dishwashers	Electric ranges (PJ)	Clothes washers	Electric clothes dryers	Total with retirement factor*
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	0.3	0.0	0.0	0.0	0.1	0.1	0.5
1994	0.8	0.1	0.1	0.0	0.4	0.2	1.7
1995	1.3	0.1	0.4	0.0	0.8	0.3	2.9
1996	1.9	0.2	0.7	0.0	1.1	0.4	4.3
1997	2.4	0.2	1.1	0.0	1.6	0.5	5.8
1998	3.0	0.3	1.4	0.0	2.1	0.6	7.5
1999	3.7	0.3	1.8	0.1	2.7	0.8	9.5
2000	4.5	0.4	2.3	0.1	3.4	0.9	11.6
2001	5.5	0.5	2.7	0.1	4.3	1.0	14.0
2002	6.7	0.5	3.3	0.2	5.2	1.1	17.1
2003	8.1	0.6	4.0	0.3	6.3	1.3	20.7
2004	9.6	0.7	5.0	0.7	7.8	1.4	25.2
2005	11.1	0.7	6.0	1.2	9.8	1.6	30.5
2006	12.5	0.8	7.1	1.7	11.8	1.8	35.7
2007	13.9	0.9	8.2	2.4	14.3	2.0	41.7
2008	15.3	0.9	9.3	3.1	16.9	2.1	47.7
2009	17.1	1.0	10.3	3.8	19.5	2.2	54.0

* Because 1992 was the baseline year used in the calculations, a retirement function was included to take into account the aging of appliances, based on the life expectancies set out in the EnerGuide Appliance Directory 2009. This retirement function is explained further in the previous report, Appendix A of *Energy Consumption of Major Household Appliances Shipped in Canada, Trends for 1990–2008* at oee.nrcan.gc.ca/publications/statistics/cama10/appendixa.cfm.

Due to rounding, the numbers may not add up.

Definitions of Refrigerator and Freezer Types

REFRIGERATOR	In 2009, refrigerators were grouped under the following main categories: ²⁰
Refrigerators without automatic defrost	<ul style="list-style-type: none"> • Type 1 – Refrigerators and refrigerator-freezers with semi-automatic or manual defrost • Type 2 – Refrigerator-freezers with partial automatic defrost. (Partial automatic defrost is a system in which only the refrigerator portion of the appliance defrosts automatically. The freezer compartment must be defrosted manually.)
Refrigerators with automatic defrost	<ul style="list-style-type: none"> • Type 3 – Refrigerator-freezers with automatic defrost, with top-mounted freezer, without through-the-door ice service and all-refrigerators (with no freezer) with automatic defrost • Type 4 – Refrigerator-freezers with automatic defrost, with side-mounted freezer, without through-the-door ice service • Type 5 – Refrigerator-freezers with automatic defrost, with bottom-mounted freezer, without through-the-door ice service • Type 5A – Refrigerator-freezers with automatic defrost, with bottom-mounted freezer, with through-the-door ice service • Type 6 – Refrigerator-freezers with automatic defrost, with top-mounted freezer and through-the-door ice service • Type 7 – Refrigerator-freezers with automatic defrost, with side-mounted freezer and through-the-door ice service
Refrigerators – compact (those with compartment volumes of less than 219.5 litres [7.75 cubic feet] and overall heights of less than 91.4 centimetres [36 inches])	<ul style="list-style-type: none"> • Type 11 – Compact refrigerators and refrigerator-freezers with semi-automatic or manual defrost • Type 12 – Compact refrigerators and refrigerator-freezers with partial automatic defrost • Type 13 – Compact refrigerator-freezers with automatic defrost and with top-mounted freezer as well as compact all-refrigerators (with no freezer) with automatic defrost • Type 14 – Compact refrigerator-freezers with automatic defrost and side-mounted freezer • Type 15 – Compact refrigerator-freezers with automatic defrost and bottom-mounted freezer

²⁰ Natural Resources Canada, 2009 *EnerGuide Appliance Directory*, p. 36.

FREEZER	In 2009, freezers were typically built as either upright models or chest models and grouped into the following types: ²¹
Freezers – upright	<ul style="list-style-type: none"> • Type 8 – Upright with manual defrost • Type 9 – Upright with automatic defrost
Freezers – chest	<ul style="list-style-type: none"> • Type 10 – All chest freezers and all other freezers (not defined as Type 8, Type 9 or Type 10A) • Type 10A – All chest freezers with automatic defrost
Freezers – compact (those with compartment volumes of less than 219.5 litres [7.75 cubic feet] and overall heights of less than 91.4 centimetres [36 inches])	<ul style="list-style-type: none"> • Type 16 – Compact upright with manual defrost • Type 17 – Compact upright with automatic defrost • Type 18 – Compact chest and all other compact freezers (not defined as Type 16 or Type 17)

²¹ Natural Resources Canada, 2009 *EnerGuide Appliance Directory*, p. 143.

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